Prioritizing Sanitary and Phytosanitary (SPS) Investments for Market Access in Uganda

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Executive Summary

The Standards and Trade Development Facility (STDF)[1] has developed the framework, "Prioritizing SPS Investments for Market Access (P-IMA)"[2], based on Multi Criteria Decision Analysis (MCDA), to help inform and improve evidence-based Sanitary and Phytosanitary (SPS) capacity building planning and decision-making processes. The STDF, in collaboration with USAID and COMESA has so far piloted the framework in eleven countries in East and Southern Africa and currently being applied in East African regional trade with support from TradeMark East Africa. COMESA views the P-IMA framework as a unique planning and sector-wide resource mobilization tool and encourages its Member States to use P-IMA to take stock of SPS capacity needs, prioritize and cost investment options with the best returns, and integrate SPS investments into national investment frameworks.

COMESA Secretariat has secured funding from the STDF and Enhanced Integrated Framework (EIF)[3] and is currently implementing a regional P-IMA project, which builds on the past applications of the framework, to further expand the use of the P-IMA framework in Ethiopia, Kenya, Malawi, Uganda and Rwanda. The objective of the project is to improve SPS capacity and enhance market access through a multi-stakeholder, evidence-based approach of mainstreaming SPS capacity building into national investment frameworks for agriculture, trade, health, and/or environment. The P-IMA initiative is also building synergies with the COMESA European Union's (EU) Trade Facilitation Programme, specifically on SPS capacity building in risk-based food safety management in priority value chains.

This report is the result of the application of the P-IMA framework in Uganda. A total of **thirty-three (33),** out of an initial proposed Sixty-Six (66), SPS capacity building options were subjected to the P-IMA priority setting framework but ranked in three groups: **Livestock including Dairy and Honey (17), Horticulture and Grains (7), and Fish (9)**. These were ranked on the basis of structured process for identifying the SPS capacity building options that were relevant for market access, prior agreed objectives (called decision criteria), and agreed weights assigned to the decision criteria. The estimates show that overall it would require about US$74.9 million to address all the capacity constraints in order to generate over US$1.4 billion worth of additional exports over the implementation period of five years.

However, since resources are limited, the prioritization process shows that the following can be classified as the best options because they consistently ranked above the others:

Livestock and Honey

[1] www.standardsfacility.org

[2] https://www.standardsfacility.org/prioritizing-sps-investments-market-access-p-ima

[3] https://www.standardsfacility.org/PG-606

- technical capacity building in biosecurity, biosafety, and technology for beef, poultry and bee products;
- support for private sector in cattle, apiculture and poultry associations in advocacy and self-regulation;
- surveillance of BSE, FMD, Avian Influenza (AI), and American Foulbrood (AFB);
- accreditation of BSE and FMD analysis laboratory
- production of poultry vaccines

Horticulture and Grains

- biocontrol of Aflatoxin Maize, Sorghum and Groundnuts
- aflatoxin control in Uganda (excl. biocontrol)
- pest management and control for capsicum exports (*to a large extent*)

Fish and Fish Products

- establishment and implementation of surveillance system for fish,
- building capacity in residue and microbial monitoring for aquaculture and wild catch
- Design and implement Good Aquaculture Practices (*to a large extent*)
- Promote and support improved processing methods in aquaculture and wild catch (*to a large extent*)

It is important to note that these results are based on the availability and quality of data. Also, the ranking of some capacity building options low does not presuppose that they are not important. Rather, it simply meant that, based on agreed objectives and limited resources, they do not come first in terms of priority. With time and availability of resources, all capacity building options have to be implemented. On the whole, this document must be considered a 'living document'. As such, the results must be revised in an on-going basis once a better or new data becomes available. In this regard, as part of the COMESA P-IMA project, a minimum of three persons were trained as P-IMA National Experts to assist in subsequent revision/re-application of the framework in Uganda. Over 15 were also trained on the framework but who could not be considered as experts.

1.0 Introduction

The Standards and Trade Development Facility (STDF) has developed the framework, "Prioritizing SPS Investments for Market Access (P-IMA)", based on Multi Criteria Decision Analysis (MCDA), to help inform and improve evidence-based SPS capacity building planning and decision-making processes. The STDF, in collaboration with USAID and COMESA initially piloted the framework in Belize, Ethiopia, Malawi, Mozambique, Namibia, Rwanda, Seychelles, Uganda, Vietnam, and Zambia, from 2011-15, to prioritize SPS investment options and leverage resources for capacity development under relevant investment frameworks. The framework was also recently applied in Madagascar. [4]

COMESA views the P-IMA framework as a unique planning and sector-wide resource mobilization tool and encourages its Member States to use P-IMA to take stock of SPS capacity needs, prioritize and cost investment options with the best returns, and integrate SPS investments into national agriculture sector investment plans (CAADP) and other relevant frameworks.

Consequently, the COMESA Secretariat has secured funding from the STDF and UNOPS and is currently implementing a regional P-IMA project, which builds on the past applications of the framework, to further expand the use of the P-IMA framework in Ethiopia, Kenya, Malawi, Uganda and Rwanda. The objective of the project is to improve SPS capacity and enhance market access through a multi-stakeholder, evidence-based approach of mainstreaming SPS capacity building into national investment frameworks for agriculture, trade, health, and/or environment. The project would enable the current version of this decision-support tool to be further improved and tailored to efforts of mainstreaming SPS capacity buildings within various investment frameworks to promote safe trade in agricultural products.

