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

March 2020

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LIST OF ABBREVIATIONS

AP	Arabian Peninsula
AU-IBAR	African Union Inter-African Bureau for Animal Resources
BESST	Better Enforcement of Standards for Safer Trade
CBPP	Contagious Bovine Pleuropneumonia
CCPP	Contagious Caprine Pleuropneumonia
COMESA	Common Market for Eastern and Southern Africa
DANIDA	Danish International Development Agency
DVS	Department of Veterinary Services
EAC	East African Community
EC	European Commission
EHS	Export Health Certificate
ESCAS	Exporter Supply Chain Assurance Scheme
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot and Mouth Disease
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HoA	Horn of Africa
HS	Harmonized System
ICPALD	Intergovernmental Authority for Development Centre for Pastoral Areas and Livestock Development
IFPRI	International Food Policy Research Institute
IGAD	Intergovernmental Authority for Development
ILRI	International Livestock Research Institute
KLMC	Kenya Livestock Marketing Council
LTMSK	Livestock Traders and Marketing Society of Kenya
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
NEALCO	North Eastern Africa Livestock Council
OIE	World Organisation for Animal Health
P-IMA	Prioritizing Sanitary and Phytosanitary Investments for Market Access
PPR	Peste des Petits Ruminants
PVS	Performance of Veterinary Services
RVF	Rift Valley fever
SLCCIA	Somaliland Chamber of Commerce Industry and Agriculture
SOLICEP	Somalia Livestock Certification Project
SPS	Sanitary and Phytosanitary
SSI	Semi-Structured Interviews
STDF	Standards and Trade Development Facility
TAD	Transboundary Animal Disease
TI	Technical Item
TLU	Tropical Livestock Unit
UAE	United Arab Emirates
UN	United Nations
USAID	United States Agency for International Development
VS	Veterinary Services
WAHIS	World Animal Health Information System
WTO	World Trade Organization

Photo Z. Sewunet/ILRI

INTRODUCTION

Trade in livestock and livestock products can bring great benefits but also substantial risks to animal and human health. The Horn of Africa (HoA) region is rich in livestock, and livestock exports are one of its economic success stories. Annual exports from the HoA and neighbouring countries are estimated at close to US$ 1 billion. The destination market is mainly the Arabian Peninsula (AP) and is heavily concentrated during the annual Hajj 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 (TADs) and adhering to sanitary and phytosanitary (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 Organization for Animal Health (OIE), answers that call and also aligns with important initiatives including the African Continental Free Trade Area, Comprehensive African Agricultural Development Program, the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, and the Livestock Development Strategy for Africa.

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 in the HoA and the AP. 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 OIE code sets out legitimate SPS measures and is recognised by the WTO as the 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 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 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 intermediaries, then kept for a quarantine period – mainly in AP-owned facilities with in-house laboratories and veterinary staff (private veterinarians operate the facilities; government veterinarians 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 concerns 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, and 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 country 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) these previously mentioned issues contribute to a growth in informal and high-risk trade.

From the specific constraints, those dominating the assessment are: 1) lack of traceability, 2) difficulties in implementing 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 and 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 do not yet meet 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, communication 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 actors 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 two regions, acting as a space for dialogue and interactions, and a network for information and knowledge 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 prioritise 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

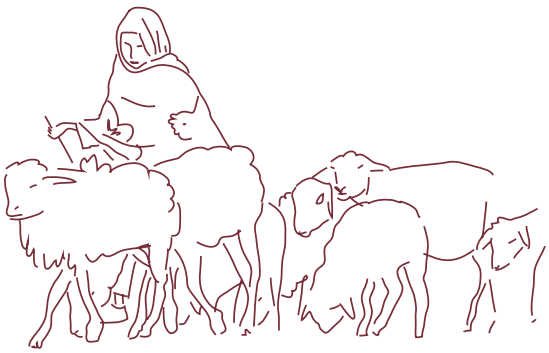
The following interventions were assessed as important but out of scope of a BESST initiative (but worthy of others taking them up):
- Invest in trade infrastructure at different levels (national and regional)
  - Transport
  - Quarantine stations
  - Laboratory infrastructure
- Organize trade fairs
- 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 sectors 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.



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Potential for impact and socio-economic analysis

Trade data from 2014 to 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 show 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$476 million. Extrapolating to other exporting countries suggests losses of several billion US$ 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 emissions 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) and in the longer term (using a computable general equilibrium). 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 gross domestic product (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 of 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 five 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 in November 2016 and lifted during the Hajj season) persists for five 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 policymakers 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 and 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)

The 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 the private sector has been one of the main stumbling blocks in 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 organizations 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 organizations interested in animal welfare and safe food.

Intergovernmental organizations 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 Eastern and Southern Africa (COMESA) and the East African Community (EAC) should also be engaged. The Arab Organization for Agricultural Development (AOAD) has the advantage of encompassing countries from both sides of the Red Sea.

Knowledge organizations generate evidence, propose innovations, provide advice to inform policy, and help with monitoring and evaluation. Key potential partners include ILRI, Food and Agriculture Organization of the United Nations (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 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 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 HoA countries
	Lack of information sharing and weak participation of stakeholders
	Information asymmetries, pricing, market access
	Transaction costs to find new trading partners
Veterinary service 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 1.2. 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-worst" 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 the public and private sectors as well as research and regional and international organizations.

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

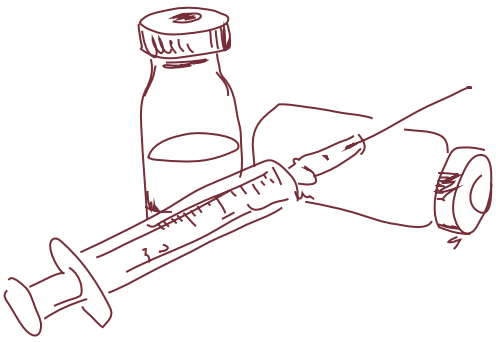
When traded, animals and their products may carry and spread diseases of both animals and humans. Importing countries must be confident that these risks are controlled and require assurance of this by exporting authorities. This is typically done by confirming that the exporting country has adequate control of 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 Organization 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, the importing country 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 export health certificate 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 for information on disease control capacity in the exporting country or 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 requirements

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, or 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 on 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 it has the legal powers to implement these programs and prosecute those not in compliance. It will also need an auditable approach to monitor these programs to show proper implementation.

Applying standards and controls along the food chain requires organized 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 facilities depending upon the specific export process. Sometimes this is done at the animals' farm of origin if capable of meeting biosecurity requirements prescribed 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 licensed 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 EHC, 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 HoA to the AP for hundreds if not thousands of years. Today, millions of livestock are exported each year mainly via approved AP-owned quarantine facilities with in-house laboratories and veterinary staff (Knight-Jones et al., 2014). Both private quarantine veterinarians who operate the facilities and government veterinarians, who authorize activities and certify animals, work at the quarantine stations.

Export procedures

Export health status is assessed at these quarantine stations 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, Rift Valley fever (RVF), 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 Somali Livestock Certification Project (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 sheep and goats 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 BOSASO EXPORT QUARANTINE FACILITY (Source: FAO Somalia 2010. Tests performed: *Brucella* by Rose Bengal Plate Test, viral diseases by indirect and inhibition enzyme-linked immunosorbent assay).

Destination	Saudi Arabia	Oman	UAE	Kuwait	Bahrain	Qatar
Sheep and goats	*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.

RVF: Rift Valley fever; FMD: foot and mouth disease; PPR: peste des petits ruminants

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 with 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 livestock trade and are staffed by both privately employed veterinarians and official veterinarians working for the exporting authorities (e.g. Bosaso 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 HoA (Knight-Jones and Yrjö-Koskinen, 2010a).

1.2.3 Constraints to the application of SPS to safeguard formal 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 HoA needs to be able to compete with major livestock exporting countries such as Australia, which 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 prescribed 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 HoA and the AP and if a disease is the subject of an official control program.

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 Trade Control and Expert 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 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 HoA. Annual exports from the HoA are estimated at close to US$ 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 routes based on clan relations (Umar and Baluch, 2007).

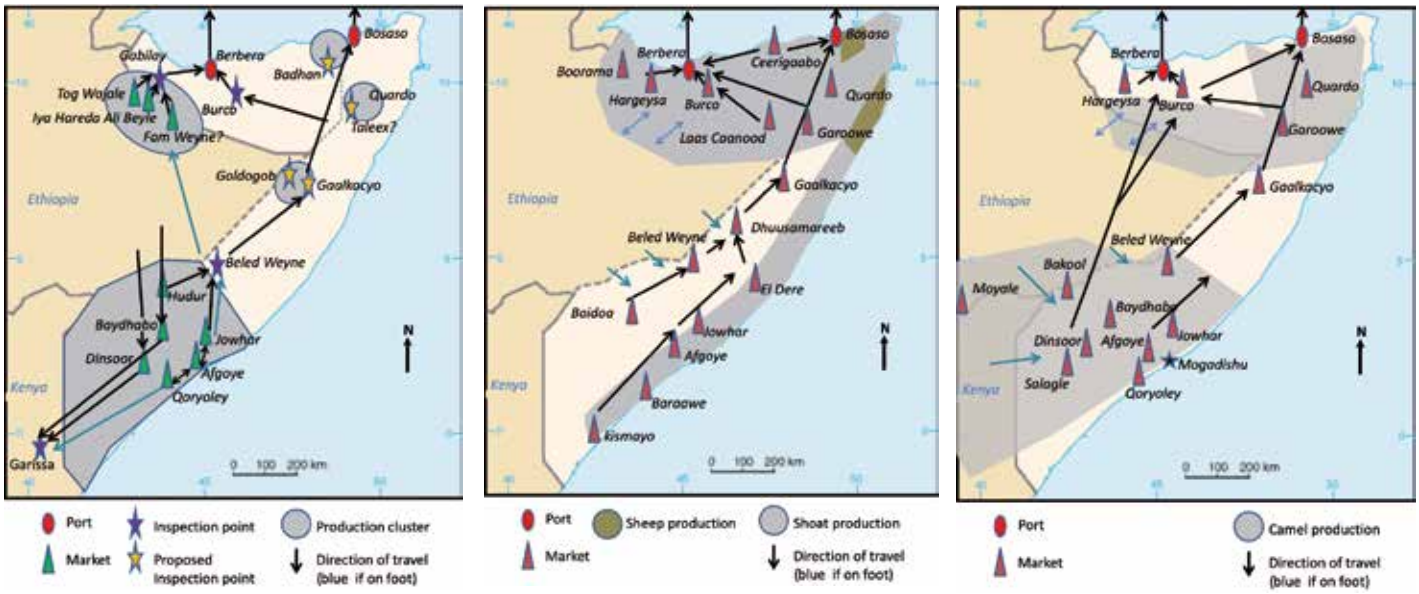
This informal cross-border trade is critical to the formal export business in Somalia where more than 4 million live animals are exported in some years (Little et al., 2015). The destination market is mainly the AP countries and is heavily concentrated during the annual Hajj season. The trade also contributes 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 AP, 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 AP 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 HoA, especially Somalia, has been strongly impacted by import bans due to animal diseases, especially 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-term 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 SPS inspection and thus facilitates both entry of TADs and products harmful to (public) health, and contributes 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 organized 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 et al., 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 weighbridges and establishing holding and quarantine grounds. However, marketing infrastructure is rarely mentioned as a priority by farmers and traders and studies find it is 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 coordination 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 TAD. The eradication of rinderpest is a notable example but there are also initiatives to better manage FMD and peste des petits ruminants (PPR).

Another strategy is for authorities to promote trade of less risky products. Informal export of frozen carcasses 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 HoA and the AP.

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 AP region
- Challenges to accessing export markets as perceived by member countries in the 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 AP, 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 or lengthy	0
OIE standards and recommendations not well known or understood	0
Political or commercial considerations	0

A similar but more specific question asked countries to identify the challenges they 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 AP 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 or does not provide the information that is needed.	80
Inadequate human resources in 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. AP 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 or 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 or 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 AP 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 sanitary situation in 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 or 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 HoA 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 reported a high need for training across a broad range of subjects. However, training related to conventional trade was especially prioritized. A range of training modalities were 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 of America and Australia) as a type of benchmarking (hereafter called "top exporters").

Consistency with SPS Agreement

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 said staff responsible for setting sanitary measures received training on SPS, only 20% of AP and 20% of HoA countries reported that staff received training.

Factors considered when setting sanitary standards for imports

Compared to top exporters, countries in the HoA and AP took 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	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 or veterinary authority had 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 governments	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 of OIE disease 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 disease 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. 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 organizational 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	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 aquatic animal health services	0	0	25

Transparency

Notification to the WTO when establishing sanitary measures is commonly practised, 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 12 PVS mission reports from six importing countries (AP) and six 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

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 programs and that stakeholders are given the opportunity to become more involved with developing animal health, veterinary public health and animal welfare programs	4	5
The Department of Veterinary Services (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

The table reports the number of countries receiving these recommendations in PVS reports.

1.5 Stakeholder consultations: Insights into constraints to trade

We interviewed key stakeholders including regulators, private sector, international governmental organizations and non-governmental organizations (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 in Annex 5. 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 of Africa. 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 and Australia predominates 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 advantages of HoA live animals relative to competition were their freshness (because slaughtered in AP); perceived natural, extensive rearing system; attractive price to lower middle-class consumers; and profitable trade to intermediaries. The major disadvantages were concern over diseases in Africa; lack of traceability and perception of products as not being of as high quality or as safe as premium products. Poor animal welfare was noted by several interviewees but not seen as a major current concern of consumers.

1.5.2 Regulations, standards and enforcement issues

Several stakeholders (international organizations 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 the public and private sectors, with some private sector stakeholders and international organizations 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

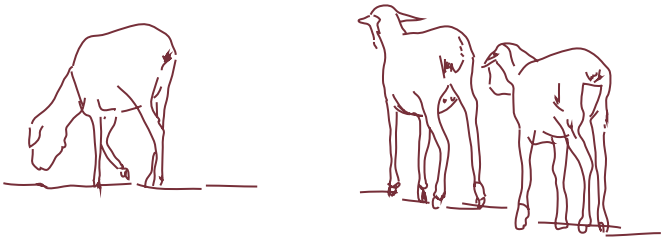
Many stakeholders pointed out challenges to market performance. Although there were some large and well performing quarantine stations, other quarantine stations and markets were inadequate.

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 organized, 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 SOLICEP 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, the United States Department of Agriculture, Allana, Saudi-Emirates Quarantine Station and Djibouti Quarantine Station. 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 of livestock by road, sea and air 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 in the exporting countries should be strengthened to take responsibility for supervision and regulation of 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 TAD control at the regional level should be strengthened (veterinary authorities, regional and international organizations)	Lack of harmonisation of regional disease control policy (HoA and AP)
Need to develop a protocol to harmonise the systems before, during and after importation 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 and exporting countries (AP)
The participants recommended holding 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 to 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 and others were not under the control of state veterinary services but could affect their ability to support trade. Thirteen attributes thought to be constraints to the export of livestock were identified, 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 four attributes. 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 was 48 (12 x 4). The most important attributes affecting livestock exports were "identification and traceability", "compliance with legislation and regulations", "animal disease" and "epidemiological surveillance" (ranked first to fourth, respectively).

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 HoA and the AP. 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 or input services (feed, animal health, artificial insemination services)
	Weak market access (brokers) and 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 four 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 veterinary 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 burden	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 service 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 FIVE 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 service 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

	Total	AP	HoA	AP+HoA
Veterinary service 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

Table shows combined number of times a constraint was identified in the five evidence streams, grouped by constraint cluster and region.

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 focused 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 annexes and they are addressed in workstream 2.

1.8 References

Catley, A., Lind, J., Scoones, I., Lind, J., and Scoones, I. (2013). Development at the margins: pastoralism in the Horn of Africa, 27–52. https://doi.org/10.4324/9780203105979-9

Desta, S. W., Behan, A., Sebsibe, A., and Guerne Bleich, E. (2011). *Assessment of Cross Border Informal Livestock Trade in Somali Region, Main Report. FAO Regional Initiative in Support to Vulnerable Pastoralists and Agro-Pastoralists in the Horn of Africa, Food and Agricultural Organization of the United Nations. Unpubli.*

Grace, D. (2014). The business case for One Health. *Onderstepoort J Vet Res, 81*(2), E1-6. https://doi.org/10.4102/ojvr.v81i2.725

Kahn, S. (2018). *Implementation of OIE standards by Member Countries: state of play and specific capacity building needs.*

Knight-Jones, T. J. D., Njeumi, F., Elsawalhy, A., Wabacha, J., and Rushton, J. (2014). Risk assessment and cost-effectiveness of animal health certification methods for livestock export in Somalia. *Prev Vet Med, 113*(4), 469–483. https://doi.org/10.1016/j.prevetmed.2014.01.003

Knight-Jones, T. J. D., and Yrjö-Koskinen, A. (2010a). Economic and financial feasibility of animal health certification models suitable for pastoral systems in the Somali ecosystem - A report from Addis Ababa workshop 14th-16th September 2010.

Knight-Jones, T. J. D., and Yrjö-Koskinen, A. (2010b). Economic and financial feasibility of animal health certification models suitable for pastoral systems in the Somali ecosystem - Workshop, Addis Ababa, 26-29th Oct, 2010.

Koroma, S., Nimarkoh, J., You, N., Ogalo, V., and Owino, B. (2017). *Formalization of informal trade in Africa: Trends, experiences and socio-economic impacts.* Accra, Ghana. https://doi.org/http://www.fao.org/3/a-i7101e.pdf

Little, P. D., Tiki, W., and Debsu, D. N. (2015). Formal or Informal, Legal or Illegal: Cross-Border Livestock Trade in the Horn of Africa. *Journal of Borderlands Studies, 30*(1), 405–421. https://doi.org/10.1080/08865655.2015.1068206

Meyer, A., Dinh, T. X., Nhu, T. Van, Pham, L. T., Newman, S., Nguyen, T. T. T., ... Vergne, T. (2017). Movement and contact patterns of long-distance free-grazing ducks and avian influenza persistence in Vietnam. *PLOS ONE, 12*(6), e0178241. https://doi.org/10.1371/journal.pone.0178241

Soprano, C. (2014). A Step Toward Formalization: The Charter for Cross-Border Traders [blog article]. The Trade Post: Making International Trade Work for Development. https://doi.org/http://blogs.worldbank.org/trade/

UAE Min of Environment and Water. (2010). United Arab Emirates - Case study presentation SOLICEP Workshop on live animal health certification and trade Dubai –August2-3, 2010.