The P-IMA initiative is also building synergies with the COMESA European Union's (EU) Trade Facilitation Programme in supporting the SPS capacity building in risk-based food safety management in priority value chains. Under the EU Trade Facilitation Programme, prioritisation of SPS capacity building options is essential in sustaining the effectiveness of SPS interventions. Thus, the two programmes recognize the importance of building capacity in tools for a systematic and evidence-based prioritisation of SPS interventions for increased market access.

Thus, this report provides the outcomes of the application of the P-IMA process in Uganda. Uganda piloted the P-IMA framework, then called MCDA, in 2013. The MCDA process identified 14 SPS capacity building investment options, out of which six were consistently ranked as top priorities as follows:

- Biological control of Bactrocera invadens
- Extension and implementation of maize good agricultural practices
- Biological control of aflatoxin

[4] https://www.standardsfacility.org/prioritizing-sps-investments-market-access-p-ima

- Agro-input product and supplier certification
- Oilseed good agricultural practices - implementation and awareness raising
- Awareness of pesticide usage and its potential impact on fish

The new process has identified 33 SPS capacity building investment options, which is reflective of the deepening of the SPS situation in Uganda since the application of MCDA in 2013. Annex 1 presents the 2013 and the current SPS capacity building options.

2.0 Overview of SPS Sensitive Trade

Agricultural exports dominate Uganda's exports and even products that holds the most export potentials for Uganda, according to ITC Export Potential Map, are predominantly agricultural products (20 out of 25 ranked products)[5]. In 2018, agriculture exports accounted for about 63% of total Uganda exports. This notwithstanding, Uganda's agriculture exports were the most threatened in the East African region with SPS related interceptions/border rejections in the EU and US markets. Generally, agriculture exports of HS Code classification chapters 1-24, 41, 44, 46-48, and 50-53 are susceptible to SPS issues (see Annex 2). During stakeholders' workshops in June and August 2019, public officials and exporters confirmed that the horticulture, livestock, dairy, fish and the grains sectors were more prone to SPS issues in Uganda. In effect, available data presented below does confirm these observations.

According to the latest report of the Diagnostic Mapping of SPS System in Uganda (May 2019), data shows that between 2012-2017 there were an average of 3.5 RASFF alerts per year. In addition, confiscations due to harmful organisms found in agricultural products exported from Uganda to Europe were 87 in 2014, 103 in 2015, and 145 in 2016.[6] The report noted particularly that Uganda faces impending export bans by the EU following several warnings by the European Commission to Uganda's National Plant Protection Organisation (NPPO) on the high number of interceptions of exports due to pests including False Codling Moth (FCM) in chillies and Trioza spp in fresh curry leaves. In fact, EUROPHYT[7] interceptions report, shows that there were 101 interceptions in 2017, 59 interceptions in 2018 and 96 interceptions in 2019,due to detection of harmful organisms in products exported from Uganda to Europe.

Meanwhile, the Rapid Alert System for Food and Feed (RASFF) portal shows that there were 76 notifications against Uganda in the last ten years, from January 2009 to September 2019. Out of the 76 notifications, 48 were outright border rejections and 12 were alerts, while the remaining 16 were information for attention or follow-ups. The SPS issues of concern in these cases ranges from aflatoxins, salmonella, pests to several differing substances/residues, in mostly Nile Perch, chilli, sesame seeds, aubergines, etc.

[5] Gokah I. B. (2019), Trade Flow report for Uganda

[6] These were based on raw data provided to UAA by Ugandan Ambassador to the EU, 11 January 2017 cited in the SPS Diagnostic Mapping Report of Uganda (May 2019) report

[7] EUROPHYT - European Union Notification System for Plant Health Interceptions

The U.S., on the other hand, has between 2011 and July 2019, listed 7 SPS notifications against Uganda. Five of these notifications pertains to Nile Perch (3 notifications), Tilapia, and fish nes, and covered SPS issues related to filthy, putrid, or decomposed substances, and/or products manufactured, processed, or packed under insanitary conditions. The remaining two pertains to banana that appears to consist in whole or in part of a filthy, putrid, or decomposed substance or be otherwise unfit for food.

3.0 The P-IMA Framework

The P-IMA framework employs a Multi Criteria Decision Analysis (MCDA) tool that engages a multi-stakeholder approach to identify SPS capacity gaps, cost and rank the investment needs based on agreed economic and social defined decision criteria. The aim is to generate a set of evidence based SPS priorities that gives the best return on investment and can be mainstreamed into national investment frameworks and/or leverage external resource mobilisation. The rationale behind the framework is that priorities need to be established on the basis of a range of economic and social considerations that may, at least on the face of it, be difficult to reconcile. In turn, this assumes that the rationale for investments in SPS capacity-building is not compliance with export market SPS requirements per se, but the economic and social benefits that might flow from such compliance, whether in terms of enhanced exports, incomes of small-scale producers and/or vulnerable groups, promotion of agricultural productivity and/or domestic public health, etc. The framework provides an approach for different decision criteria to be taken into account, even though they may be measured in quite different ways.