Umar, A., and Baluch, B. (2007). *Risk Taking for a Living: Trade and Marketing in the Somali Region, Ethiopia*. Addis Ababa, Ethiopia.

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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 HoA and the AP requires that a range of inter-linked interventions be 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.

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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 TADs.

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 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 the Standards and Trade Development Facility (STDF) proved to be a useful tool that has been validated and successfully used in several countries. It focuses 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 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, and 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 environments, 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 and market systems can only be achieved with long term government investments and public-private partnerships. One of the main handicaps to government investments could be that in some HoA countries, treasury officials do not believe that livestock contribute to the national economy. 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 into an export commodity like coffee, tea or horticulture in some HoA countries (Kenya and Ethiopia), perhaps governments would put more efforts into increasing investments in the sector. This is happening to some extent 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 in 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 TADs. 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 HoA are supported or funded mainly by Western donors. With some exceptions, there are very few projects supported by funders or investors from the AP despite obvious benefits for both regions. A promising example is a new initiative (*Regional program for the control of TADs in the Arab and African regions to improve the safety and stability of trade in live animals and animal products*) led by the Arab Organization for Agricultural Development (AOAD) and jointly funded by the Kuwait Fund for Arab Economic Development, Arab Bank for Economic Development in Africa, 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 trade in livestock and meat products, 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:
- Strengthening of institutional mechanisms such as cooperatives or producers' associations that help organize meat and livestock producers
- Improved access to markets and market information, including for informal primary markets

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2.3 Proposed interventions

In this section we propose interventions at one level 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 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-term 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. Besides private and public sector partners, regional economic communities 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 in meat and livestock will only materialize in the mid term. The BESST Forum/Multi-Stakeholder Platform would mainly operate at inter-regional level, but also have a role to play at regional level. For example, it could play an important role in facilitating harmonisation of trade requirements among 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 systems	Trade route (with regional involvement)
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, the public sector, the private sector (e.g. meat boards or councils and other similar institutions) and development agencies are needed. Strong involvement of regional economic communities 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	Level of implementation
Poor private sector capacity in trade regulations; poor understanding of the SPS Agreement, the use of risk analysis and animal welfare; limited understanding of 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, community of practice 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, intermediaries/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 smallholder 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 or strengthen farmer/producer associations or 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 or strengthening of national and regional livestock producer/trader 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 smallholder 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 the 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 plans, 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	Level 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 TADs)*
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/ILRI

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	Level 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 countries	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 sector, as part of investment into the livestock sector, or through a donor, could help and would foster private sector engagement.

Photo: K. Dhanji/ILRI

2.4 Prioritisation framework for interventions

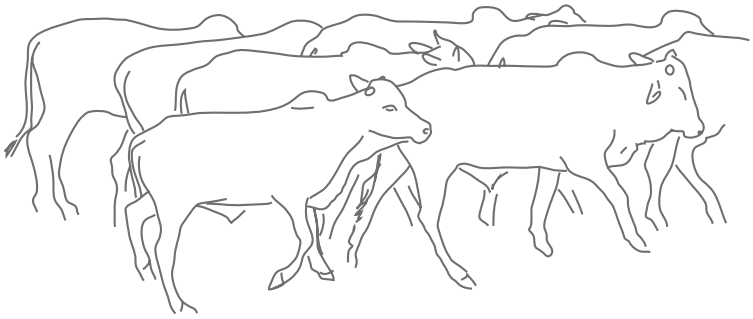
The tables below summarise the scores for the different interventions based on stakeholder consultation. Since we identified interventions for the constraints identified in workstream 1, it is not surprising that most interventions are a 'priority' to be addressed through the BESST initiative. Nevertheless, 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/Multi-Stakeholder Platform
- 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 or 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
- Organizing trade fairs
- Special loans for livestock sector investment



2.4.1 Multi-criteria assessment of interventions

TABLE 2.5. GOVERNANCE, TRUST AND COMMUNICATION CONSTRAINTS

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short-term impact on trade	Long-term impact on 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 million, ** 1-5 million, *** > 5 million)

TABLE 2.6. INTERVENTIONS TO ADDRESS KNOWLEDGE AND INFORMATION CONSTRAINTS

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short-term impact on trade	Long-term impact on 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, community of practice 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 million, ** 1-5 million, *** > 5 million)

TABLE 2.7. INTERVENTIONS TO ADDRESS VETERINARY SERVICES PERFORMANCE CONSTRAINTS

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short-term impact on trade	Long-term impact on trade	Domestic spillover	Social impact	Prioritised
Improve capacity, training, mini-labs, 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 training 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 million, ** 1-5 million, *** > 5 million)

TABLE 2.8. INTERVENTIONS TO ADDRESS SECTOR WEAKNESSES

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short-term impact on trade	Long-term impact on 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 million, ** 1-5 million, *** > 5 million)

Photo B. Wieland/ILRI

WORKSTREAM 3

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

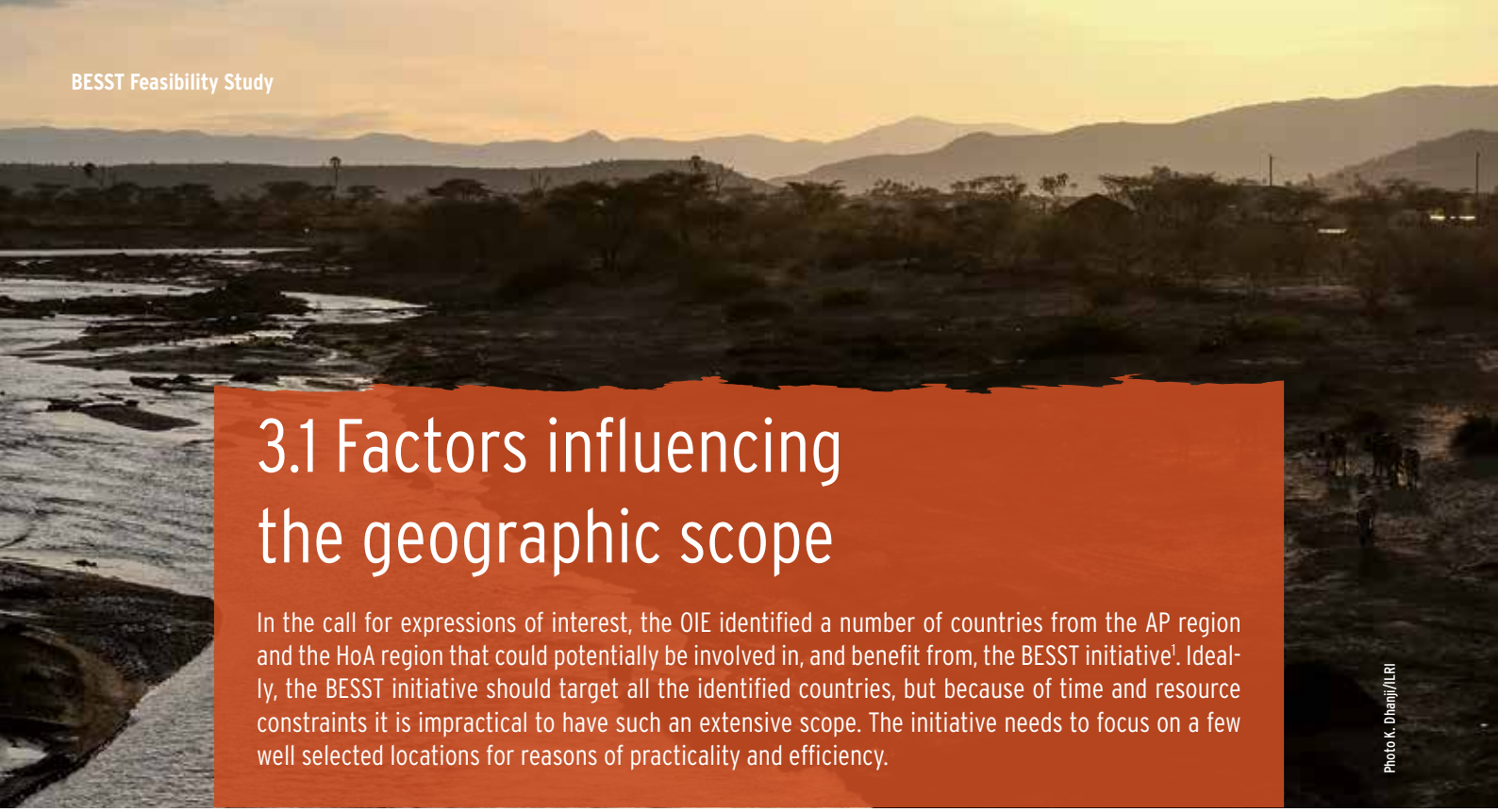


Photo K. Dhanji/LRI

3.1 Factors influencing the geographic scope

In the call for expressions of interest, the OIE identified a number of countries from the AP region and the HoA region that could potentially be involved in, and benefit from, the BESST initiative[1]. Ideally, the BESST initiative should target all the identified countries, but because of 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.

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, 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 also exports 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-the-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 sheep and goats daily and to pack 75 tonnes of halal meat products for daily export. The company exports sheep and goat carcasses, fresh chilled and frozen beef, sheep and goat meat and offal, and fresh chilled vacuum-packed beef, sheep and goat meat to more than 10 countries (mainly Gulf countries: UAE, Saudi Arabia, Oman, Bahrain, Kuwait and Qatar). The Akseker Ethiopia Casing PLC was bought by Allana Group from a Turkish company which has made additional investments to comply with international standards. It is a modern abattoir offering the same service as Frigorifico Boran Foods PLC but with a lower capacity (2,000 to 4,000 sheep and goats slaughtered daily and 40 to 100 head of cattle slaughtered on request). In Kenya, companies that export meat include the Kenya Meat Commission, Farmer's Choice and Quality Meat Packers and the export markets include 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 and Bosaso), livestock exports from the HoA largely shifted to Djibouti with foreign investments being made in the quarantine stations there. With the recent improvement of 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 AP the identified countries are Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, UAE and Yemen. From the HoA, the identified countries are Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda.

2 / The official figures from Saudi municipalities of slaughtered imported livestock in 2018 were 2.6 million sheep (38% of total slaughtered), 657,000 goats (26%), 123,000 head of cattle (50%) and 72,000 camels (19%) (GASTAT, 2019). In 2016, the value of imports by Saudi Arabia of live animals and animal products was estimated at US$ 5.3 billion (MCI, 2017).

3 / Somaliland livestock exports in 2018 from the port of Berbera to the AP countries were estimated at 1.3 million sheep and goats, 104,000 head of cattle and 787 camels (SLCCIA, 2019). Livestock exports from Sudan in 2016 were estimated at 1.37 million sheep, 175,000 goats and 223,000 camels (CBS, 2019).

Table 3.1. LIVESTOCK IMPORTS (NUMBER OF ANIMALS) BY COUNTRIES IN 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 and 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 in the HoA. Livestock population size and structure vary widely between the countries. Ethiopia and Sudan have by far the highest numbers of livestock (Table 3.2); Ethiopia has the highest cattle population (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 (THOUSANDS) IN COUNTRIES IN THE HOA

Country	Cattle	Camels	Sheep	Goats
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 in the HoA, 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% of the agricultural GDP and 12% of the national GDP (Government of Kenya, 2019). Eighty-six percent of the meat produced in the country originates from pastoral production systems (I-DEV, 2014) located in the arid and semi-arid lands; these cover 60% of the country's land mass and are home to approximately 30% of the human population whose main source of livelihood is livestock production and marketing (Wanyoike et al., 2018). In Somaliland region, the livestock sector employs over 70% of the population, contributes 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 depends 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 contributes 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 HoA 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). In 2018, the Government of Kenya signed agreements with the Government of Djibouti for the export of livestock from Kenya to the AP, transiting through the Damerjog quarantine station close to the port of Djibouti. 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 HoA 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 HoA 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

Of 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 those of the other countries in the region because they are far from the AP 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 300 km) to the Jeddah Islamic Port, which is the main livestock import port in the AP. 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 HoA countries. For instance, the Dubai Port World company 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 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 is constructing the Doraleh multi-purpose container terminal of the Port of Djibouti (New China, 2017) and started construction of the Damerjog livestock seaport and quarantine station in 2014. With a US$ 70 million investment, the Damerjog Livestock port aims to receive 10 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 HoA represent a critical control point in the livestock supply chain to the AP countries in terms of control of animal diseases and assurance that animals shipped are free from highly contagious diseases like FMD 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 or target these locations and 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

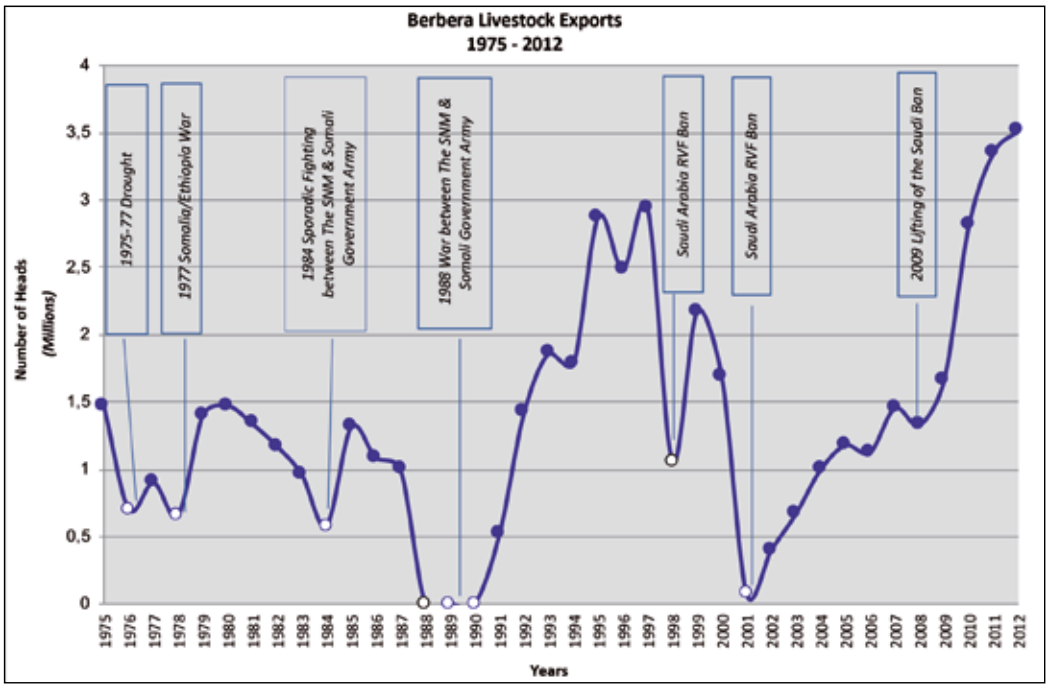
3.1.5 Recent and historical livestock/meat import bans

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, imports of livestock, meat and animal products into the AP 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 led in implementing livestock bans from the HoA countries. Previous bans on Somali livestock imports by Saudi Arabia from February 1998 to May 1999 and by Saudi Arabia, UAE, Yemen, Bahrain, Oman and Qatar in 1999 for 27 months 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 import of livestock from Somaliland from December 2016 (Goobjoognews, 2016) when disease was detected 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 and increase in unemployment (Muhumed and Yonis, 2018). Data on livestock exports from the port of Berbera in 2017 and 2018 indicate an overall number of sheep and goats exported of 1.435 million and 1.390 million respectively, which represent a decrease of 48.9% and 50.5% compared to small ruminant exports in 2016 (around 2.807 million).

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 imports 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.

In October 2019, Saudi Arabia banned livestock imports from Sudan and Djibouti over RVF outbreaks. The previous month, the Government of Sudan informed OIE about RVF outbreaks in a few regions. Collaboration among the Government of Sudan, Saudi Arabia and the GCC 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 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. Importing country concerns are typically over the risk of importing diseases that could cause human mortality and morbidity, such as RVF, as well as diseases that could impact on livestock production and trade of livestock products, such as FMD. 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 and the Middle East respiratory syndrome coronavirus (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 (FMD), ability to infect people (tuberculosis, brucellosis, RVF) 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 and Tanzania
- North and Central Africa: Djibouti, Somalia, Sudan, South Sudan and 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 AP identified 85 priority diseases (FAO, 2007)[5]. Among the most important were brucellosis, FMD, RVF, PPR 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 by or at risk of these diseases (ICPAC and WFP, 2017).

TABLE 3.3. THE MAIN DISEASES AFFECTING LIVE ANIMAL EXPORTS FROM SOMALIA TO AP IDENTIFIED 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

FMD: foot and mouth disease; CBPP: contagious bovine pleuropneumonia; RVF: Rift Valley fever;
CCPP: contagious caprine pleuropneumonia; PPR: peste des petits ruminants
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 and 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 information reported by member countries 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 these key data in the table below using the last year for which data are 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 analyse 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 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 EXPORTING COUNTRIES FOR IMPLEMENTATION 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 livestock sector	Livestock numbers	Small ruminants	√	√	√	√			√		
		Cattle	√	√	√				√	√	
		Camels	√		√	√			√		
	Livestock sector 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 in the countries			√	√	√	√	√	√	√	√	

TABLE 3.6. IDENTIFIED LIVESTOCK AND LIVESTOCK PRODUCT IMPORTING COUNTRIES FOR IMPLEMENTATION 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 livestock sector	Livestock numbers	Small ruminants								
		Cattle								
		Camels								
	Livestock sector 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 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 organizations in both the HoA and AP regions. Box 3.1 provides more details about these issues.

BOX 3.1. THE POLITICAL CLIMATE AND PRIORITIES OF REGIONAL ORGANIZATIONS

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. Regional political and economic organizations such as IGAD, which includes all BESST initiative target countries in the HoA, and the Gulf Cooperation Council, which includes almost all BESST target countries in the AP (except Yemen and Jordan), could play pivotal roles in the success of the BESST initiative. 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 AP 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 have created and are still creating tensions between the Djibouti and the Somali (Somaliland) governments. There are also political tensions between Djibouti and UAE related to the dispute between Dubai Port World and the Djibouti government. The instability in Somalia and the presence of African Union Mission in Somalia troops also create a degree of tension among countries in the region.