In this regard, the framework aims to:

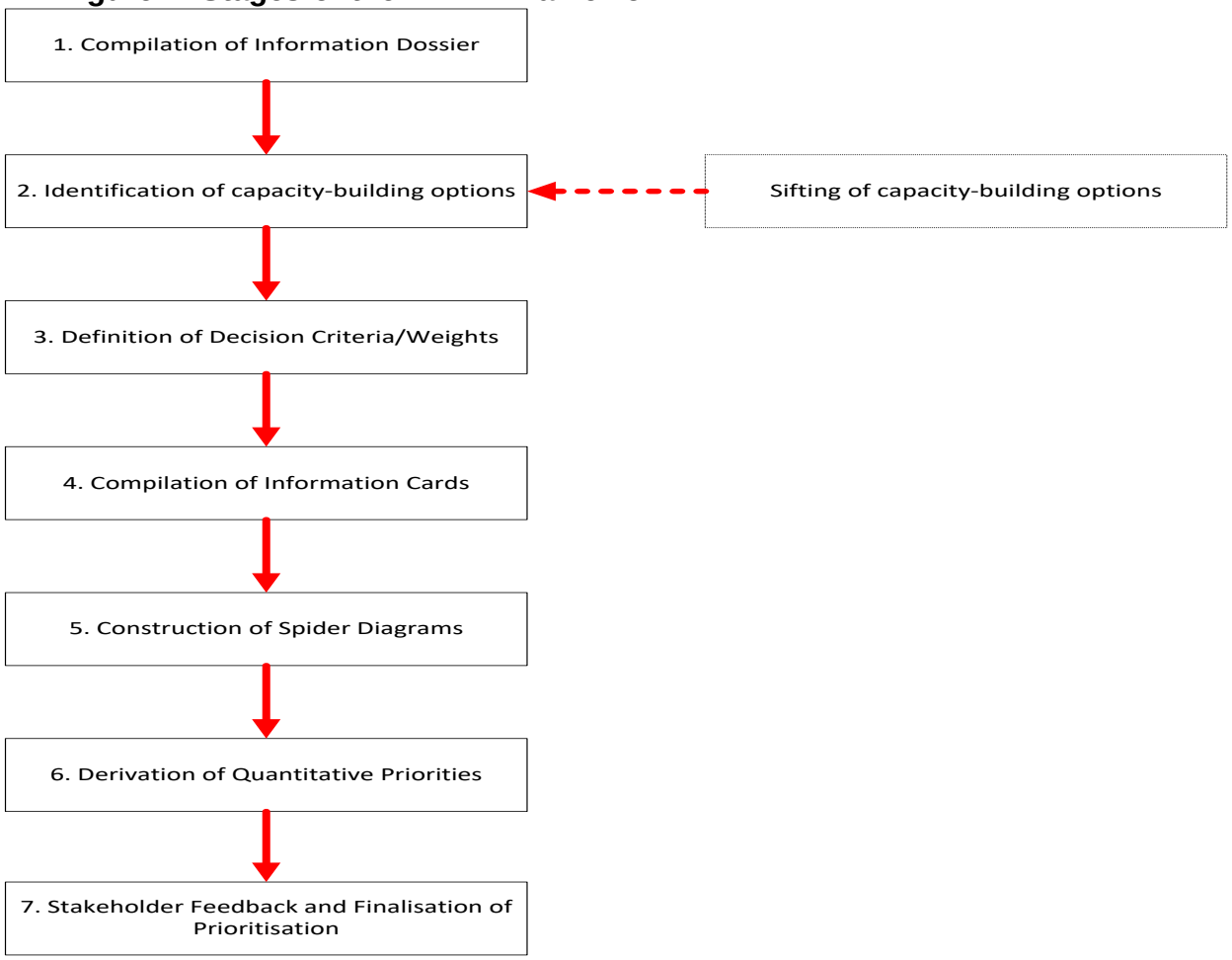
- Identify the current set of SPS-related capacity-building investment options in the context of existing and/or potential exports of agri-food products. Below this is termed the choice set.
- Determine the decision criteria that should drive the establishment of priorities between SPS-related capacity-building investment options and the relative importance (decision weights) to be attached to each.
- Prioritize the identified SPS-related capacity-building investment options on the basis of the defined decision criteria and decision weights.
- Examine the sensitivity of the established priorities to changes in parameters of the framework.

The framework employs a highly structured process that aims to be applied in a wide variety of contexts and to provide various diagrammatic and numerical outputs. The framework and its practical implementation are described in detail in a user's guide.[8]

[8] https://www.standardsfacility.org/sites/default/files/P-IMA_Guide_EN.pdf

Below, a relatively brief outline of the seven stages of the framework (Figure 1) is provided, with a particular focus on how they were implemented in Uganda.

Figure 1. Stages of the P-IMA Framework



Stage 1: Compilation of Information Dossier

The first stage of the analysis involved the compilation of a comprehensive dossier of existing information on the SPS challenges facing agri-food exports in Uganda and the associated capacity-building investment needs. In so doing, the aim was to ascertain what work had already been undertaken to identify capacity-building options and the definition of priorities for related investments. Consequently, the current study built on the previous work done in 2013[9], received sector specific presentations from the various Competent Authorities based on their sector specific assessments, as well as a regional policy coherence study conducted by COMESA, and a synthesized SPS-sensitive trade flow

[9] https://www.standardsfacility.org/sites/default/files/Uganda_MCDA_report.pdf

study, during a High-Level inception meeting on 18th December 2018 (see annex 7 for list of these information dossiers).

Stage 2: Definition of Choice Set

In order to identify the SPS capacity-building options to be considered in the priority-setting framework, a three-day stakeholders workshop was held from 19th to 21st December, 2018. The workshop comprised of training of key stakeholders on the P-IMA framework and on the D-Sight Software, which powers the P-IMA framework, and two days session dedicated to the identification of Uganda's SPS Capacity Building Investment Options, Decision Criteria and Weights as well as agreeing on the roadmap for completing the remaining work. Participants were presented with a series of cards and asked to identify the SPS capacity-building needs that is mutually-exclusive and consist of four key elements (Figure 2). First, the product(s) affected. Second, the specific SPS issue faced by exports of this product(s). Third, the market(s) where these SPS needs were an issue. Fourth, the capacity-building investment option(s) that would solve the SPS issue being faced. The combination of these four elements defined a distinct capacity-building option. Respondents were free to define as many specific SPS capacity-building needs as they wished.

Figure 2; Definition of SPS capacity-building options

The Capacity Building Investment Options generated from the above workshop was further reviewed and validated by a sector-specific core team of stakeholders in a working session from 26-30th August 2019 (see Annex 6 for participants' list). In essence, this emanate from a prior decision to conduct the analysis on sector-specific basis due to the large number of capacity building options that were identified during the first workshop. At this stage, certain capacity building options were excluded if they are not SPS issues related to trade, not mutually exclusive, part of an existing project, are not real or clear requirement from the market, etc.

Stage 3: Definition of decision criteria and weights

In the second stage of the stakeholders' workshop, respondents were asked to define an appropriate set of criteria to drive the priority-setting process and to assign weights to these. First, participants were presented with a series of potential decision criteria and asked which (if any) should be excluded and whether any potentially important criteria were missing. To define the decision weights, the workshop participants were each asked to assign 100 points amongst the eleven decision criteria. The scores of participants were then collated and an average weighting calculated. This average weighting was reported back to the workshop to identify any discrepancies. The final agreed weightings are reported in Table 1 below.

Table 1; Decision criteria and weights for setting priorities of SPS capacity-building options1

Objective	Decision Criteria	Average Weight
Cost	Up-front investment	9.9
	On-going cost	8.1
	Ease of implementation	8.9
Trade Impact	Change in absolute value of exports	13.2
	Export diversification (market/product)	8.4
Agriculture & Health Impact	Agricultural/fisheries productivity	10.9
	Domestic public health	7.4
	Environmental protection	6.4
Social impacts	Poverty impact	8.9
	Food security	11.3
	Vulnerable Groups	6.6

Stage 4: Construction of Information Cards

Having identified the choice set of SPS capacity-building options and the decision criteria and weights to be applied in the priority-setting exercise, information was assembled into a series of information cards. The aim of these cards is not only to ensure consistency in the measurement of each decision criterion across the capacity-building options, but also to make the priority-setting exercise more transparent and open to scrutiny.

First, the specific nature of each of the SPS capacity-building options was described in some detail on the basis of existing documentation, consultation with stakeholders, etc. and are set out in session 4. The metrics to be employed for each of the eleven decision criteria were then defined, taking into account of currently available data and the range of plausible ways in which each of the criteria might be represented. Table 2 sets out the final metrics. Note that the choice of metrics involves a sometimes difficult compromise between the availability and quality of data, and the imperative to employ continuous quantitative measures. While the cost element and trade impacts were estimated by a core team of sector players based on the component of the capacity building investment options and the lost trade and/or potential trade, respectively, other decision criterion

were measured collectively by stakeholders during the working session based on available data and information. However, it is important to recognise that the aim of the framework is not to provide a final and definitive prioritisation of the capacity-building options. Rather, the priorities that are derived should be revisited on an on-going basis and revised as more and/or better data for the decision criteria become available.

Information cards for each of the SPS capacity-building options were then compiled. These are reported in Annex 4. Each card presents data for the eleven decision criteria, measured according to the scales outlined in table 2 below. For each criterion, details are provided of how measures for each of the decision criteria were derived. There is also an indicator of the level of confidence in the measure reported. Where there is a lack of underlying data and/or these data are of dubious quality, a low or medium level of confidence is indicated. Conversely, where fairly rigorous and comprehensive prior research is available, a high level of confidence is reported. These confidence measures need to be considered in interpreting the results of the prioritisation exercise, and in considering how the analysis might be refined in the future. In all, the data show that, overall, it would require about US$74.9 million to address all the capacity constraints in order to generate over US$1.4 billion worth of additional exports over five years.

Table 2: Decision criteria measurement

Criterion	Measurement
Cost	
Up-front investment	Absolute value ($)
On-going costs	Absolute value ($)
Ease of implementation	Yes/No
Trade Impact	
Absolute change in value of exports	Absolute value ($)
Export diversification	Yes/No
Domestic Spillovers & Social Impacts	
Agricultural/fisheries productivity	Large negative (-2) Negative (-1) No change (0) Positive (+1) Large positive (+2)
Domestic public health	
Environment	
Poverty impacts	
Food Security	
Vulnerable Groups	

Stage 5: Construction of spider diagrams

Through Stages 1 to 4, the inputs to the priority-setting process were collected and then assembled into the series of information cards. The aim of Stage 5 was to present the information in the information cards in a manner that permits easier comparison of the capacity-building options. Thus, spider diagrams were derived that plotted the SPS capacity-building options against the decision criterion. Scrutiny of these diagrams (Section 3 Results) identified the decision criteria against which each of the capacity-building options is weaker or stronger compared to the other capacity-building options in

the choice set. In Uganda, due to the nature of measurement for the decision criterion, which did not provide clear distinctions, only the cost and trade decision criterion were presented in the spider diagram.