Photo K. Dhanji/ILRI

3.2 Geographic scope

As mentioned above, the target geographic area comprises both sides of the Red Sea with potential beneficiaries from the HoA (Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda) and the AP (Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, UAE and Yemen).

The terms of reference from OIE identified four potential levels of implementation of BESST activities:
- national (country-specific);
- regional (HoA or AP);
- inter-regional (HoA and AP); and
- trade route (countries involved in specific route initiatives and enterprises).

The subsections below discuss the advantages and disadvantages of each potential level of implementation of BESST activities. 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

At 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, a number of advantages that make this level of implementation attractive. The focus on specific countries which are the main livestock/meat exporters or importers allows 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 exports (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 national level, we recommend a focus on the main livestock exporting countries from the HoA: Somalia, Sudan and Ethiopia, in addition to Kenya as an emerging meat exporter and Djibouti as a transit/seaport country. On the import side, the focus would be on the main and potential livestock/meat importers: Saudi Arabia, UAE, Oman and Yemen (for Yemen, this depends on the evolving security situation in the country).

3.2.2 Activities implemented at the intra-regional level

This level of implementation takes account of the regional approach of the BESST initiative. If the HoA 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 government officials and aligning their interests. The control of TADs, which is a key SPS challenge, would clearly profit from a regional approach.

If the activities are implemented in the AP 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 HoA region will be very limited.

On the other hand, the regional approach has some limitations. Failure of one region to consider the requirements of the other region would affect 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 could be to implement the initiative in two 5-year phases, with the first phase focusing on one region and the second phase on the other region, in addition to some implementation at country and trade route levels in countries from both regions linked by a livestock trade route.

3.2.3 Activities implemented at inter-regional level

This option considers trade between exporting and importing regions. It allows better understanding of the issues faced by and the requirements of each region and fosters dialogue and collaboration between the two blocs. In the HoA 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 appropriate for trade in meat and livestock products since these are generally exported directly by air or sea from the producing country to the importing 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 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, training 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

This option mirrors current trade patterns and thus seems to be the most realistic and appropriate to achieve the overall goals of the BESST initiative. It considers the specificity of livestock export trade routes 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. In the HoA region, the approach will require collaboration between the different countries involved in the same livestock export trade route. In the AP region, 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 exports of meat and other livestock products. It requires a high degree of collaboration and agreement between the countries involved in the same trade route. It also requires a change in mindset of the governing authorities from being competitors to becoming allies. One major challenge is that regional organizations, 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 above question does not have a simple, direct answer as the previous subsections show that all levels of implementation of the BESST initiative have advantages, disadvantages and related risks (Table 3.7).

TABLE 3.7. MATRIX SUMMARIZING THE ADVANTAGES AND DISADVANTAGES OF EACH LEVEL OF IMPLEMENTATION

Advantages	Disadvantages	Feasibility or risks	Countries
	NATIONAL		
- Focuses on specific countries that import or export livestock and/or meat - Enough resources to implement activities instead of spreading them thinly - Good starting point and showcase for a possible first phase (five years), followed by a second phase of five 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 country of origin of live animals, thus "ignoring" potential upstream animal health and other issues - Loses the regional dimension and the inter-country collaboration which is needed especially for the HoA countries - Less impact at 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 their exports - Terrorism, insecurity and/or political instability in specific target countries could highly affect implementation	- Somalia, Sudan, Ethiopia, Kenya, Djibouti, Eritrea - Oman, Saudi Arabia, UAE, Yemen
	INTRA-REGIONAL		
- Improved collaboration among countries in the respective regions - A first five-year phase could focus on one region and a second five-year phase on the other region - For countries in the HoA, it will allow for a united response to a regional ban on livestock products - Considers informal cross-border trade - Matches scope of existing regional institutions	- Focusing on only one region could limit the desired impacts of the initiative - Not applicable for meat trade - Ignores investments by private companies in the non-focus region - Low level of collaboration between the two regions	- Political issues and tensions between countries from the same region could hinder the implementation of the activities - Competition between countries from the same region (mainly HoA) might impede smooth implementation - Proposed activities in one region might be of low interest to, or have low impact in, the other region	- Djibouti, Ethiopia, Eritrea, Kenya, Somalia, Sudan - Oman, Saudi Arabia, UAE, Yemen

TABLE 3.7. (CONT.) MATRIX SUMMARIZING THE ADVANTAGES AND DISADVANTAGES OF EACH LEVEL OF IMPLEMENTATION

Advantages	Disadvantages	Feasibility or risks	Countries
	INTER-REGIONAL		
- Takes account of both regions - Fosters collaboration among countries in each region and between the two blocs - Considers informal cross-border trade - Within scope of existing regional institutions	- Needs significant financial resources - Building consensus among countries is needed and requires time - Probably not applicable for meat trade	- Political issues and tensions between countries in the same region could hinder implementation - Competition between countries in 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, Bahrain
	TRADE 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 countries along the trade route - Subject to the political climate of the involved countries - Competition between countries in 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 (two to three countries per trade route and two to three 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

Photo: K. Dhanji/ILRI

3.3 References

Arab News (2019). Saudi Arabia bans livestock imports from Sudan and Djibouti over RVF fears. https://www.arabnews.com/node/1570441/saudi-arabia

CBS: Central Bureau of Statistics – Sudan (2019). Table 1: Summary of exports. http://cbs.gov.sd//resources/uploads/files/%D9%85%D9%84%D8%AE%D8%B5%20%D8%B3%D9%84%D8%B9%20%D8%A7%D9%84%D8%B5%D8%A7%D8%AF%D8%B1%D8%A7%D8%AA%20%D9%88%D8%A7%D9%84%D9%88%D8%A7%D8%B1%D8%AF%D8%A7%D8%AA%202000%20-%202016%D9%85(2).pdf

Costagli R., Godiah L.M., Wanyoike F. (2017). A rapid appraisal of the Yemeni end-market for Somali livestock exporters. ILRI Discussion Paper 34. Nairobi, Kenya: ILRI. https://hdl.handle.net/10568/80374

East African Business Week (2019). Bureau to regulate livestock export from Somaliland to UAE. https://www.busiweek.com/bureau-to-regulate-livestock-export-from-somaliland-to-uae/

GASTAT: General Authority of Statistics – Kingdom of Saudi Arabia (2019). Livestock Slaughtered Under the Supervision of the Municipalities by Region and Type. https://www.stats.gov.sa/en/6447

Gebre-Mariam S., Amare S., Baker D., Solomon A., Davies R. (2013). Study of the Ethiopian live cattle and beef value chain. ILRI Discussion Paper 23. Nairobi: International Livestock Research Institute. https://hdl.handle.net/10568/32832

Goobjoognews (2016). Saudi Arabia bans Somali livestock again. https://goobjoog.com/english/saudi-arabia-bans-somali-livestock/

ICPAC and WFP (2017). Atlas of Climate Risk and Food Security in the Greater Horn of Africa Region. ICPAC and WFP http://www.icpac.net/wp-content/uploads/Atlas_2017%20May_A3%20REGIONAL.pdf

ICPALD: IGAD Centre for Pastoral Areas and Livestock Development (2013). Identification and mapping of key cross-border livestock routes and markets, services and priority transboundary animal diseases including zoonotics for regional and international trade. Regional Integration Support Program (RISP II) Continuation. https://icpald.org/wp-content/uploads/2016/01/Cross-border-livestock-routes-and-markets-TADs-and-zoonoses-study-7.pdf

ICPALD: IGAD Centre for Pastoral Areas and Livestock Development (2018). Promoting live animal and meat export from the IGAD region; awareness materials on import requirements for MENA market.

Kahn S. (2018). Implementation of OIE standards by OIE Member Countries: state of play and specific capacity building needs.

Kenya Government (2019). Draft national livestock policy. Government printer.

Little D.P., Tiki W., Negassa D.D. (2015). Formal or informal, legal or illegal: The ambiguous nature of cross-border livestock trade in the Horn of Africa. *Journal of Borderlands Studies*, 1-17.

Mahmoud H. A. (2010). Livestock trade in the Kenyan, Somali and Ethiopian borderlands. Chatham House Briefing Paper, AFP BP 2010/02. London: Chatham House.

Majid N. (2010). Livestock trade in the Djibouti, Somali and Ethiopian borderlands. Chatham House Briefing Paper, AFP BP 2010/01. London: Chatham House.

MCI: Ministry of Commerce and Investment – Saudi Arabia (2017). Annual Report 2017 (in Arabic). https://mci.gov.sa/ar/About/Statistics/Statistics_PDF/report-2017.pdf

Muhumed M.M., Yonis A.M. (2018). The future of Somaliland livestock exports: Examining the sustainability of livestock trade. *International Journal of Management, Accounting and Economics*, 5(8): 678-692.

New China (2017). Djibouti's Doraleh Port officially opens. http://www.xinhuanet.com/english/2017-05/24/c_136312120.htm

NPC: National Planning Commission (2016). Growth and Transformation Plan II (GTP II) (2015/16-2019/20) Volume I: Main Text. Federal Democratic Republic of Ethiopia. http://www.greengrowthknowledge.org/national-documents/ethiopia-growth-and-transformation-plan-ii-gtp-ii

OIE: World Organization for Animal Health (2019). Better Enforcement of Standards for Better Trade (BESST) concept note. Unpublished.

Port de Djibouti (2018). http://www.portdedjibouti.com/damerjog-livestock-port/

SLCCIA: Somaliland Chamber of Commerce, Industry and Agriculture (2019). Yearly Report for the Period 01.01.2018 -31.12.2018. http://www.somalilandchamber.com/?wpfb_dl=259

SNDP 2016. Somalia National Development Plan 2017-2019.

The Guardian (2020). 'It was painful to declare it': outbreak of animal disease was blow to Sudan exports. https://www.theguardian.com/environment/2020/jan/21/it-was-painful-to-declare-it-outbreak-of-animal-disease-was-blow-to-sudan-exports

USAID (2013). Somali livestock end market study. Partnership for Economic Growth. Paper presented on 2 July 2013, Zen Garden, Nairobi, Kenya.

WAHIS (2018). WAHIS interface http://www.oie.int/animal-health-in-the-world/the-world-animal-health-information-system/data-after-2004-wahis-interface/

Wanyoike F., Njiru N., Kutu A., Chuchu S., Wamwere-Njoroge G., Mtimet N. (2018). Analysis of livestock and fodder value chains in arid and semi-arid lands in Kenya. Nairobi, Kenya: International Livestock Research Institute (ILRI). https://hdl.handle.net/10568/91179

Wanyoike F., Mtimet N., Ndiwa N., Godiah L., Warsame A., Marshall K. (2015). Knowledge and Exploitation of Livestock Grading and Pricing Systems among Men and Women Livestock Producers: The Case of Small Ruminants in Somaliland. ILRI Research Report 36. Nairobi, Kenya: International Livestock Research Institute (ILRI). https://hdl.handle.net/10568/67042

World Maritime News (2018). Construction Starts on DP World Berbera in Somaliland. https://worldmaritimenews.com/archives/262420/construction-starts-on-dp-world-berbera-in-somaliland/

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 of 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 HoA and the AP goes back many centuries. However, in the last decades (mainly from the 1980s) the trade between the two regions has witnessed a number of livestock import 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 (a) in their 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), (b) in their degrees of restrictiveness (the current Saudi Arabia ban on Somali livestock which started in November 2016 is lifted during the Hajj season for around two to three months and then reinstalled again for the rest of the year), (c) in the number of affected/targeted countries (sometimes all HoA countries and sometimes specific countries like Somalia or Sudan), and (d) in the 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 United Nations (UN) Comtrade database (https://comtrade.un.org/), FAOSTAT database (http://www.fao.org/faostat/en/#home), yearly reports on Livestock Marketing Information System of the Somaliland Chamber of Commerce, Industry and Agriculture (SLCCIA) (http://www.somalilandchamber.com/), and the International Food Policy Research Institute (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 was used to analyse 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 dynamics modelling

We used the system dynamics model to analyse 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 system dynamics 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 dynamics modelling 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 system dynamics 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 system dynamics model used in the current case was developed by a project funded by the Danish International Development Agency (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 dynamics modelling platform.

Social accounting matrices

A social accounting matrix 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 social accounting matrix, 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 social accounting matrices are a type of accounting ledger, they must follow the principle of double-entry accounting so that an account's revenues must exactly equal its expenditures (Rich et al., 1997).

A social accounting matrix 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 (or 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.

Social accounting matrices 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 social accounting matrices 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, social accounting matrix multiplier analysis is more suited to providing a snapshot of short-run impacts. By contrast, computable general equilibrium models can analyse 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 computable general equilibrium analysis to look at the impacts of trade bans caused by RVF 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 in 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 organized 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 and 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 are incomplete, it appears that trade values of live animals, particularly cattle, have been declining. For the most recent years 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 over 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% and 79% for live cattle and 61% and 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 exclude 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 exclude imports from Qatar and Kuwait

3 / Data for Yemen in UN Comtrade are only available until 2015. Imports from the HoA are comprised only of live animals, not meat, and with the exception of US$ 700 million 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).

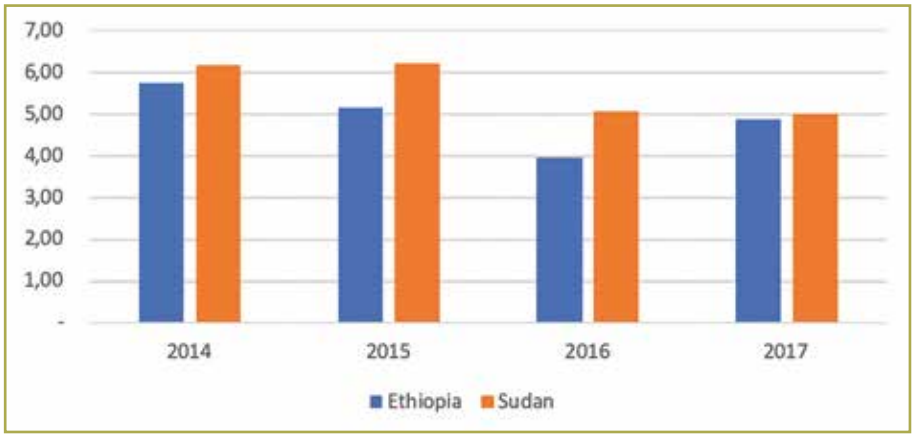
A second interesting trend from the import data is the sharp rise, albeit from a low base and remaining at low level, in imports of chilled beef by GCC countries originating from the HoA. In Table 4.3, despite the inconsistencies in the data for 2017 (lack of reporting by Qatar and Kuwait, the latter 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 fuelled 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 exclude 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 million 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 exclude 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 fuelled by 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 exclude 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 million in 2014 to US$ 1.18 billion 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 that 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 BEEF 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 exclude 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 system dynamics modelling and social accounting matrices. 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 the main constraints to trade in 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 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 sheep or goat, US$ 12.5 per head of 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 camel.
- Losses of port revenues and taxes perceived by governments in importing countries. These losses 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 seized/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 of/destroyed, times their market price (by species).
  · Costs of vessel transport, ports fees (in exporting and importing countries), quarantine fees (exporting country), government taxes (exporting and importing countries), etc.
  · Costs of the diagnostic analyses done and the disposal of the animals
- If the consignment is rejected and returned without seizing the animals/impounding the cargo, the costs will be mainly those related to:
  · Costs of vessel transport (two-way) and/or redirection to another country, ports fees (in exporting and importing countries), quarantine fees (exporting country), government taxes (exporting and importing countries)
  · Costs of the diagnostic analyses done at the importing country

Photo Z. Sewunet/ILRI

4.4.2 Case study 1 - Macroeconomic assessment of selected HoA 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 to perform our analysis.

The analysis in this section provides some insights using a social accounting matrix multiplier analysis for Ethiopia and Sudan, based on social accounting matrices developed by IFPRI. The two social accounting matrices 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 social accounting matrices 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 social accounting matrix analysis can provide some credible insights on the magnitude of prospective impacts from different shocks.

In Table 4.7, we first report selected social accounting matrix 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 10 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 eleventh and ninth, respectively.

The social accounting matrix 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 on household livelihoods based on their socio-economic status. We report these results 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 quintiles see income losses of 1.3%.

TABLE 4.7. SELECTED SOCIAL ACCOUNTING MATRIX MULTIPLIERS FOR LIVESTOCK ACCOUNTS IN ETHIOPIA AND SUDAN

Country (year of social accounting matrix)	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)

*Poor farming households denote the bottom two quintiles of farming households as represented in the Ethiopia social accounting matrix, while in the Sudan social accounting matrix, these are the bottom two quintiles of rural households.

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 social accounting matrix

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 social accounting matrix

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 Sanitary and Phytosanitary Standards–Livestock and Meat Marketing program with funding from the United States Agency for International Development (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, signalling the commitment of the public sector to generate greater value from cattle.

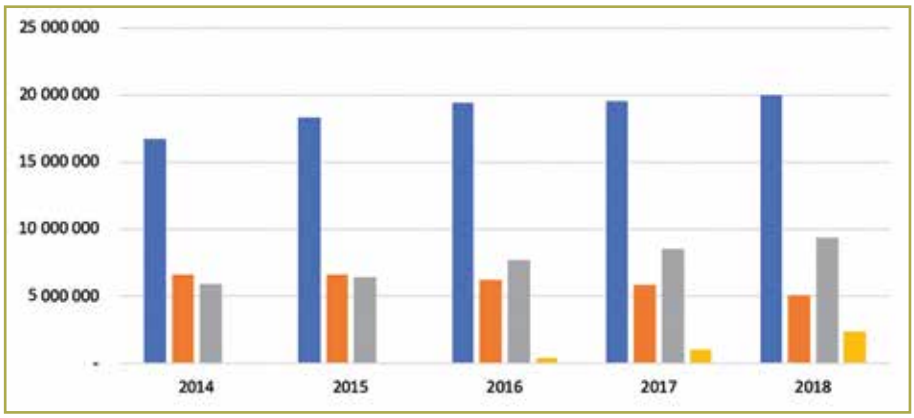
The two-stage system includes a first-stage process of rigorous selection, vaccination, and 21-day quarantine of purchased animals from local markets, followed by their movement to a feedlot in an all-in, all-out cohort system to bring animals to export weight (400 kg) over a 90-day period. The system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

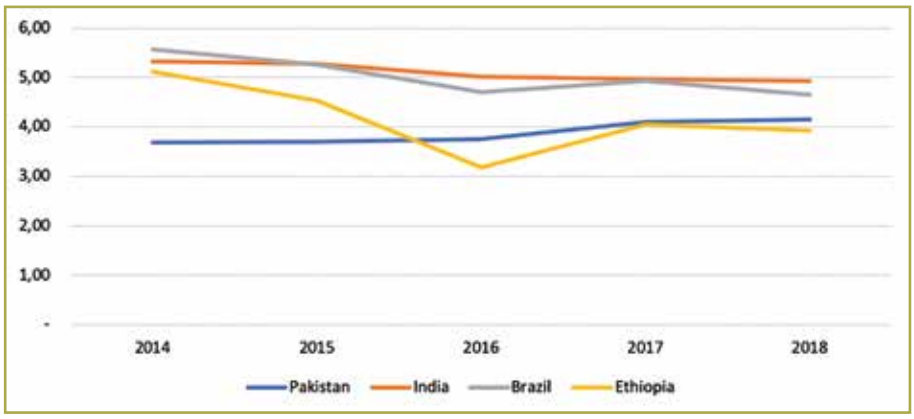
FIGURE 4.2. IMPORT VOLUMES (KG) OF CHILLED BEEF EXPORTS TO UAE FROM SELECTED MARKETS (2014-2018)



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

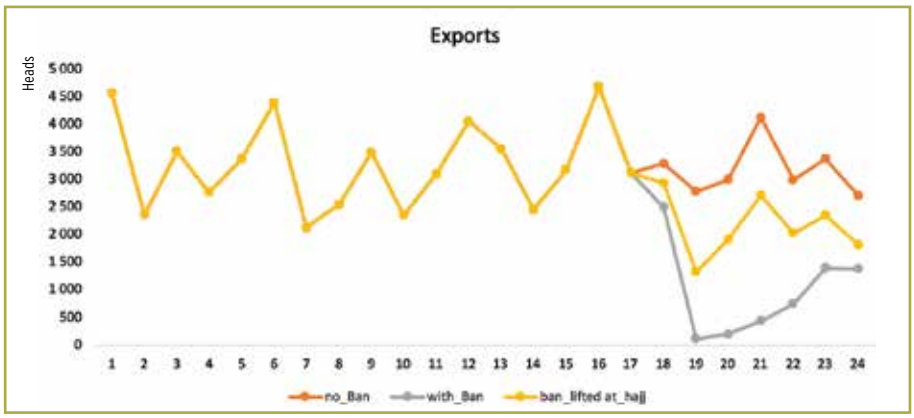
We used system dynamics modelling to estimate the losses occasioned by the ban imposed by Saudi Arabia since November 2016 on livestock imports from Somaliland[5]. A complex set of factors affects the volume of livestock exports from Somaliland including demand in the export countries, supply of export 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 import ban.

In the past, countries in the AP and particularly Saudi Arabia have instituted numerous animal import 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 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 FMD and has now lasted for more than three 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 are 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 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: (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 seventh 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% and 70% of the projected potential during the ban period (19th to 25th years).

5 / The ban covers all livestock species from Somalia (including Somaliland) but because of the availability of precise data from Somaliland, through the 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 IMPORT BAN BY SAUDI ARABIA



The impact of an import ban on levels of income in the small ruminant 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 the small ruminant 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 three years before recovering by about 10% of the potential per annum to reach 70% of the projected potential in the seventh 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 import ban ranged between US$ 96.7 million–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 RUMINANT SECTOR IN SOMALILAND WITH AND WITHOUT IMPORT 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 system dynamics model complements 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 centres, 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 five components are as follows:

- Trust, communication and governance
- Knowledge and information
- Veterinary services 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/catalyse the intervention while additional funding should come from the private sector, the public sector or both. The costs were assessed in US$, and in this initial stage, because of the multiplicity of the potential beneficiary countries implying different currencies and different levels of expected economic growth, we made the decision not to convert to local currencies. The costs were assessed for a period of five years which would correspond to the first phase of BESST. We expect that at the end of the first phase, project implementers, beneficiary countries, the private sector and donors/project funders will review the achievements and outcomes and, if judged a success, plan for the development and implementation of the second phase.

The overall budget for the BESST initiative is around US$ 62.2 million (Table 4.10). The budget includes funds for identified priority activities with high likelihood of success, funds for activities of lower priority but where BESST could play an important role and 'seed funding' that BESST could provide to initiate or catalyse interventions outside of its remit. The last group of interventions should also be funded by the beneficiary governments and the private sector. The 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 allocation 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% of the total budget), while interventions on sector weaknesses represent the highest share of the budget (37%) at around US$ 23 million. Finally, the allocation for the project management component is around US$ 2.4 million (4% of the total budget).

Photo K. Dhanji/ILRI

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

	Cost including contingencies	% of total
A. Trust, communication 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 services performance		
Laboratories and capacities	5,162.5	8.3
Disease-free zones	1,000.0	1.6
SPS training	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 five years.

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" each with 14% of the total budget.

4.5.1 Costs of interventions to address trust, communication and governance

For this 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 120,000 head of cattle in five countries (Djibouti, Ethiopia, Kenya, Somalia and Sudan). Funds allocated to the intervention on formal trade are mainly directed to the construction/rehabilitation of customs border offices and their equipment. The funds allocated for the multi-stakeholder platform will be mainly used to organize 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 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 five countries (Djibouti, Ethiopia, Kenya, Somalia and Sudan) and the costs mainly cover the payment of 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 of the BESST initiative. More details are included in Annex 10, Tables A.10.8 to A.10.13.

4.5.3 Costs of interventions to address veterinary services performance

Stakeholders considered the activities under this component to be of high priority with probabilities of success ranging from medium to high. Around US$ 5 million is allocated to capacity development, infrastructure improvement and equipping of central and regional laboratories. These funds will cover the costs of around five training activities per year and equipment for nine 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 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 high priority by most of the stakeholders we consulted. These interventions are supposed be funded by the private sector and governments. Within the BESST budget, improving animal husbandry and provision of loans to 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 channelled 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 are included in Annex 10, Tables A.10.18 to A.10.23.

4.5.5 Program management

The BESST project will need strong coordination between the different stakeholders involved. Funds allocated to program management will allow the lead organization 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 are included in Annex 10, Table A.10.24.

4.5.6 Monitoring and evaluation

Separate funds for monitoring and evaluation are budgeted for because of the need to monitor the implementation of the project and assess its impact (ex-post assessment) in order to inform project funders, beneficiary countries and other international organizations about the impact of the project and for the development and planning of the second phase. Details 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 the number of countries affected in the HoA and the duration of the ban which may extend to several years.

Tables 4.11 and 4.12 show the estimated benefits from BESST due to avoided losses associated with animal export trade bans in different countries for up to seven years. The estimated losses that would be avoided are based on data on live animal exports from FAO and the SLCCIA together with simulations of impacts of animal export trade bans in Somaliland using the system dynamics model. The level of avoided losses in Somalia is estimated by multiplying the system dynamics derived estimate for Somaliland by a factor of 1.3.

This factor is the average ratio of the number of animals exported from Somalia to the number exported from Somaliland as reported in FAOSTAT and by the SLCCIA for 2009–2016. In turn, the value for Somaliland was calculated by multiplying the system dynamics model-based estimate of the value for small ruminants by 1.54 as the value of exports of small ruminants accounts for 65% of the total value of animal exports in Somaliland. For the other HoA countries, the level of avoided losses was estimated as follows:

$$AL_i = \frac{S_i}{S_{Somalia}} \times AL_{Somalia}$$

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 million to US$ 859 million per year) and Sudan (US$ 293 million to US$ 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 from US$ 668 million to US$ 1.79 billion per year. The potential benefits fall slightly if trade bans are temporarily lifted during the Hajj season. In this scenario, potential benefits in terms of avoided losses range from US$ 253 million to US$ 387 million per year in Somalia, US$ 230 million to US$ 352 million per year in Sudan and US$ 526 million to US$ 805 million per year 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 BAN LASTING FOR UP TO SEVEN YEARS BUT IS TEMPORARILY LIFTED DURING THE 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 with sanitary regulations in livestock markets in the small ruminants' export trade between the Somali region of Ethiopia and Saudi Arabia and other Gulf countries, Nin Pratt et al. (2004) estimated that a working certification scheme would translate to a cost of US$ 5 per small ruminant exported. From 2009 when the 8-year animal export ban by Saudi Arabia was lifted for Somalia, animals for export from all the HoA countries are quarantined 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 Pratt 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 Pratt et al. (2004), and are about US$ 62.2 million over a period of five years (Table 4.10). The investments mainly take the form of setting up and/or strengthening of relevant institutions at national, intra-regional, inter-regional and trade route 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 higher 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 five-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 animals and animal products between the HoA and the AP 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 rejection of consignments or other restrictions, since it completely stops trade for periods varying from months to years. Climate change, characterized by higher occurrence of severe droughts and floods, exacerbates the situation and increases outbreaks of livestock diseases, which, combined with poor infrastructure in the HoA region, low capacity of animal health services, inexistent traceability system and 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 seven years are estimated in billions of United States dollars. The BESST initiative, budgeted at around US$ 62.2 million, which will be implemented over a period of five years in its first phase, and which includes different activities mainly targeting improving certification, traceability and 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, thus notably reducing the losses incurred by all value chain actors involved.

Photo Z. Sewunet/ILRI

4.8 References

Ahmed, Hashim A.; Tebekew, Tewodros; Thurlow, James. 2017. 2010/11 Social Accounting Matrix for Ethiopia: A Nexus Project SAM. Washington, DC: International Food Policy Research Institute (IFPRI).

http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/131505/filename/131720.pdf

FAO (2018). The monetary impact of zoonotic diseases on society: Evidence from three zoonoses in Kenya. FAO

Grace, D., Gilbert, J., Randolph, T. and Kang'ethe, E. (2012) The multiple burdens of zoonotic disease and an ecohealth approach to their assessment. Tropical Animal Health and Production 44(Suppl1): S67-S73.

Holleman, (2002). The Socio-economic Implications of the Livestock Ban in Somaliland. FEWS NET

Jabra, Hassan Ali. 2010. "Foot and Mouth Disease Surveillance in Central and Southern Somalia. FAO/EuFMD Eastern Africa FMD Workshop, Narobi, Kenya, 8th - 12th February 2010."

Jones, B., Rich, K.M., Mariner, J.C., Anderson, J., Jeggo, M., Thevasagayam, S., Cai, Y., Peters, A.R., Roeder, P. 2016. Benefit-cost analysis of a global eradication program for peste des petits ruminants. PLOS One, available online at http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0149982

Knight-Jones, T J D, F Njeumi, A Elsawalhy, J Wabacha, and J Rushton. 2014. "Risk Assessment and Cost-Effectiveness of Animal Health Certification Methods for Livestock Export in Somalia." *Prev Vet Med* 113 (4): 469–83. https://doi.org/S0167-5877(14)00004-X [pii] 10.1016/j.prevetmed.2014.01.003.

McDermott, John J, and S M Arimi. 2002. "Brucellosis in Sub-Saharan Africa: Epidemiology, Control and Impact." *Veterinary Microbiology 90* (December): 111–34. http://www.ncbi.nlm.nih.gov/pubmed/12414138.

Medina, Daniel C. 2007. "Spatial Risk-Analysis of Contagious Caprine Pleuro-Pneumonia in Somalia (2007)." *Methods*. Nairobi.

Negassa A., R. Costagli, G. Matete, M. Jabbar, S. Okuthe, M. Abdulle and A. Omore (2008). Towards Improving Livestock Export Marketing Support Services in the Somali Context: Survey Findings and Implications. International Livestock Research Institute (ILRI). Discussion Paper No. 13

Nin Pratt, A., P. Bonnet, M. Jabbar, S. Ehui, and C. de Haan. 2005. Benefits and costs of compliance of sanitary regulations in livestock markets: The case of Rift Valley fever in the Somali Region of Ethiopia. Nairobi, Kenya: International Livestock Research Institute.

Nin Pratt A., P. Bonnet, M. Jabbar, S. Ehui and C. de Haan, (2014). Benefits and Costs of Compliance of Sanitary Regulations in Livestock Markets: the Case of Rift Valley Fever in Ethiopia. A paper presented at the 7th Annual Conference on Global Economic Analysis, June 17-19, 2004, Washington D.C., U.S.

Orinde (2013). Quantifying the burden of Rift Valley Fever in humans using Disability adjusted life years, Kenya. A thesis submitted in partial fulfillment for the degree of Master of Science in Applied Epidemiology in the Jomo Kenyatta University of Agriculture and Technology

Rich, K.M., Perry, B.D., Kaitibie, S., 2009. Commodity-based trade and market access for developing country livestock products: the case of beef exports from Ethiopia, International Food and Agribusiness Management Review 12 (3), 1-22.

Rich, K.M., Winter-Nelson, A., Nelson, G.C., 1997. Political Feasibility of Structural Adjustment in Africa: An Application of SAM Mixed Multipliers. World Development 25 (12), 2105-2114.

Roeder, P., Rich, K.M., 2010. The global effort to eradicate rinderpest. Chapter 15 in D.J. Spielman and R. Pandya-Lorch, Eds., Proven Successes in Agricultural Development: A Technical Compendium to Millions Fed. (Washington, DC: International Food Policy Research Institute), pp. 407-436.

Sadoulet, E., and De Janvry, A. (1995). Quantitative development policy analysis (Vol. 5). Baltimore: Johns Hopkins University Press.

Siddig, Khalid; Elagra, Samir; Grethe, Harald; and Mubarak, Amel. 2018. A Post-separation Social Accounting Matrix for the Sudan. MENA RP Working Paper 8. Washington, DC and Cairo, Egypt: International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/

Somali Animal Health Services Project (SAHSP). 2008. "Spatial Risk-Analysis of Contagious Bovine Pleuro-Pneumonia in Somalia (2008)." Methods. Nairobi.

Somaliland Central Statistics Department (2018). Statistical release: Gross Domestic Product 2012-2017. Ministry of Planning and National Development http://www.somalilandcsd.org/wp-content/uploads/2018/10/GDP-report-2012_2017.pdf

WHO, 2018. Rift Valley fever fact sheet. WHO https://www.who.int/news-room/fact-sheets/detail/rift-valley-fever

Yassin A. (2018). Somaliland Budget 2018: another Missed Opportunity. Horndiplomat

Photo K. Dhanji/ILRI

WORKSTREAM 5

PARTNERS AND STAKEHOLDERS TO IMPLEMENT AN INITIATIVE TO PROMOTE SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA

Photo K. Dhanji/ILRI

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 intergovernmental support from ICPALD, GCC and AOAD. Technical partners would include ILRI, FAO and AU-IBAR among others.

Involvement of private sector companies and organizations (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; these 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 levels 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 Identification and role of partners

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 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 organizations could belong to more than one group.

5.2.1 Key implementing organizations

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's 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, laboratories 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 compile the same information from the beneficiary countries.

The OIE currently has an Africa regional office in Bamako, a Middle East regional office in Beirut and sub-regional offices 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 which can 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 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 organizations

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 organizations 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 and ICPALD and GCC).

From the AP side, the GCC[1] is a political and economic alliance of six countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE. Apart from Yemen, the GCC therefore involves all countries from the AP 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's roles could include:

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

The AOAD is a specialised Arab organization 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 members 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 TADs in the AP and HoA regions to improve the efficiency of trade in live animals and their products.

From the HoA region, two regional organizations emerge: COMESA and IGAD (the latter more specifically represented by its livestock development centre, ICPALD).

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

- Provide technical assistance to the BESST initiative and backstop the beneficiary member states
- 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 removing barriers to trade between the countries
- Raise additional funding from other donors for the implementation of complementary activities to the BESST initiative.

IGAD comprises eight 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 have immense socioeconomic importance. ICPALD was established in 2012 with the objective of promoting and facilitating sustainable, equitable and gender-, conflict- and environment-responsive development of livestock and complementary livelihoods in arid and semi-arid areas in the IGAD region (ICPALD, 2019). Since its creation, ICPALD has led several livestock projects[4] in the region with some of them having activities directly related to the BESST initiative. For instance, the five-year IGAD-FAO Partnership Program, funded by the Swiss Agency for Development and Cooperation with a budget of US$ 10 million, targeted Ethiopia, Kenya and Somalia with a focus on TADs and cross-border marketing and trade. In addition, a three-year project on improving animal disease surveillance in support of trade in IGAD member states was aimed at improving 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 but is still colloquially known/referred to as GCC.

2 / The COMESA member states in the HoA are Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia and 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

4 / See Section 2.2 and Annex 8 for details of current and past projects in both regions.

Photo K. Dhanji/ILRI

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 of the BESST initiative and backstop the designated ministries of the beneficiary member states
- Oversee and coordinate the different investments and activities implemented through the BESST initiative at the regional level (HoA)
- Harmonise and create synergies between the BESST initiative and the different ongoing livestock and meat projects at the regional level in the HoA to avoid duplication of activities and optimise allocation of resources
- Through ICPALD, provide technical expertise and 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 organizations and platforms

These are the stakeholders that 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 organizations previously mentioned like OIE and ICPALD could also be part of this group of technical partners. In addition, the most relevant ones are listed below.

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 of 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.

Photo K. Dhanji/ILRI

With its presence in the HoA region (two main campuses in Nairobi and Addis Ababa), human capital, advanced laboratories, wide network of institutional partners and contacts with local governments, ILRI[5] will be a key technical partner for BESST.

FAO

FAO is a specialized agency of the United Nations that leads international efforts to defeat hunger. FAO has been involved in various projects related to livestock and/or meat products in both regions. FAO has offices in many BESST beneficiary countries and two sub-regional offices: one in Abu Dhabi (AP region) and another in Addis Ababa (HoA region).

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 organizations 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 networks and linkages with multilateral agencies and donors.

AU-IBAR

The African Union 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 and more specifically its specialized technical office, AU-IBAR, the African Union supports initiatives related to animal resources, breeds, animal nutrition and health, TADs and zoonoses control, and capacity building among others. AU-IBAR's roles could include:

- Provide political endorsement of the BESST initiative and backstop the beneficiary member states and regional organizations such as IGAD and ICPALD
- Coordinate and harmonise 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 organizations such as IGAD and ICPALD
- 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 and exporters), service and input 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:

- Provide products (vaccines, drugs, feed and fodder, laboratory products, etc.) for specific BESST activities
- Provide services (veterinary services, laboratory diagnostics, certification, training, transport, etc.) for specific activities
- Be a recipient or beneficiary 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.