Stage 6: Derivation of quantitative priorities

The formal priority-setting analysis involved the use of outranking through the D-Sight software package. The mechanics of the analysis are described in some detail in the user guide to the framework. The inputs to the model are the data assembled in the information cards. For most of the decision criteria preferences were modelled using a level function since these were measured using categorical scales. However, the up-front investment, on-going cost and absolute change in value of exports criteria were measured continuously and modelled using linear functions. Three models were estimated using the D-sight software:

- *Baseline model* using decision weights derived in Stage 3.
- *Equal weights model* in which all of the decision criteria are weighted equally.
- *Costs and trade impact model* in which only the cost and trade impact decision criteria are included in the analysis, all of which are equally weighted.

The baseline model is considered to provide the most reliable set of priorities, in that it uses the full set of information derived through Stages 1 to 4. The two subsequent models were estimated in order to examine the extent to which the derived priorities are sensitive to changes in the decision weights or criteria; if the broad ranking of the SPS capacity-building options remains generally the same under the three scenarios presented by these models, we can be reasonably confident that the results of the framework are robust.

Stage 7: Validation

The final stage of the priority-setting analysis is completed with this report on the results of the analysis. The aim of the validation process was to ensure that the results of the priority-setting framework were broadly in accordance with expectations, or that unexpected rankings can be explained through the pattern of data in the information cards. To facilitate this process, the draft report was disseminated to stakeholders by email with a request for comments. Further, the preliminary results were presented at a validation workshop on 17th November 2020, the participants at which are reported in Annex 6. Further validation was also solicited in terms of comments on the draft report which was finalized and distributed on 18th December 2020.

4.0 Brief Description of Capacity Building Options

4.1 Livestock, Dairy and Honey Products

i) Establishment of SPS infrastructure for livestock - Quarantine Stations and holding grounds using PPP approach

Regional and international trade in live animals requires both importing and exporting countries to have adequate infrastructure to control animal diseases and also observe sanitary and phyto-sanitary measures. Uganda is experiencing frequent outbreaks of transboundary and trade sensitive animal diseases such as Foot and Mouth Disease (FMD), Rift Valley Fever (RVF), Peste des Petites Ruminants (PPR), African Swine Fever (ASF). In addition, there are emerging and re-emerging animal diseases such as Congo creameam haemorrhagic fever (CCHF), Anthrax, Brucellosis, Avian Influenza (AI) that affect both production and human health. These challenges are partly attributed to uncontrolled animal movements internally and across the national borders as well as lack of functional animal quarantine stations and holding ground facilities. The Government has got a number of pieces of land earmarked either for animal quarantine stations or holding grounds that is scattered around the country. The land is not being used as the past developments were vandalised or became dilapidated. The Government through MAAIF will identify key strategic pieces of land and private entities to re-furbish animal quarantine stations and holding grounds. This will improve the capacity to control animal diseases and also observe sanitary and phyto-sanitary measures required for safe trade since there will be better monitoring of disease situation in animals that are imported or destined for export.

ii) Establishment of and Implementation of cattle identification and traceability system

Uganda has no formal cattle identification and traceability system. The cattle branding act was repealed by the enactment of the animal breeding act (2001) but since then no system has been put in place to regulate cattle identification. This has left cattle farmers with no option for animal identification. The current practice is that each individual farmer decides the identification system to be applied on the farm. The systems range from using names as per the animal court colour, ear tagging, ear notching, branding and inhumane practices such as putting marks on the entire animal skin using hot metals as evidenced in the Karamoja sub-region. All these methods are of less use to the livestock sub-sector since they cannot be related to any farmer as there in no national data base. In other words, the current systems cannot be applied to trace the origin of the animals and therefore the consumers are not assured of the safety of the animal products on the market. This has hindered access to lucrative markets such as EU and middle east. The project will support development of regulations for animal identification and traceability, establish, pilot and implement cattle identification and traceability system. This will ensure the origin of cattle and their products is well known thus increasing consumer confidence and safety.

iii) Establish 2 mobile export abattoirs in FMD-endemic regions to overcome quarantine

The country is endemic with foot and mouth disease (FMD). This poses a major hindrance to the growth of the livestock subsector and increase in the export earnings. Efforts to control the disease have always been geared towards spot vaccinations and instituting quarantine restrictions during the times of outbreaks. This approach has not been effective since all animal species that can be affected by the disease cannot be vaccinated to a limited number of vaccine doses that are procured annually and violation of quarantine measures. With increasing number of livestock keeping households and reduction in grazing land, the livestock subsector is experiencing an increased interaction between domestic and wild animals that are reservoirs to FMD. The interaction is common during the prolonged dry season as livestock farmers encroach onto the game land in search for abundant pastures for their animals. These challenges among others, have forced some livestock farmers to invest in infrastructure and biosafety and biosecurity measures that have enabled them to graduate in operating FMD free compartments. Since Uganda is implementing a commodity-based trade for export of safe livestock products, mobile abattoirs will be used to support sanitary slaughter animals on farm. FMD risk materials will be left behind and extract clean meat for export.

iv) Establish Poultry abattoirs including mobile abattoirs

The poultry industry in one of the newly emerging industries within the livestock sub-sector. Most public and private interventions in the past have been focusing on the large animals such as cattle. For this reason, most of the slaughter facilities have been targeting cattle and other small animals such as goats, sheep and pigs. The country has got about five poultry abattoirs that are located near peri-urban areas. They are solely owned and only serve private companies or individuals who double as the proprietors. This imply that the majority of the poultry meat dealers slaughter from ungazetted and poorly hygienic premises. The meat from these premises is supplied/distributed in both urban and peri-urban centres across the country and consumed by low income earners. This increases the risk of consuming contaminated meat that may lead to outbreak of food-borne diseases. The site of such unhygienic places also reduces demand of poultry meat from some sections of people and potential importing countries.