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

NORTH EASTERN AFRICA LIVESTOCK COUNCIL (NEALCO)

Established in 2012 by national livestock traders' associations during the Nile Basin initiative, NEALCO[6] includes national apex organizations 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 currently receives 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' organizations 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 organizations and companies, AP consumer groups should also be identified to guide the activities of the initiative.

ANIMAL WELFARE ORGANIZATIONS

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 organizations 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

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 (Bill & Melinda Gates Foundation 2019). In the HoA region, the foundation 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 focus of the foundation. This places the foundation 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 Program in Sudan, and the Pastoral Community Development Project in Ethiopia with co-financing from IFAD and the World Bank). In addition to its involvement in the East Africa region, IFAD has also developed strong relationships with the GCC countries by signing in 2014 a Memorandum of Understanding 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.

EUROPEAN UNION (EU)

The EU, mainly through its development fund, has also been an important funder of 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 (AU-IBAR and IGAD) and international organizations (FAO and ILRI). We can cite as examples, the "Improving animal disease surveillance in support of trade" project with AU-IBAR and IGAD as implementing partners, and 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, 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 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

All HoA countries are members of the African Development Bank. In recent years the African Development Bank has been more interested in the agricultural sector, including the livestock subsector (Feed Africa and Improve the quality of life for the people of Africa are among the five development priorities, or High 5s, of the African Development Bank). In its Technologies for African Agricultural Transformation program, the institution has commissioned ILRI to implement the livestock component. In collaboration with the Islamic Development Bank, the African Development Bank is also planning the implementation of regional livestock projects in East and Southern Africa.

Islamic Development Bank

The Islamic Development Bank could play an important role in funding the BESST initiative for activities implemented in both regions. All AP countries are members of the Islamic Development Bank. While some of the HoA countries are members (Djibouti, Somalia and Sudan), non-member countries like Ethiopia and Kenya could also benefit as they have sufficiently large proportions of Muslims in their populations. Like other financial institutions, the Islamic Development Bank directly funds beneficiary countries through the provision of loans. Some capacity development activities could be funded through grants.

AOAD

See discussion in Section 5.2.2.

World Bank

The World Bank 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 ending in 2020. Currently, in collaboration with the EU, the African Development Bank and World Bank member countries, the World Bank is developing the "Horn of Africa" initiative which will include three pillars: 1) infrastructure, trade and economic integration, 2) human capital and 3) resilience.

INTERNATIONAL DEVELOPMENT AND COOPERATION AGENCIES

International development agencies that have allocated large amounts of funds for the development of the livestock sector in the HoA region include DANIDA, USAID, the United Kingdom Department for International Development, the Swedish International Development Cooperation Agency and the German Agency for International Cooperation. These organizations provide funding to implementing partners (national, regional and international), 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, governments 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 meetings held with the partners and stakeholders, it was possible to gauge the interest of the partners and their potential level of commitment to the BESST initiative.

Countries in the HoA with much to gain (Kenya, Ethiopia, Somalia and Sudan) have expressed strong interest in BESST. While several importing countries have 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 organizations, beyond OIE itself, several stand out as important to closely engage in BESST: ICPALD and GCC as the regional organizations with political backstopping as well as FAO, ILRI and AU-IBAR as knowledge and technical partners with physical presence in the regions and long experience in livestock-related projects. It may be appropriate to also engage the WTO-hosted STDF as a specialized SPS capacity development organization.

OIE and these organizations 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.

Photo K. Dhanji/ILRI

5.4 References

Bill & Melinda Gates Foundation. 2019. https://www.gatesfoundation.org/

Common Market for Eastern and Southern Africa. 2018. COMESA in brief. Growing together for prosperity. https://www.comesa.int/wp-content/uploads/2019/02/COMESA-in-brief-FINAL-_web.pdf

International Fund for Agricultural Development. 2019. www.ifad.org

North Eastern Africa Livestock Council. 2019. http://www.nealcouncil.org/

Photo K. Dhanji/ILRI

CONCLUSIONS

Livestock diseases represent a threat to both animal and human health. The recent outbreak of coronavirus disease 2019 is a powerful example of how an animal disease (not livestock in this case) can result in thousands of human deaths and losses worth trillions of US$ worldwide.

Livestock-importing countries in the AP have the right to protect their consumers and animal assets while exporting countries in the HoA need to continue exporting live animals and meat products to sustain their economies and provide a source of income to millions of smallholder livestock producers (mainly pastoralists) and traders. There are thus many strong reasons for countries from both regions to develop safe and sustainable livestock and meat trade, including the short distances between the two regions which make live animal transport faster, safer and less costly; AP consumer preferences for fresh meat and live animals for slaughter; the high demand during the Hajj season for live animals; and the self-interests of AP countries to sustain the economies of countries in the HoA because of solidarity and historical linkages and to avoid insecurity and threats of terrorism.

For all these reasons, trade in livestock and livestock products is a win-win situation for the two regions. Indeed, this trade is considered a development success story. This feasibility study has shown, however, that several issues hamper trade between the two regions, including a lack of trust and communication, low stakeholder capacity and weak animal health system performance.

Evidence suggests that the BESST initiative to enhance trade in livestock and livestock products between countries in the HoA and the AP through building capacity and strengthening trust and communication will yield benefits worth many times the investments. However, the BESST initiative will only succeed if the different stakeholders from both regions are on the same page, which cannot be achieved through a conventional short- or mid-term project. The BESST initiative should thus advocate for long-term investment that facilitates interactions across stakeholders and helps to build trust and buy-in among trading partners and deliver long-term capacity development and piloting of technological innovations that enhance traceability and strengthen infrastructure at export facilities.

This detailed, participatory and evidence-based feasibility study finds that this initiative is likely to create substantial benefits for countries in the HoA and the AP and we recommend that it be funded.

ANNEXES

ANNEX 1.

Additional summary of constraints

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

Sanitary and Phytosanitary (SPS) constraints were identified from five different bodies of evidence consulted: a literature review; a questionnaire of veterinary services contributing to a World Organisation for Animal Health (OIE) Technical Item (TI); a review of the 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 considers 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 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 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 WAS MORE CONCERNED 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 of 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 WAS MORE CONCERNED THAT:

· Export requirements are not sufficiently defined or justified (review, SSI, workshop)
· Computerisation and interconnectivity of laboratories 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 SPS measures (OIE TI)

> HOA REPORTED 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 requirements (review, SSI, workshop)

Access to markets

> BOTH REGIONS CONSIDERED dispute mediation mechanisms to be inadequate especially with regard to World Trade Organization (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.

Framework for distinguishing between SPS and non-SPS constraints

Table A.2.1. SPS

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

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 (roads, marketing and shipping)
	Insecurity and theft
	Communication infrastructure
Policy, governance and 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. PROPORTION (%) OF COUNTRIES IN THE AP ALLOCATING DIFFERENT LEVELS OF IMPORTANCE TO TOPICS RELATED TO OIE STANDARDS

	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. PROPORTION (%) OF COUNTRIES IN THE HOA ALLOCATING DIFFERENT LEVELS OF IMPORTANCE TO TOPICS RELATED TO OIE STANDARDS

	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 IN EACH REGION 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 IN EACH REGION SYSTEMATICALLY USING DIFFERENT INFORMATION RESOURCES WHEN DEVELOPING SANITARY MEASURES FOR IMPORTS

	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 IDENTIFYING SPECIFIC CONSTRAINTS WITH TRADE DISPUTE RESOLUTION PROCESSES

	Complex/ Slow	Cost	Scientific expertise	Legal expertise
Bilateral processes (technical, political or 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 representation	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 IDENTIFYING SPECIFIC CONSTRAINTS WITH TRADE DISPUTE RESOLUTION PROCESSES

	Complex/ Slow	Cost	Scientific expertise	Legal expertise
Bilateral processes (technical, political or 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 representation	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 veterinary services (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 antimicrobial resistance 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 programs, including during crises.	3	4	4
Consultations	4. The VS regularly hold workshops and meetings with non-government stakeholders, who are organized 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 programs by the VS and informally assist the VS in program delivery in the field (e.g. industry groups helping to communicate the program 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 program 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 organizations, and work through regional organizations, 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.

Emergency funding

- Provide for emergency funding in annual budgets or have a standing arrangement with the national Treasury to make such funds available on emergency request. This provision should be legalised through 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 one-stop border posts and other ports of entry.
- Review the current allocation of staff against the operational needs at all border inspection posts.
- Review resource allocation to border inspection posts to enable them adequately undertake their functions.

Epidemiological surveillance

- Review resource and funds allocation at national and county levels to create an enabling environment to conduct active surveillance.

Early detection and emergency response

- Review resource and funds allocation at national and county levels to create an enabling environment to respond effectively to animal diseases and zoonotic emergencies.

Identification and traceability

- Regulate and implement an identification and traceability system for products of animal origin.

Communication

- The DVS and county veterinary authorities should develop and implement comprehensive annual communication plans to ensure that all stakeholders are kept informed of important events and programs and that stakeholders are given the opportunity to become more involved with developing animal health, veterinary public health and animal welfare programs.
- The DVS should expand and regularly update the content on its website.
- The DVS should encourage county governments to share information relating to disease outbreaks and disease control programs, 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 Joint Committee of Veterinary Services.

Consultations with stakeholders

- VS should establish more formal levels of consultation with partner government institutions as well as organizations 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

- Subject the recently drafted policies and legislation to peer review to ensure compliance with OIE and other international standards.
- VS should consider 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 programs

- The DVS should explore opportunities to develop more formal arrangements with actors along the various livestock value chains to facilitate public-private partnerships. 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 meet the export market demand.

Compliance with legislation and regulations

- Institute an administrative control and verification system for enforcement of veterinary legislation and compliance thereof by stakeholders, which would include records of legal action and prosecutions.

International harmonisation

- Legislation experts in the DVS should carry out 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.
- Improve laboratory quality management and work towards test accreditation.

Equivalence

- Build capacity to establish equivalence agreements.
- Increase negotiations with neighbouring trade partners to establish equivalence-based agreements for trade.

Zoning

- 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 the DVS and county directorates of veterinary services 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 programs.	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 programs 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.	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 programs.
- The veterinary authority should adopt an innovative approach to publicize the importance of the VS and lobby for the political and financial support they are providing.

Emergency funding

- The VS should apply for a dedicated emergency fund with clearly defined rules for easy access and, with relevant institutions, develop a mechanism to mobilize and access contingency funds in the event of a disease emergency.

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 an animal identification system for live imported animals, in particular those to be exported to neighbouring countries. This animal identification 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 infrastructure 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 utilized for both active and passive surveillance activities.
- Develop capacity within the epidemiology department to better utilize animal disease information.
- Analyse existing passive surveillance data to develop risk-based active surveillance and control programs.
- Consider establishing annual capacity enhancement programs to strengthen the capacity of the epidemiology directorate for data capture, analysis and dissemination, and for developing risk-based surveillance and control programs.

Early detection and emergency response

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

Identification and traceability

- The VS should consider conducting a feasibility study on the introduction of animal identification to support disease control or export certification of live animals or animal products.
- 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 programs, 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 programs in various field activities in animal health and food safety.
- The deployment of community animal health workers at the field level, if well 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 by-law 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

- Re-establish the authority of the VS to regulate safety of animal products.
- The veterinary authority should develop its capacity (training of staff and allocation of adequate resources) to implement and enforce regulations as appropriate.
- The veterinary authority should regulate the sale and use of prescription-only medicines.
- The veterinary authority should engage with the media to increase awareness of the need for regulation of food safety and veterinary drug quality and usage.

International harmonisation

- For the purpose of regulation of the import of animals and animal products, the veterinary authority 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 their regulatory frameworks for import and export of animals and animal products, bringing them in line with international standards.
- On the basis of the revised legislation, the VS should actively negotiate with trading partners, in particular with neighbouring countries, to establish legal export trade and 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 programs and assist the VS to deliver the program 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 them 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 (veterinary laboratory agency) or the contracting out of certain diagnostic procedures (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 community animal health workers 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 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 the Pan African Program for the Control of Epizootics with a focus on transboundary disease surveillance and control and sustaining epidemiological surveillance networks (perhaps Pan African Control of Transboundary Animal Diseases).

Identification and traceability
- Put in place a livestock identification system linked to a national database.
- Organize 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 knowledge and skills of VS staff.
- Update the website of the relevant ministry to communicate the animal health status of the country and make available information on activities, reports and regulations in the livestock sector.

Consultations
- Seek government support to hold regular meetings and develop a consultative agenda for a national livestock development board with representatives from all stakeholders in the livestock sector.
- Form state-level livestock development boards 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 programs whenever possible.

Preparation of legislation and regulations, and implementation of regulations
- Review all acts and regulations and update them where necessary.

Compliance with legislation and regulations
- Train and recruit more technical staff to occupy key supervisory positions.
- Undertake an assessment 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 diseases 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 program 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 programs.	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 programs.	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 program 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, information and communication 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 organizations, have 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 revert the management of animal health and disease control to the central government to maintain the chain of command and increase efficiency in containment of disease emergencies.
- Increase the frequency of meetings between VS and their counterparts in neighbouring countries.
- Increase linkages with internationally recognized laboratories and collaborating centres with the objective of exchanging experiences and increasing training opportunities for laboratory staff.
- VS should work closely with their counterparts in neighbouring countries to harmonise the branding system for identification of animals.

Interaction with stakeholders

- Establish an office attached to the directorate of animal resources and headed by a senior officer to coordinate relationships with private sector stakeholders. This will help the VS to work on joint programs for the benefit of their stakeholders.
- Increase consultation and dialogue with public sector stakeholders before drafting regulatory measures. The consultation should be based on transparency and scientific standards.
- Strengthen communication by providing personnel with equipment and work facilities.
- The VS should work closely with other stakeholders to create a special organization that includes all 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 their counterparts in neighbouring countries to harmonise the branding system for identification of animals.
- OIE experts should assist the VS to establish disease-free zones and compartments by revising the already prepared documents and harmonising them 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 activities 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 programs and assist the VS to deliver the program 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 organizations.	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 a 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 programs.
- 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 for the use of 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 the central laboratory and OIE reference laboratories and encourage twinning of 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.
- Reorganize the structure of VS to ensure direct control over animal health programs, quarantine, veterinary public health and laboratory services.
- Recruit veterinarians especially once new 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 programs.
- Activate the epidemiology unit.
- Develop better coordination with the private sector.
- Organize capacity enhancement on exotic diseases for relevant staff.

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

Identification and traceability
- Improve the identification system, extend it to all species and make its use 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 Veterinary Service Board.
- Document procedures for communicating issues to public and private sector stakeholders, including identification of all channels that can be used.
- Set up a website for the VS to share up-to-date information with stakeholders.

Consultation with stakeholders
- Establish a formal consultation mechanism with stakeholders.
- Promote the creation of a Veterinary Service Board 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 a Veterinary Service Board and a stakeholders' association.
- Create a unit in the directorate of animal resources 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 ensure conformity with these standards within national agencies e.g. meat inspection, animal and meat transportation, slaughterhouses.

Equivalence
- Promote the creation of a stakeholders' association.

Zoning
- Develop appropriate legislation and document procedures for zoning for diseases other than avian influenza.
- Establish a database of national animal health status and implement control programs for major animal diseases.

Compartmentalisation
- Discuss possible benefits with the private sector.
- Develop a surveillance program 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 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 programs and assist the VS to deliver the program 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 organizations.	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

- Review the salaries of VS personnel and ensure adequate funding is made available to support the base operations of the VS, with full transparency and technical independence. Create a financial unit within the VS to improve the use of available funds.

Contingency and compensatory funding

- Establish contingency funds for VS (under the Ministry of Agriculture) and regulations for the use of these funds in responding to emergency situations. Involve stakeholders in developing legislation and regulations for the use of contingency funds.

Veterinary laboratory diagnosis

- Field VS should take full advantage of the existing diagnostic capacities by ensuring that personnel are trained and there are sufficient 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 to which they can send samples for 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 VS 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 undertaken in cooperation with the Ministry of Health and other relevant authorities.
- Reinforce the VS capacities by providing biosecurity equipment and biosecure facilities, as well as training to personnel to apply strict biosecurity 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 programs should be evaluated and updated to meet the country's OIE obligations.

Early detection and emergency response

- Develop contingency plans for priority animal diseases, other than avian influenza, which include a mechanism to coordinate with stakeholders.
- Establish procedures to make timely decisions on whether or not a sanitary emergency exists.
- Establish a contingency fund to which the animal health agency has direct access in emergency situations.
- 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

- Create an official focal point for communications in the veterinary administration to provide up-to-date information through appropriate channels on activities and programs, and develop a communication plan to regularly circulate information to stakeholders.

Consultation with stakeholders

- The VS should maintain a formal consultation mechanism with stakeholders and hold regular meetings and workshops for feedback on current and future activities and programs, 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 programs

- 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 regulations

- 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.

Compliance with legislation and regulations

- The VS should carry out audits of their 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 biosecurity measures that enable them 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 in order to gain recognition by trading partners that they meet the criteria established by the OIE and the WTO.

Compartmentalisation

- The VS should implement biosecurity measures that enable them 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 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 them 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.4.7. 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 programs and assist the VS to deliver the program 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 organizations.	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 a 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

- Adequate funding should be made available to support the country VS. An investment budget should be created on the basis of medium- and long-term plans to improve and complement infrastructure. Funding for all aspects of VS should be made available under conditions of full transparency and technical independence.

Contingency and compensatory funding

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

Veterinary laboratory diagnosis

- Commission the newly built central veterinary laboratory.
- Coordinate 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

- Develop improved procedures for quarantine inspections and improve staff capacity to meet international standards. Recruit and train veterinarians on clinical examination and sample collection. Set up a database of imported consignments, with proper recording of documents.
- Restore the VS authority 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 avian influenza, which include a mechanism to coordinate and coordinate with stakeholders.
- Establish procedures to make timely decisions on whether or not a sanitary emergency exists.
- Establish a contingency fund to which the animal health agency has direct access in case of emergency situations.
- Conduct simulation exercises to practise the emergency response.

Epidemiological surveillance

- Develop a national epidemiological 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 a reliable electronic data collection system supported by qualified technical staff.
- Establish a geographic information system and improve the capacity to conduct regional risk assessments.
- Expand the scope of surveillance at the country's slaughterhouses beyond foodborne diseases such as tuberculosis.
- Active surveillance in animal populations for diseases of economic and zoonotic importance to the country should be conducted and results systematically reported in compliance with OIE standards.

Communication

- Create an official focal point for communications within the VS to provide up-to-date information through appropriate channels on activities and programs, and develop a communication plan to regularly circulate information to stakeholders.

Consultation with stakeholders

- The VS should develop and maintain appropriate consultation mechanisms with stakeholders and hold regular meetings and workshops for feedback on current and future activities and programs.

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 the Ministry of Health, 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 non-compliance. The VS must work in full transparency with the stakeholders to minimize cases of non-compliance, documenting evidence and carrying out audits of their compliance programs.

International harmonisation

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

- The VS should 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 zones for selected animals and animal products, as necessary. The VS can also demonstrate the scientific basis for any disease-free zones and can gain recognition by trading partners that they meet the criteria established by the OIE and the WTO.

Compartmentalisation

- 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 them 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 programs and assist the VS to deliver the program 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 control 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 program 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 organizations.	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 veterinary faculties in line with increased demands on them for the quantity and quality of veterinary professional and paraprofessional teaching.
- Increase cost recovery where possible, such as for field services, in export quarantine or for the laboratory 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- and cost-based 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).
- Carry out periodic refresher courses for sample collection and handling as related 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 from using 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 measure success or failure of vaccination programs.
- Teach field staff how to take blood samples.
- Organize regular refresher training courses on new techniques in active surveillance of 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.
- Work with farmers to distribute communication and awareness messages and materials.
- 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 programs

- Increase communication and awareness campaigns to ensure continued participation of farmers and farmer groups in future programs (e.g. surveillance and vaccination).
- A joint program 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 VS should lobby the relevant authorities and institutions for the quick passage of draft proclamations and regulations.
- The VS should allow stakeholders (farmer groups and municipal slaughterhouse operators) to comment on the new legislation to ensure it is relevant to them.
- The VS should assess the implications of the new legislation on existing legislation at regional level.

Compliance with legislation and regulations

- Prepare an implementation plan taking into account the country's structure and incorporating stakeholder awareness and participation. The salient features of the regulation should be presented in an easily understood manner.
- A legal expert should undertake a regional evaluation of the legislative requirements arising from the new national veterinary legislation.

International harmonisation

- The country should continue its active participation and cooperation in regional organizations and with OIE.
- Build the capacity of VS staff on OIE standards, including commenting on contemporary OIE issues. Clarify the issue of continued use of outdated OIE List A and List B diseases.
- Engage with the full OIE PVS pathway by requesting for an OIE PVS gap analysis in the near future.

Equivalence and other types of sanitary agreements

- Regular risk-based review of the certification system is necessary, given evolving disease and trading situations.
- Follow up sanitary agreements to introduce a risk-based component to export certification.
- 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 programs and assist the VS to deliver the program 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 program 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 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	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 a 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 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 VS 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 VS.
- Establish procedures for easy access to these funds.

Veterinary laboratory diagnosis

- Engage laboratory experts 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 the laboratories.
- 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 and recognition of endemic, zoonotic and TADs.
- Update veterinary legislation to establish mechanisms for cost recovery and to define roles, functions and responsibilities of directorate laboratories.
- Formalise 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 resources. This would address the support of the research institutions to VS for sample and data collection, analysis and reporting.
- Develop procedures for authorization/accreditation of laboratories.

Quarantine and border security

- Conduct an analysis to determine which quarantine facilities are essential to maintain.
- Engage experts 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 a strategy for surveillance of contagious animal diseases closely linked to the strategy for disease eradication and control, with the available or expected resources.
- Communicate within the VS about these strategies, so that everybody involved in the implementation of the programs 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 programs 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 involved in conception of programs and data collection in epidemiology studies.

Early detection and emergency response

- Develop national contingency plans for emergency response following OIE and FAO guidelines 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 epidemiology 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, laboratory capacities, programs for disease detection, risk analysis, etc.).
- Develop a national epidemiology 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.

Consultation with stakeholders

- 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.
- Target key stakeholders to develop mechanisms of interactions to improve the 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.

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 a unit dedicated to preparation, implementation, compliance and enforcement of veterinary regulatory legislation.

International harmonisation

- Establish a 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.

Equivalence

- Document procedures for auditing and updating functions, including arrangements for consultation with stakeholders, as related to arrangements for negotiation for equivalence.
- Define and publish missions and standard operating procedures 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 procedures for the traceability of animals and animal products and improvement of surveillance programs for better reporting of sanitary status to the OIE.
- Define and publish missions and standard operating procedures 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 monitoring and evaluation of the animal registration and identification program and revision of policies when appropriate.
- Develop mechanisms to guarantee sustainability of the animal registration and identification program.

Zoning

- Develop procedures for future zoning possibilities.
- 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 epidemiology surveillance network.
- Develop competency in risk analysis through training at OIE epidemiology and risk assessment collaborating centres to implement risk analysis policies and procedures for VS following OIE guidelines.
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards for zoning.

Compartmentalisation

- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards for compartmentalisation.

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 program.	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 programs.	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 programs.	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 program 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

- Establish a direct chain of command which includes a dedicated directorate of veterinary services within the respective government authority.
- Strengthen the technical independence of veterinary services.

Critical competencies that need particular attention in the next five years

- Ensure appropriate human resources are available; hire about 20 veterinarians in 10 years and ensure their continued professional development.
- Ensure adequate financial resources that allow for sustained functioning of VS, including access to emergency funds.
- Develop and strictly enforce veterinary legislation and standard operating procedures in line with international harmonisation.
- Urgently reinforce border control.
- Increase capacity of the existing veterinary diagnostic laboratory and of the planned food safety laboratory.
- Develop a communication plan for priority areas, including data management.
- Institutionalize 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 program.	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 programs and assist the VS to deliver the program 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 program 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 organizations.	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 programs.
- 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 Ministry of Health.

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; and
  · Sufficient financial resources to ensure that quarantine operations are properly conducted and facilities are regularly maintained.
- 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 of an epidemiology unit with capacity for data capture, analysis and dissemination.
- Establish a national risk-based surveillance program including elaboration of procedures for active surveillance, to assess the endemic situation and detect early any introduction of diseases.
- Increase capacity for disease outbreak investigations through developing standard operating procedures 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 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 programs 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 organization of regular workshops and meetings for information and feedback regarding current activities and programs.

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 programs in various field activities such as 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 programs 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 need for finalizing review and promulgation of the proposed acts and regulations.

Stakeholder compliance with legislation and regulations

- Introduce effective legislation that provides 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 major 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 programs and assist the VS to deliver the program 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 program 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 organizations.	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
Veterinary services Importer (AP)	HoA source perceived as too risky Consumers do not want meat from Africa	More information Independent risk assessment
Veterinary services Importer (AP)	Poor health situation in HoA Challenges with quarantine	A Gulf state platform to discuss important issues Independent expert assessments of risk
Veterinary services Importer (AP)	Testing of animals for FMD or RVF Possible infection during transport Problems with official document Poor animal welfare	Ensure consistent supply of livestock Build trust Facilitate infrastructure
Veterinary services Exporter (HoA)		Facilitate dialogue Develop facilities
International organization	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 organization	Lack of capacity Lack of investment Lack of data Lack of government commitment Dependency syndrome	Address veterinary drugs and feed Address antimicrobial resistance
International organization	Implementation of regulations is a bottleneck	
International organization		Private sector involvement is important
Regional organization	Informal traders	E-certification
Regional organization	Public institutions remain weak Private sector takes shortcuts without supervision	Coordinate public and private sector investment Address capacity gaps Link with IGAD, AU-IBAR and GCC
Donor	Lack of willingness of consumers to pay for high quality	Promote quality assurance Traceability Address broad development issues
Food industry	Lack of harmonisation across certification authorities	Address food safety and risk Vertical integration Build trust; direct inspection is useful
Drug company	Registration of veterinary drugs is difficult Affordability Time to sell longer than shelf life 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 sheep and goats from Somalia (predominantly goats and many originating in Somalia and Ethiopia), Sudan and Ethiopia: most important route; most animals go to low- and middle-income consumers; managed in Oman by a series of meat purchase and market facilitation intermediaries
- Fresh vacuum-packed (long shelf life) sheep and goat and bovine meat from New Zealand, Australia and India; these predominate meat selections in hypermarkets
- Fresh meat from Kenya and Ethiopia (short shelf life)
- Frozen meat from Pakistan and Kenya
- Oman as a platform for re-export
- Various other small and emerging trade routes: Kazakhstan and 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 to be healthy - Substantial supply and trade network - Profitable trade - Relatively short distance - Animals reared extensively in pastoral systems of the HoA - Veterinary import services responsive - Network of 70 public veterinary clinics and around 40 private clinics - Make very few rejections of meat products (test for *Salmonella* and total bacteria count) - Maintain a cold chain from abattoir to retail - Good labelling and high diversity of meat products 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 veterinary headquarters - 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 foodborne pathogens (*Campylobacter*) - Not able to travel to some HoA countries because of security issues
WE (ILRI MISSION) OBSERVE	
- Modern, good quality and well maintained infrastructure (laboratory, abattoir and quarantine) - Three ports: Salalah, Muscat and Sohar - Well-trained, enthusiastic and helpful personnel - Good technical training of VS staff - Commitment to follow OIE processes - Good communications between GCC but each country decides what to do - Strong multi-stakeholder working group on zoonotic diseases - 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 meat from their countries of origin	- Limited ability to assure food safety in butcheries - Many animal diseases not well investigated in Oman and exporting countries - Laboratory facilities are new and good but there are some inadequacies in protocols and quality assurance - Over-reliance on "letters" as a way of communication - Virtually no culture of animal welfare - Data not well integrated across different sources - No veterinary school (school starting in private university) - Epidemiology unit in VS not working well - Little communication or face-to-face visits with HoA countries - Little management/leadership training

Potential approaches to address constraints and build on advantages

1. BASIC: addressing specific constraints identified. For example, the concern that animals are not quarantined for 21 days 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: information and communication technology, 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 HoA

A.5.2. Additional interviews conducted in Kenya and Ethiopia

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

Stakeholder	Constraints	Recommendations
International organization	Lack of standardization; issues around livestock are sensitive; product safety is neither harmonised in the region nor stressed enough Need to maintain standards and quality control in international markets Subsistence-level organization makes systems inefficient and reduces competitiveness; costs need to be reduced Centralized marketing; 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; lack of well-established channels Lack of standardized documents or contracts Lack of supporting agencies and businesses (e.g. insurance) like other trade commodities have	
Meat producer cooperative-exporting country (HoA)	FMD Lack of information on buyers in export markets Lack of information on required standards Politics and protectionism from big countries Limited capacity that makes it difficult to organize farmers High production and transaction costs High cargo costs	Reduce cost of FMD vaccination Ensure sustainability Build trust Improve communication Better define animal ownership Government help and collaboration
Veterinary services exporter (HoA)	Training in meat technology focuses only on carcasses; there is need to focus on special cuts, corned beef and vacuum-packed meat; offal can also be exported; overall, more value addition is needed TADs Infrastructure: diagnostics and reagents Enforcement of regulations and empowerment of VS Power disparities Lack of transparency	Scale up existing export abattoirs to industrial level to allow for value addition Create a forum between traders and regulatory bodies to increase transparency

ANNEX 6.

Results of the Most-Least survey during the COMESA workshop

Introduction

During the COMESA workshop on *"Participation of enterprises involved in live animal and meat trade in regional and international markets"* held in Addis Ababa, Ethiopia on 22–23 July 2019, two members of the ILRI team involved in the BESST feasibility study held face-to-face interviews with the participants and administered a short questionnaire on 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 were grouped into two: SPS-related 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 four attributes that was thought to constrain the export of livestock. 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 survey 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 first), "compliance with legislation and regulations" (second), "animal disease" (third) and "epidemiological surveillance" (fourth).

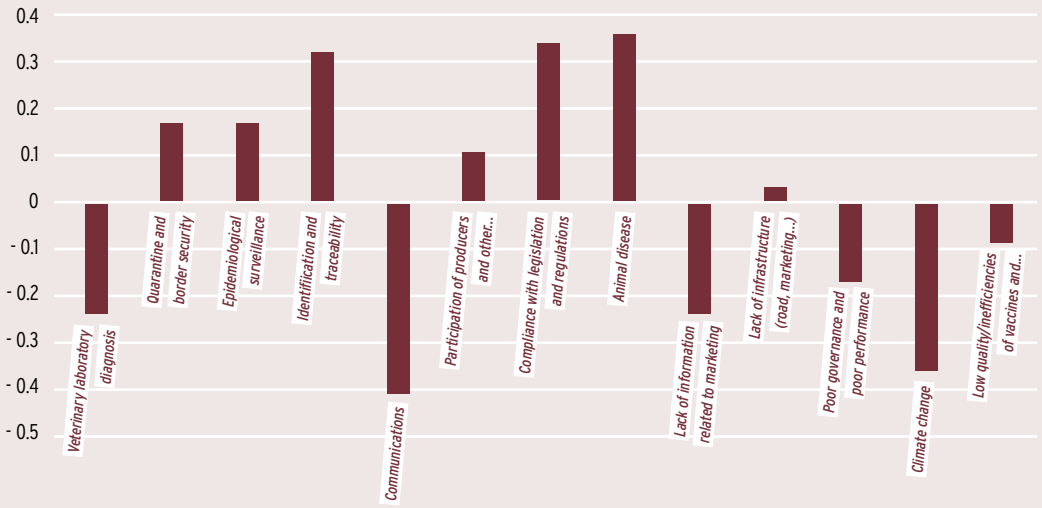
TABLE A.6.2. STANDARDIZED BEST-WORST SCORES OF THE ATTRIBUTES

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 AP countries due to livestock diseases have notably affected trade between the 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 a small sample size, like in this case (12 observations), it is more frequent to find these differences. With a larger 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 five 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 constraints in the PVS for the AP
· Recommendations addressing constraints in the PVS for the HoA

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 Best-Worst 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 a constraint it scored 1. For the PVS reports, if more than 50% of studies considered it a constraint 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 HoA	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 funds	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 border 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
Appropriate legislation 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 current and 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 and 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	US$ 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 SCHOOL 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; BSc: 4; Diploma: 4 • Development and continuous review of 3-year curriculum in Livestock Health Sciences and Livestock Product 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 Diplomas in Livestock Health Sciences and, Livestock Product Safety and Quality Control. There are currently 68 students (14 female). • Eighty-two 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 PROGRAM *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 and 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	US$ 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 HoA to harmonise animal health regulations through the development and implementation of the Standard Methods and Procedures. • 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.	• Standard Methods and Procedures for CBPP, CCPP, FMD, PPR, RVF, lumpy skin disease, sheep and goat pox, camel pox and brucellosis. • Standard Methods and Procedures for export quarantine. • Piloted a livestock identification and traceability system. • Trained veterinarians on risk analysis. • Trained 114 administrators and users of the Animal Resources Information System II. • Trained 24 veterinary staff from the HoA on management skills development and laboratory techniques. • Trained 28 veterinarians from the HoA on epidemiology and surveillance. • Trained 22 quarantine stakeholders from the HoA. • Supported the National Veterinary Institute and the Kenya Veterinary Vaccines Production Institute with materials and equipment to enhance quality and quality of vaccine production. • Supported the NEALCO.
IMPROVING ANIMAL DISEASE SURVEILLANCE IN SUPPORT OF TRADE *https://icpald.org/projects-programs/stsd/*	EU	Euros 6 million	2013-2016	AU-IBAR, IGAD	All IGAD member states	• Develop a livestock identification and traceability system. • Improve health certification systems. • Improve surveillance and disease control strategies.	• With member states, developed and validated regional guidelines for a livestock identification and traceability system. • Developed and validated animal health certification systems. • With member states, developed and validated a regional framework for progressive control and eradication of PPR. • Ongoing activities to enhance surveillance and disease reporting capacity of member states.

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 *https://icpald.org/projects-programs/world-bank/*	World Bank Kenya, Uganda, Ethiopia	Kenya US$ 77 million; Uganda US$ 40 million; Ethiopia US$ 75 million; IGAD US$ 5 million	2015-2020	IGAD member states	Kenya, Uganda, Ethiopia	• Natural resource management services: Develop water resources, rehabilitate degraded rangelands, develop the management capacity of local communities and create an enabling legal environment. • Market access and trade: Develop a market information system, integrate small-scale livestock producers into producer organizations, coordinate regulatory and institutional reforms that enhance trade within IGAD member states, support national VS, harmonise SPS standards and develop a regionally recognized livestock identification and traceability system. • Livelihood support: Improve animal health, improve breeding practices and develop drought-tolerant crops. • Pastoral risk management: Develop an early warning system.	
EAST AFRICA REGIONAL ANIMAL HEALTH NETWORKS *https://icpald.org/projects-programs/rahn/*	Member countries		2008	ICPALD, EAC, AU-IBAR, Pan-African Veterinary Vaccine Centre, ILRI, OIE, FAO	Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Somalia, Sudan, Tanzania, Uganda	• Creation of networks for chief veterinary officers, epidemiologists and laboratories in East Africa. • Increased coordination between networks of chief veterinary officers, epidemiologists and laboratories. • Regional network for sharing information on issues related to TADs and zoonoses. • Platform for scientific and technical subnetworks for information sharing.	• Targeted information sharing and strengthened coordination and collaboration on TADs and zoonoses. Current targeted diseases are RVF, PPR, FMD and African swine fever.