The project will support establishment and operation of stationary and mobile poultry slaughter abattoirs to improve on the hygienic slaughter and safety of poultry meat on the market. About 20,000 people consume roasted chicken meat while travelling on the major high ways are at risk and these will be the beneficiary of safe products. The environment will also be protected from poor disposal of chicken slaughter wastes.

v) Technical capacity building in Biosecurity, Biosafety, and technology for beef, poultry and bee products

Access to regional formal and lucrative markets continues to be a major challenge for majority of smallholder livestock farmers and small-scale processors despite the ever-

increasing demand for livestock products. This is partly attributed to poor systems for animal products identification, traceability, regular inspection, disease status assurance biosecurity and biosafety measures. The livestock value chain has got a number of actors whose actions can either lead to a safe or unsafe product on the market. Ensuring and maintaining biosafety and biosecurity along the value chain is therefore key in increasing confidence of exporters/importers of Ugandan livestock and livestock products. This project will support technical capacity building of regulators to ensure that livestock products are produced, handled and processed under safe environment. This will enhance compliance to access better markets for livestock products.

vi) Accreditation of BSE and FMD Analysis Laboratory

Majority of the countries that intend to import livestock and livestock products are concerned by the safety of such products to be imported. The major concerns are mainly introduction of diseases that can affect both human health and the national herds. Therefore, countries have been forced to institute trade requirement that will ensure safe movement of livestock and livestock products. Among the requirements is accompaniment of such products with a certificate of analysis from an accredited laboratory. Uganda has got a number of veterinary laboratories operated by both Government institutions and private sector. However, none of the laboratories is internationally accredited for BSE and FMD analysis. BSE is zoonotic in nature while FMD can affect a wide range of domestic animals thus causing serious economic consequences. Under this project, it is proposed to upgrade one Government and one private sector veterinary laboratories for accreditation to enable export of the highly demanded livestock and livestock products, especially meat of the Ankole Longhorn Cattle. The accredited laboratories will also offer services to private farmers who require to export their livestock products.

vii) Surveillance of BSE, FMD, Avian Influenza (AI), & American Foulbrood (AFB)

Disease surveillance is key in ascertaining the disease status in livestock across the different livestock farming systems. The Government is mandated to carry out animal disease surveillance to help in decision making and also assure the consumers of the safety of the products that come from animals. Currently, due to limited resources and Government policy on disease control, the majority of the surveillance activities focus on diseases are trade sensitive. Despite Uganda being declared BSE free, experience shows that the country is being faced by emerging and re-emerging diseases some of which are of public health importance. This calls for scaling up of disease surveillance activities to ensure that both animals and humans are protected in addition to maintaining foreign markets for animal products.

viii) Establish 65 FMD Free compartments

Foot-and-mouth disease is endemic in livestock keeping communities with serious consequences due to its ability to affect a wide range of livestock species and restrictions in trade. Most effects are experienced by cattle farming households since cattle contribute

to over 60% of their incomes. Uganda is experiencing frequent outbreaks of the disease and this mainly attributed to poor annual national herd vaccination coverage estimated at less than 20%, violation of quarantine restrictions, delay in supply of vaccines among, weak punitive measures for offenders among others. Under the Uganda Meat Export Development Project that was funded by the Danish Government, disease free zones were established. Within these zones, there are cattle farms and ranches that can be guided to develop a status of FMD disease free farms. This can be achieved through improving on the disease control infrastructure, ensuring farm bio-safety and bio-security, ensuring bi-annual FMD vaccination, regular disease surveillance among others.

The measures when properly instituted and followed will result into increased incomes as farmers will not spend on treatment. In addition, animals will not suffer from deaths, weight loss, abortions, milk losses, stunted growth among others. Uganda will be able to trade in animal and animal products in regional and international markets

ix) Support private sector in cattle, apiculture and poultry associations in advocacy and self-regulation

The livestock subsector in Uganda is dominated by the private sector. The latter own the majority of the livestock together with their establishments along the value chain. There are a number of livestock value chain associations that aim at ensuring that members benefit from their investments. The associations stem from the village up to the national level. This means that members know and understand each other, including their challenges very well. Due to the thin nature of the Government civil service structure, it is not possible for the employed staff to work with all available associations in order to uplift the standards of animal and animal products being produced for the market. The country has got a number of legislative frameworks and guidelines that are minimally being implemented and enforced for the good of the subsector. Since the livestock value chain associations are widely spread across the country, they will be mobilized and their capacity in advocacy skills build. This will increase attention of Government and other development partners to address challenges faced by members. The associations will also be supported to make by-laws to enable them carry out self-regulation. This will improve the quality of animal and animal products on the market. It will also reduce on the operation costs for Government to carry out regulatory work.

x) Strengthen Laboratory Capacity

Trade in livestock and livestock products in has been growing over the years. This calls for an expansion and improvement in the inspection and diagnostic services to meet international requirements in the trade of animals and animal products. Currently, there is one National animal diseases diagnostic laboratory operated by the Ministry of Agriculture, Animal Industry and Fisheries, and about twelve regional laboratories operated by the district local governments. There are also other veterinary laboratories operated by academic institutions but basically for training purposes. Regional laboratories were established to aid early detection and diagnosis of livestock pests,

vectors and diseases outbreaks and timely reporting of disease outbreaks. This would result into the centre conducting prompt field investigations, laboratory confirmation and interventions to control the diseases, pests and vectors.