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 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 with 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 SPS measures, welfare, food safety and quality standards. • Strengthened the VS 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 *http://www.au-ibar.org/rahs*	EU		2013-2016	AU-IBAR, Cooperazione Internazionale, Terra Nuova	Somalia	• Enhance the access to and quality 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 delivery of animal health services 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 *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 training on specific technical matters, institutional reforms and transformation (e.g. review and enhancement of policies and legislation).	
REINFORCING OF VETERINARY GOVERNANCE IN AFRICA *https://icpald.org/projects-programs/vet-gov/*	EU, African, Caribbean and Pacific Secretariat	Euros 31.2 million	2012 -2017	AU-IBAR, FAO, OIE	Sub-Saharan Africa	• Establishment of adequate and affordable veterinary services at national level. • Strengthening regional institutions to play their coordinating, harmonising, supporting and integration roles between their member states in line with the One Health 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 PROGRAM *https://operations.ifad.org/documents/654016/dd9d0aa7-80b5-4159-a31f-0067aa1fe585*	IFAD, Sudan, Private sector	US$ 119.2 million		Government of the Federal Republic of Sudan, Least Developed Countries Fund, Adaptation for Smallholder Agriculture Program, Central Bank of Sudan	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 consumers 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 *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 infrastructure and improvement of their management systems.
NORTH EASTERN PASTORAL DEVELOPMENT PROGRAM *http://www.au-ibar.org/nep*	USAID	US$ 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 five-year business plans each for KLMC and LTMSK and detailed documentation of the pastoral livestock value chain. • Improved advocacy ability of KLMC and LTMSK in changing policies constraining the 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 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 PROJECT	Italian Government	US$ 1.698 million	2003-2005	FAO, Governments of Djibouti, Ethiopia and Somalia	Ethiopia, Djibouti and Somali	• 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 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 Regional State 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 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	Kuwait Fund for Arab Economic Development, Arab Bank for Economic Development in Africa, AOAD, and AU-IBAR	US$ 8 million (secured US$ 4 million)	2020 onwards	AOAD	All AOAD Arab recognised member countries (Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE and Yemen) + 15 additional African countries (Burkina Faso, Cameroon, Chad, Central African Republic, Ethiopia, Kenya, Mali, Niger, Nigeria, Tanzania, South Africa, Uganda, Eritrea, Senegal and South 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.

System dynamics modelling details

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

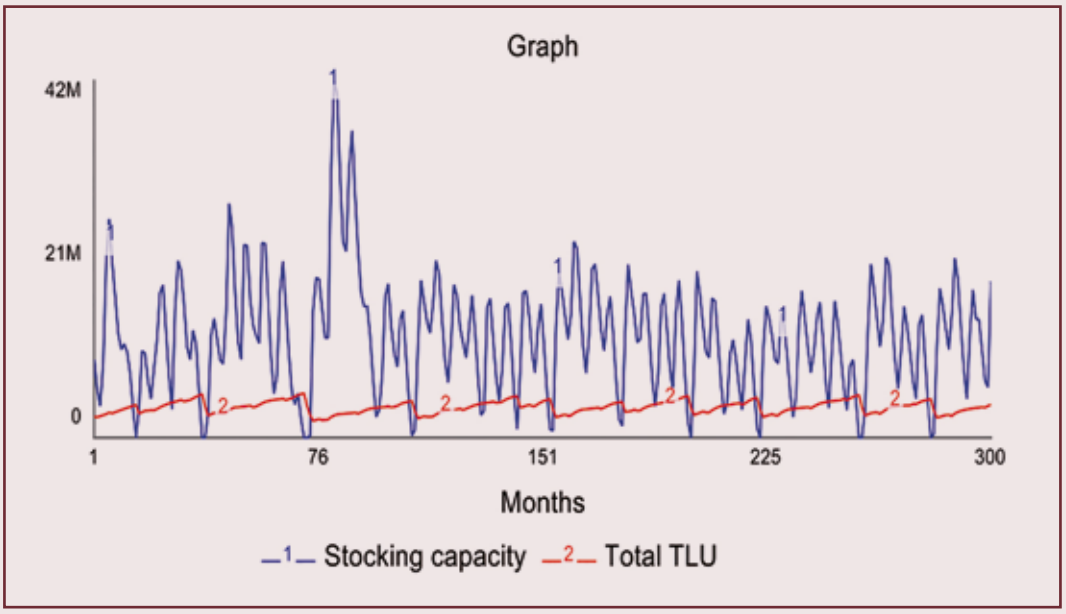


Figure A.9.2. PROJECTED QUALITY OF RANGE LAND IN SOMALILAND UNDER BASELINE CONDITIONS

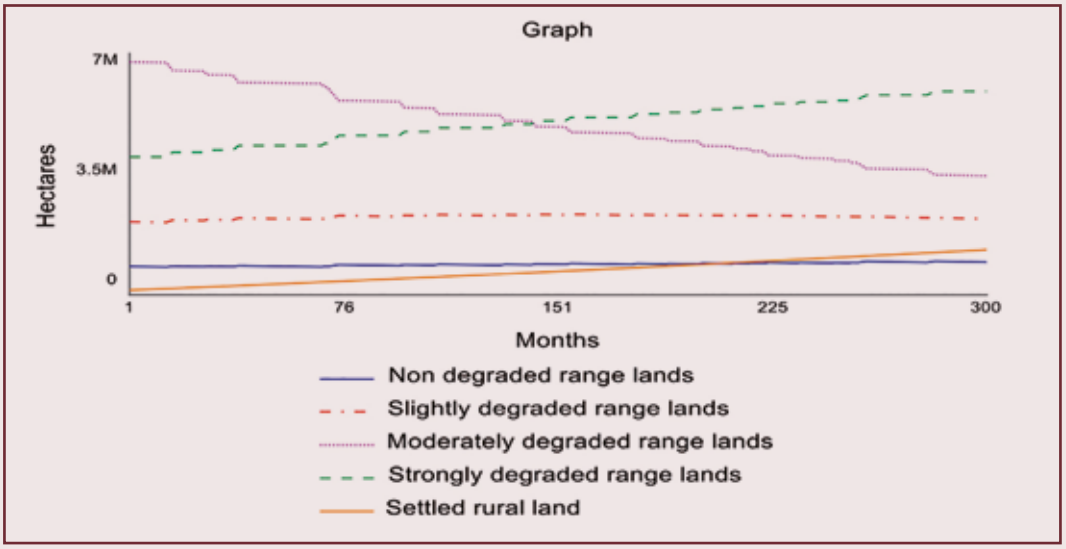


Figure A.9.3. PROJECTED LEVEL OF SMALL RUMINANT EXPORTS UNDER BASELINE CONDITIONS

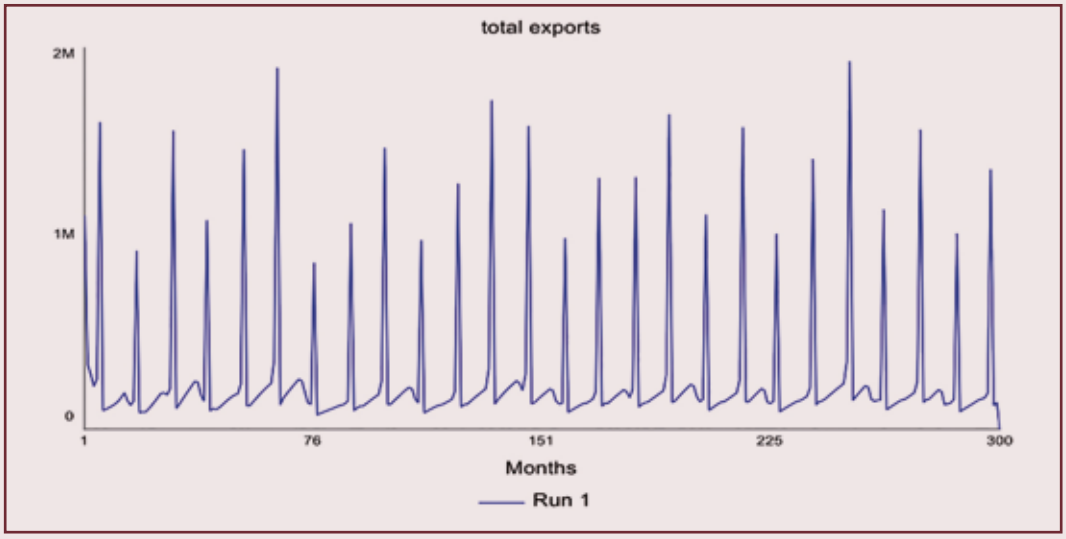


Figure A.9.4. PROJECTED PRICE OF SMALL RUMINANT MEAT IN SOMALILAND UNDER BASELINE CONDITIONS

Figure A.9.5. PASTURE PRODUCTION AND CONSUMPTION MODULE

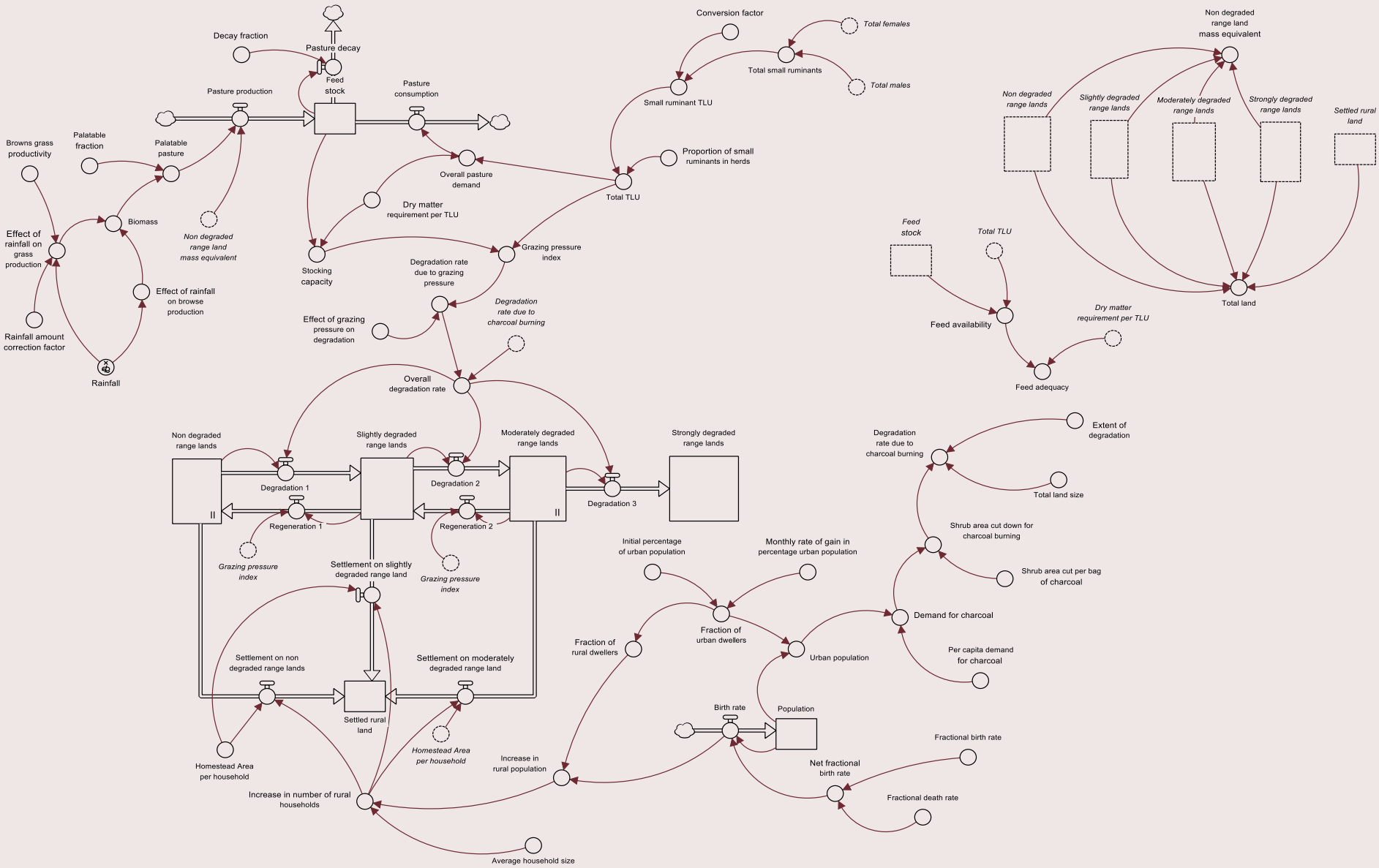


Figure A.9.6. LIVESTOCK POPULATION DYNAMICS MODULE

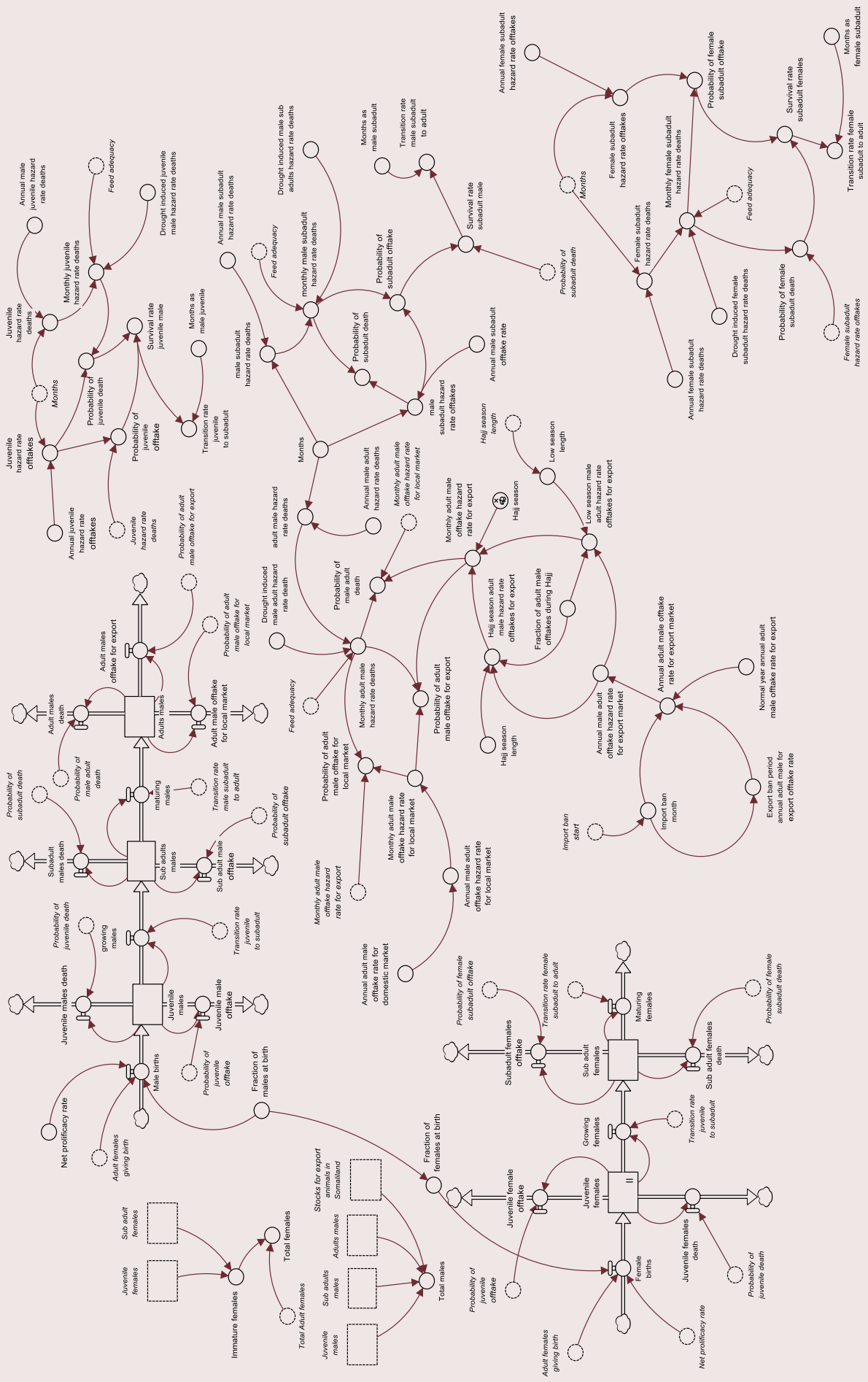


Figure A.9.7. LIVESTOCK BREEDING MODULE

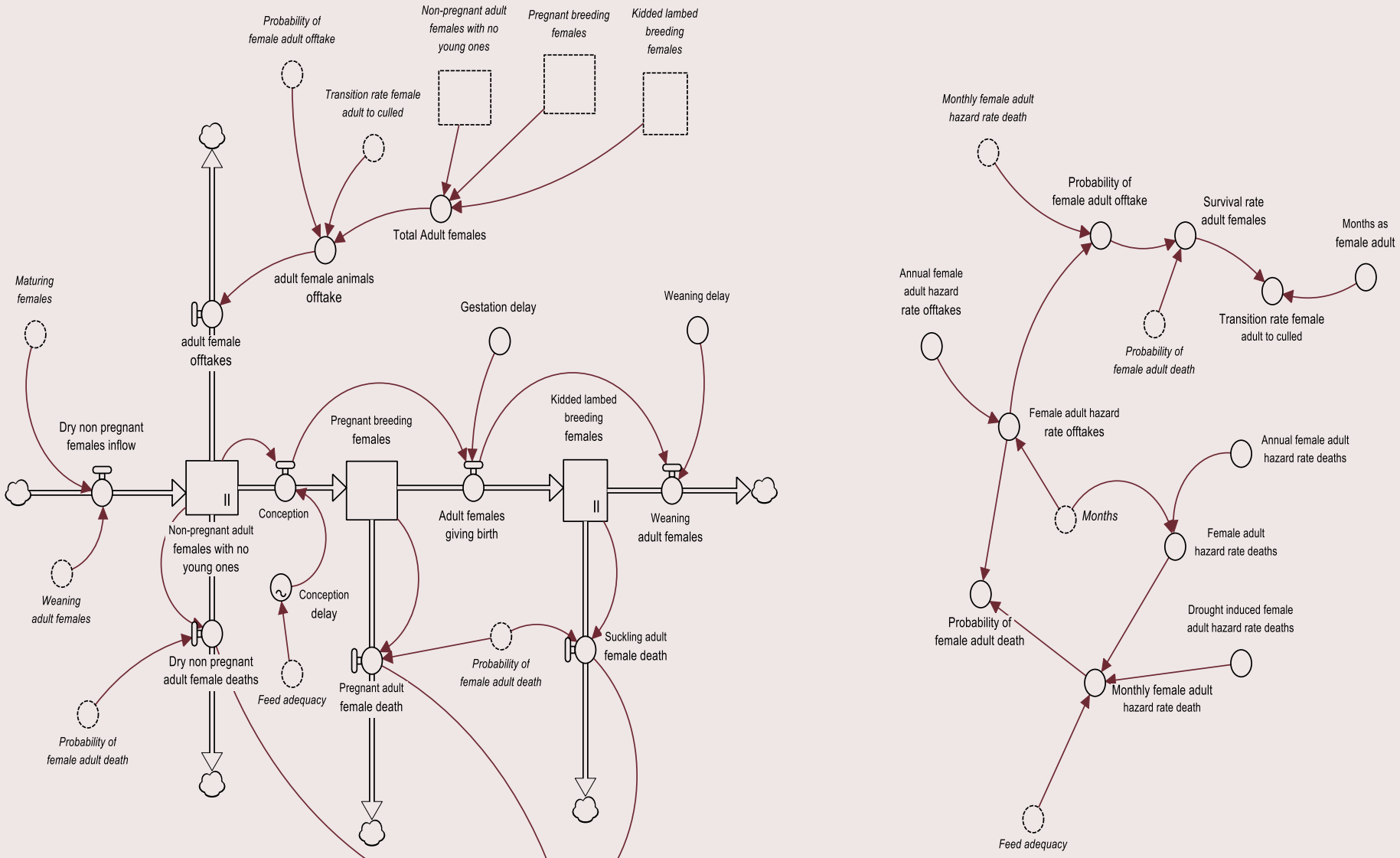


Figure A.9.8. EXPORT MARKETING OF SLAUGHTER ANIMALS MODULE

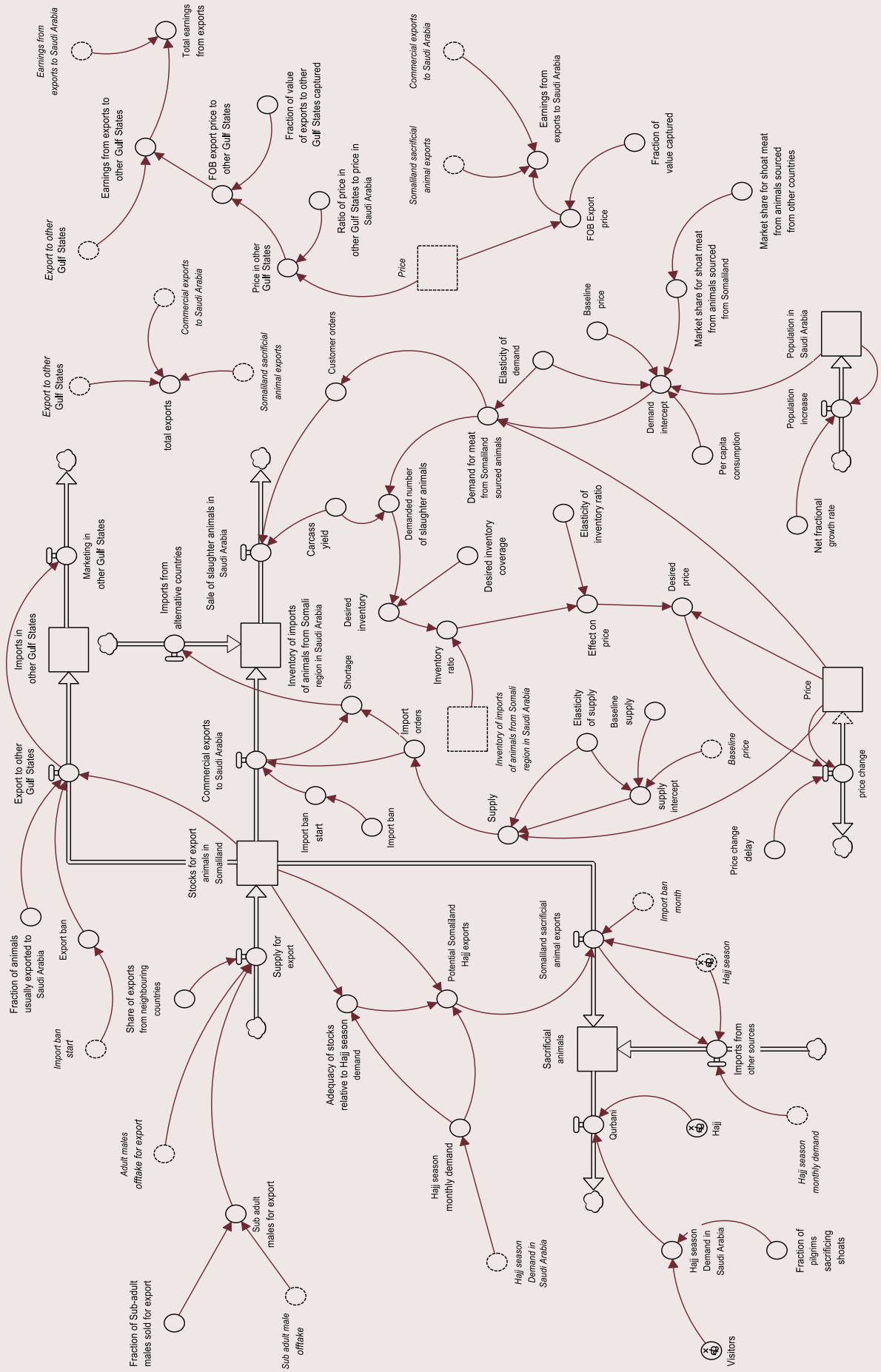
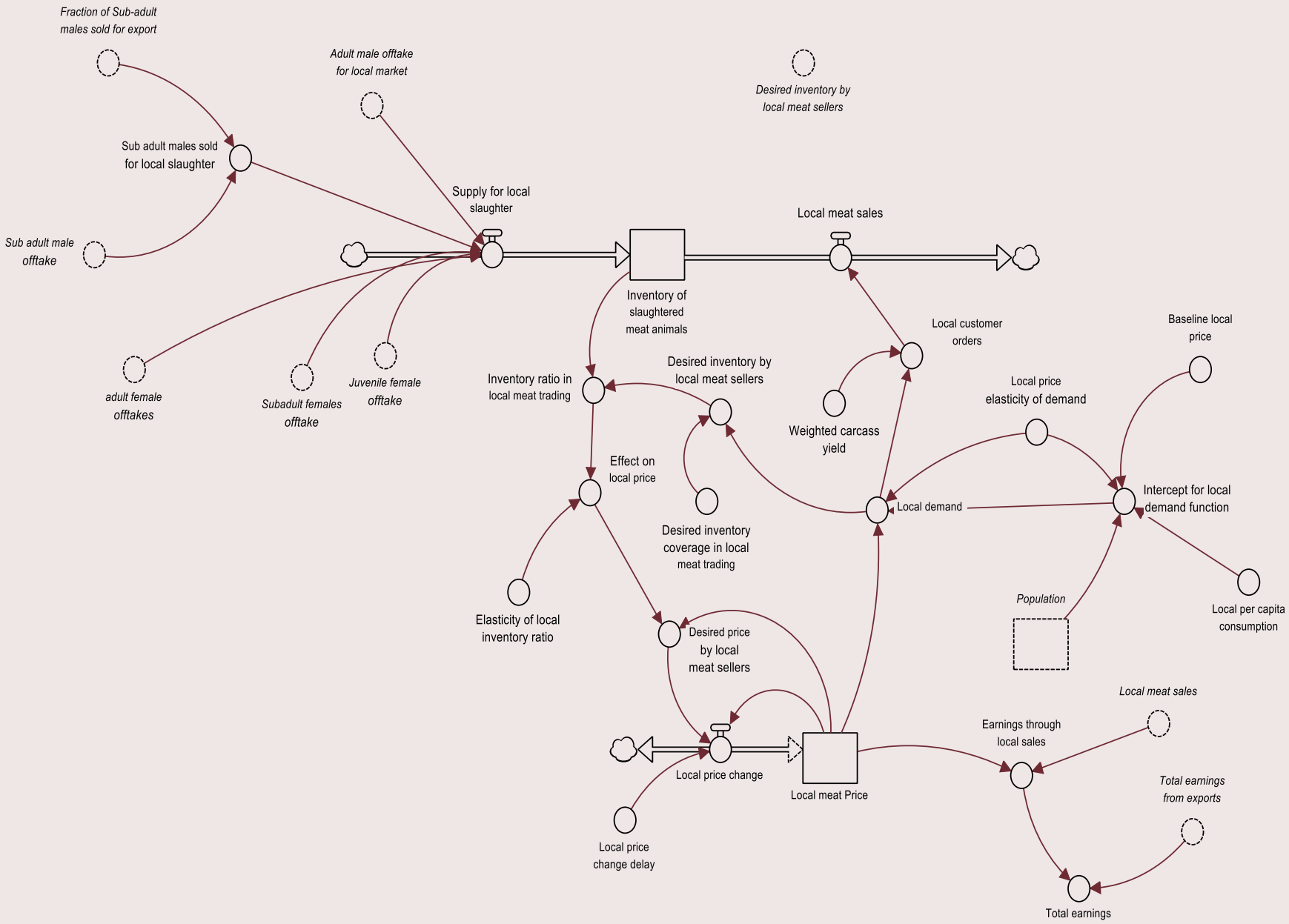


Figure A.9.9. MARKETING OF DOMESTIC SLAUGHTER ANIMALS MODULE



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 equipment	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 equipment	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. Equipment 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*	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**					

*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. Training for laboratories 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*	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**					

*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*	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**					

*Most of the other investments should come from the 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*	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**					

*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 and 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												
Equipment for Monitoring and evaluation	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												
Monitoring and evaluation 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**
	Training 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**

ANNEX 11.

List of stakeholders consulted

TABLE A.11.1. STAKEHOLDERS CONSULTED

Name	Function/Rôle	Organisation/Country
Baboucarr Jaw	Program Coordinator	African Union - Inter-African Bureau for Animal Resources (AU-IBAR)
Godfrey Bahiigwa	Director of Rural Economy and Agriculture	African Union - Inter-African Bureau for Animal Resources (AU-IBAR)
Henry Wamwayi	Project Coordinator	African Union - Inter-African Bureau for Animal Resources (AU-IBAR)
James Wabacha	Professor	African Union - Inter-African Bureau for Animal Resources (AU-IBAR)
Al Sayyid/ Musab Al Busaidi	Production Manager	Al Bashayer Meat Co. S.A.O.C (Private sector) - Oman
Osama Sanousi	Director Marketing and external relations	Alatehahat for Livestock (Ethegahat group) - Sudan
Ghidey G. Debessu	Director	Allana Frigorifico Boran Foods Plc - Ethiopia
Kelifa Hussein	Director	Allana Frigorifico Boran Foods Plc - Ethiopia
Nidinsha P.R.	Manager	Al-Tayeb (Private sector) - Oman
Manzoor Jibiri Beevi	Operations Manager	Al-Tayeb (Private sector) - UAE
Ibrahim Adamn Ahmed El-dukheri	Director General	Arab Organization for Agricultural Development (AOAD)
Kawther Ahmed Awad	Expert Technical Program Department	Arab Organization for Agricultural Development (AOAD)
Kawther Ahmed Awad	Animal Health Expert - Technical Program Department	Arab Organization for Agricultural Development (AOAD)
Sayd A.H. Salem	Animal Health Expert	Arab Organization for Agricultural Development (AOAD)
Obai Khalifa	Senior Program Officer, Private Sector Alliances	Bill & Melinda Gates Foundation (BMGF)
Samuel Thevasagayam	Deputy Director for Global Development	Bill & Melinda Gates Foundation (BMGF)
Nicolas Denormandie	Director of the Scientific Service & Africa/Middle East Support	Boehringer-Ingelheim
Stéphane Imbert	Regional Director, Europe, Africa and Middle East	Boehringer-Ingelheim
Arwa Arugaibi	Head of Animal Products Laboratory	Central Laboratory for Animal Health - Oman
Mahmood Alnweeshy	Pathologist	Central Laboratory for Animal Health - Oman
Reda Bastaweesy	Parasitology Expert	Central Laboratory for Animal Health - Oman
Wafa Alrwahy	Head of Diagnostic Laboratory	Central Laboratory for Animal Health - Oman
Mary Mburu Karanja	General Manager	Choice Meats (Private sector) - Kenya
Simal Amor	Chief Strategic Planning, Research & Policy Harmonization	Common Market for Eastern and Southern Africa (COMESA)
Thierry Kalonji	Director -Investment and Promotion and Private Sector Development	Common Market for Eastern and Southern Africa (COMESA)

TABLE A.11.1. (CONT.) STAKEHOLDERS CONSULTED

Name	Function/Rôle	Organisation/Country
Manoj Kakkodi Parambath	General Manager	Emmay Commodities Kenya Limited (Private sector) - Kenya
Abebaw Mekonen	Secretary General	Ethiopian Meat Producer-Exporters Association
Stephen Gikonyo	National Animal Production and Value Chain Analyst	FAO - Kenya
Berhe G. Tekola	Director Animal Production and Health Division (AGA)	FAO - Rome
Juan Lubroth	Chief Veterinary Officer Animal Production and Health Division	FAO - Rome
Sophycate Njue	Senior Epidemiologist Head Animal Health Unit	FAO - Somalia
Bette Mwathi	Head of Exports	Farmers Choice (Private sector) - Kenya
Abdelhakim Mahmoud Mohammed	Chairman	General Organization for Veterinary Services - Egypt
Giovanna Ordonez	Senior Technical Manager	Global Food Safety Initiative (GFSI)
Ameha Sebsibe	Head Livestock and Fisheries	IGAD Centre for Pastoral Areas and Livestock Development (ICPALD)
Osman Babikir	Socio-Economist	IGAD Centre for Pastoral Areas and Livestock Development (ICPALD)
Tesfalidet Hagos	Managing Director	Luna Export Slaughterhouse Plc - Ethiopia
Yonas Woldu Tesfagaber	Director General - Agriculture and Land Department & OIE Delegate	Ministry of Agriculture - Eritrea
Alemayehu Mekonnen Anbessie	Chief Veterinary Officer - OIE Delegate	Ministry of Agriculture - Ethiopia
Kassaw Amssalu	Veterinary Epidemiologist - Disease prevention and Control Directorate	Ministry of Agriculture - Ethiopia
Mahmoud Al Hanatleh	Director of Animal Health & OIE Delegates	Ministry of Agriculture - Jordan
Ahmed saif Alamery	Director Animal Health Department	Ministry of Agriculture and Fisheries - Oman
Julanda Hamad Almawly	Director Central Laboratory for Animal Health & OIE delegate	Ministry of Agriculture and Fisheries - Oman
Yahya Al Mawali	Director Veterinary Quarantine Department	Ministry of Agriculture and Fisheries - Oman
Mukora	Assistant of the Director of Veterinary Services	Ministry of Agriculture, Livestock, Fisheries and Cooperatives- Kenya
Nicholas Ayore	Deputy Director of Veterinary Services	Ministry of Agriculture, Livestock, Fisheries and Cooperatives- Kenya
Obadiah N. Njagi	Director of Veterinary Services and Chief Veterinary Officer	Ministry of Agriculture, Livestock, Fisheries and Cooperatives- Kenya
Yassir Abakar Brima Ismael		Ministry of Animal Resources - Sudan
Majid Al Qassimi	OIE Delegate UAE Member of the OIE Counsel	Ministry of Climate Change and Environment - UAE
Ibrahim Alnowaiser	Director of International Quarantine	Ministry of Environment Water & Agriculture - Kingdom of Saudi Arabia
Sanad Alharbi	Director - Livestock Risk Assessment Department	Ministry of Environment Water & Agriculture - Kingdom of Saudi Arabia

TABLE A.11.1. (CONT.) STAKEHOLDERS CONSULTED

Name	Function/Rôle	Organisation/Country
Fajer Al Salloom	Chief of Pharmacy & Veterinary Diagnostic Lab - OIE Delegate	Ministry of Works, Municipalities Affairs and Urban Planning - Bahrain
Ali Mohsin	Veterinarian	Muscat Port - Oman
Kennedy Kago		North Eastern Africa Livestock Council (NEALCO)
Tefera Hailu	Livestock Exporter	Private sector - Ethiopia
Adil Mhammad	Veterinarian	Slaughterhouse Administration - Oman
Said Al alwy	Senior Veterinarian Technician	Slaughterhouse Administration - Oman
Khalid Mohamed Osman Magboul	Member of Board of Directors	Sudanese Businessmen & Employers Federation
Joshua Waiswa Nabagni	Chief Executive Officer	Uganda Meat Producers Cooperative Union Ltd
Tracy McCracken	East Africa SPS Technical Advisor	USAID Kenya and East Africa
Samah Al shireef	Director	Veterinary Quarantine Section at Muscat Airport - Oman
Franck Berthe	Senior Livestock Specialist	World Bank
Ozlem Soysanli	Technical Officer - Compliance & Facilitation Directorate	World Customs Organization (WCO)
Hilde Kruse	Senior Food Standards Officer Codex Alimentarius Secretariat	World Health Organization (WHO)
Alian Dehove	Director of Finance Head of Department	World Organisation for Animal Health (OIE)
François Caya	Head - Regional Activities Department	World Organisation for Animal Health (OIE)
Ghazi Yehia	Regional Representative for the Middle East	World Organisation for Animal Health (OIE)
Gillian Mylrea	Head - Standards Department	World Organisation for Animal Health (OIE)
Isabelle Dieuzy-Labaye	Senior Advisor, Public-Private Partnerships	World Organisation for Animal Health (OIE)
Jean-Philippe DOP	Deputy Director General, Institutional Affairs and Regional Actions	World Organisation for Animal Health (OIE)
Jennifer Lasley	Initiative for Sustainable Laboratory	World Organisation for Animal Health (OIE)
John Stratton	Deputy Head of the Regional Activities Department	World Organisation for Animal Health (OIE)
Patrick Bastiensen	Program Officer - Sub-Regional Representation for Eastern Africa	World Organisation for Animal Health (OIE)
Stéphane Renaudin	Project officer	World Organisation for Animal Health (OIE)
Rolando Alcala	Economic Affairs Officer - Agriculture and Commodities Division	World Trade Organization (WTO)
Simon Padilla	Economic Affairs Officer - Standards and Trade Development Facility	World Trade Organization (WTO)
Caitriona Fenton	Senior Manager - One Health Operations	Zoetis
Theo Kanellos	Director, Business Development and Alliances	Zoetis

The OIE is the intergovernmental organization responsible for improving animal health worldwide. It is recognised as a reference organization by the World Trade Organization (WTO) and has a total of 182 Members. The OIE maintains permanent relations with nearly 75 other international and regional organizations and has Regional and sub-regional Offices on every continent.

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