However, the technical and infrastructure capacity of the regional veterinary laboratories is inadequate and therefore cannot fulfill their mandate. This has resulted into delayed disease diagnosis as samples have to be moved long distances to the central laboratory and also takes more time for the analysis and release of the results as more samples will be waiting for processing. In addition, one regional laboratory serves a minimum of twelve districts and due to challenges of sample collection and transportation, some districts may not be able to access diagnostic services from far distanced laboratories. Such areas may require mobile diagnostic services.

Improving the capacity of regional diagnostic laboratories and provision of mobile laboratory diagnostic services will result into prompt detection and control of livestock diseases in the country.

The Government of Uganda in collaboration with Trademark East Africa further developed customs border point infrastructure and the division of veterinary regulations and enforcement under MAAIF was provided space to house border post laboratories (Busia, Malaba, Katuna, Mutukula, Elegu, Kyanika). However, the laboratories are not functional due to lack of equipment. In most cases, the inspection and approval of the movement of animals and animal products is therefore based on visual inspection and accompanying document without any further laboratory analysis. This poses a great risk of disease transmission across the borders. Nevertheless, when any sample is to be analyzed, public means are used in delivering the samples to any of the analytical laboratories either in Kampala or Entebbe which increases the cost of transacting business.

Equipping border post veterinary laboratories will improve inspection of Animals and analysis of animal products destined for international and Ugandan markets. This will reduce the transaction costs of sending samples to Kampala/Entebbe and facilitate regulation and control of trans- boundary animal diseases. It will also increase confidence of exporters/importers of Ugandan livestock and livestock products. The vehicles attached to the border post laboratories will be helpful in regular monitoring and patrol of the border areas, and quick transportation of samples in circumstances where reference sample analysis is required. On the other hand, improving capacity of regional veterinary diagnostic laboratories and procurement of mobile veterinary laboratories, will enhance timely and efficient diagnosis of emerging and re-emerging diseases to prevent the negative impact on the livestock sector and public health.

This intervention therefore targets equipping 6 border post laboratories, improve capacity of 5 regional diagnostic laboratories, and procure 2 mobile laboratories.

xi) Developing guidelines and SOPs for beef, honey and poultry VC actors

Livestock production costs in Uganda are considered to be relatively cheaper compared to the neighbouring countries such as Kenya. This has been possible due to the presence of abundant animal feeding resources and availability of abundant labour force. Because of this, the number of medium and large-scale farmers, processors and other value chain actors, both local and foreigners, has increased. However, while some of these value chain actors develop guidelines and SOPs that guide the day to day operations, others do not have. This puts some consumers at a risk of consuming un safe and un healthy products. The Directorate of Animal Resources under MAAIF has always inspected and certified animal products processing establishments and animal products to the lucrative markets. Having guidelines and SOPs has always been one of the requirements to approve an establishment and the products. However, it has been observed that there is a variation in the type of guidelines and SOPs laid down by the different stakeholders. Therefore, there is a need to harmonize guidelines and SOPs to ensure uniformity and consistence in operations of all the value chain actors.

xii) Training, equipping and retooling the regulators of animal food products in risk-based inspections approaches.

Prior to the structural adjustment programs that also saw the merger of ministries and training colleges, Uganda used to train and recruit commodity-based professionals. This meant that specialized staff were recruited to ensure safety of animal products on the market. However, the staff were using minimal technology in their day to day activities. With modern production and processing technology, Uganda is currently processing and exporting exceptional animal products such as milk casein to the hard-to-penetrate market like USA. MAAIF in collaboration with its agencies and the private sector players, has supported implementation of sanitary measures in animal and animal product handling establishments thus contributing to enhanced competitiveness in regional and international markets. With increasing human population and income levels, the demand for safe animal source foods and other products in general, is on the rise both domestically and externally. In order to ensure production and processing of safe products, it requires among others availability of human resource that are well equipped with knowledge and tools to conduct risk-based inspections along the entire value chain. However, the current approach for training students, who are ultimately employed to take charge of handling animal source foods, is to provide a student with wide range of knowledge without giving a chance for specialization during the entire training period. This leads to the churning out of professionals with performance and knowledge gaps when it comes to detailed commodity inspection. Once employed, such professionals will require re-training and provision of the necessary equipment in order to enhance their performance. This project will support training, equipping and retooling the regulators of animal food products in both central and local governments in risk-based inspections approaches

xiii) Develop and implement residue monitoring plan in meat, dairy poultry, & bee products

Globally, harmful residues, such as drugs and chemicals, in animal products have increasingly raised health and trade concerns. The residues have decreased the efficacy of most common drugs to effectively control and cure infectious diseases in both humans and animals. In addition, they are also partly responsible for the increasing numbers of non-communicable diseases amongst the human population. Since privatization and liberalization of veterinary services in the country, the handling and distribution of drugs and chemicals became a preserve of the private sector, with the National Drug Authority under the Ministry of Health, carrying out the regulatory function. However, the authority has got a thin appearance along the drug and chemical handling value chain. This has resulted into different forms of drugs and chemicals misuse such as self-medication, unrestricted access to drugs and chemicals, un observation of withdraw periods, over and under dosing, and use of expired products, adulteration of animal products with chemicals in an attempt to prolong shelf life among others.

Recently Uganda developed a strategy to prevent, slow down, and control the spread of resistant organisms. The strategy is more on reducing the cases of drug resistance in humans and animals through proper handling and administration. Drug and chemical residues in animal source foods are not catered for under this strategy. In order to ensure sustainable availability of safe animal source foods, the project will support the development and implementation of a national residue monitoring plan.

xiv) Produce Poultry Vaccines

The poultry industry in Uganda plays social, economic and health roles in the lives of the rural households and the vulnerable communities especially those who do not have a right to land ownership. The most important poultry is the chicken. Of recent, large scale commercial broiler and layer chicken farms have been established and providing employment especially to the youth and women. The country has also been able to diversify exports to the regional markets. However, in the last ten years, the chicken population has reduced by 5.4% despite the increase in the number of chicken rearing households and large-scale farms across the country. The rampant diseases such as Newcastle and infectious bronchitis are partly responsible for the reducing numbers of chicken in the country. This mostly affects the rural households. Under the current Agriculture Sector Strategic Plan, the poultry industry, unlike the dairy and beef industries, is not prioritized for support. The private sector and individual farmers are the ones responsible for providing all the services including disease control. The pharmaceutical companies import poultry vaccines from a number of countries such as South Africa, Belgium, France, Middle East countries among others for sale to retail shops and individual poultry farmers. Since the companies are profit driven, the vaccine costs are not affordable by the majority of the rural farmers. In addition, monitoring adherence to the vaccine cold chain system by the regulatory bodies may not be effective. Locally, thermal stable New Castle Disease vaccine has been developed and the current efforts are to develop Fowl typhoid vaccine. The local company still need to be supported to manufacture vaccines that meet the local conditions.

The project will work with the local vaccine manufacturing company to establish a poultry vaccine production line to manufacture the most demanded vaccines that are suitable to the rural conditions. The vaccines will also be affordable to the majority of the poultry farmers.

xv) Establish and Support Innovation Platform for Poultry VC actors

The concept of innovation platforms is still less popular in Uganda. The majority of the value chain actors have not yet embraced it fully due to lack of awareness of their benefits. In the livestock sub-sector, it is the dairy industry that seems to have relatively active platforms where all value chain actors participate. This has resulted into great transformation of the dairy industry. The poultry industry in Uganda is solely private sector driven with a number of value chain actors including vulnerable people. However, there is no platform that brings together all the value chain actors save for the Uganda Poultry Producers Association that mainly bring together hatchery operators and dealers of day-old chicks. It has been observed that most people who want to join the livestock value chains, find it easier to start with the poultry industry. However, the industry has got a number of challenges due to a number of factors such as weak coordination among the stakeholders, weak regulatory framework, rampant diseases, seasonal supply and high cost of feed ingredients and unstable prices for the poultry products. The project will support establishment and operation of innovation platforms for poultry value chain actors to share knowledge, information and innovations that will help to solve or reduce challenges faced along the value chain

xvi) Management of veterinary drug residues and aflatoxins in milk and milk products

Antibiotic residues in milk and milk products are a serious public health hazard and are among SPS issues that currently hinder trade. This, therefore, necessitates stringent control measures including testing, sensitization and training of dairy farmers to ensure continuous improvement.

xvii) Capacity Building in GHPs & GMPs for Milk and Milk Products

Hygiene issues are highly associated with rejection of milk and milk products exports. Dairy cold chain infrastructure features consistent and adjustable temperatures to keep milk at optimum level, so as to allow farmers contact the buyers for increased income and facilitate value addition for increased export volumes and values. The most important advantage of maintaining is improving milk safety and quality because checks at the centre enables farmers to produce clean and fresh milk to meet requires standard for the market. It is, therefore, an important infrastructure to maintain milk at 4C˚ and below so as ensure its utmost quality.

The following were either merged or excluded

- Stakeholder awareness of and training on SPS measures (deleted because it's cross-cutting)

- Management of porous borders for animal and animal products (merged with animal movement control)
- Develop and enforce meat regulations and animal disease control regulations
- HACCP for manufacturing points (deleted - covered under one of the options)
- Produce FMD vaccines (deleted - the cost and time required is large and it's already in Government plan)
- Develop risk based inspections approaches
- Animal and animal product movement control including borders
- Strengthen the capacity of testing laboratories incl. upscaling mobile labs for milk (plans already underway)
- Rehabilitating and equipping cold chain infrastructure for dairy products (being dealt with already)

4.2 Horticulture and Grains

i) Accreditation of pesticide testing labs

Credible controls must be in place in order for exporters to ensure compliance with destination market maximum residue limits, including those of private buyers. Uganda's principal market for horticulture products is the European Union (EU). Most products, particularly capsicum, has been subject to constant interceptions into the EU market due to pesticide residues. In fact, capsicum which constitutes 40% of fruits and vegetables export into the EU is currently banned into the EU market for the same reason.

Accredited testing capacity is arguably more important in the case of EU markets where far stricter limits and associated testing requirements are applied. Although, a private accredited Lab exists in Uganda, exporters claim that it is too expensive to use. The assumption of this capacity building is that a government owned accredited testing Lab. Would be reasonable even though some concerns surround the turnaround time, which is considered to be usually longer than the private one.

ii) Pest Management & Control for Mango exports

Pests are one of the key SPS issues that is faced by horticulture products exports. Uganda's principal market for horticulture products is the European Union (EU). Although, currently, Uganda exports a little bit over US$1.5 million Mangoes mostly to Kenya and Rwanda in 2017, there exists a potential market for mangoes from Uganda outside the region. However, compliance with fruit fly and mango seed weavil free produce is currently restricting exports. This capacity building option is intended to use combined complementary approaches of irradiation, pest free area/low areas of pests, and biological control, to address the challenge.

iii) Pest Management & Control for Capsicum exports

Capsicum has been subject to constant interceptions into the EU market due to pests, pesticide residues and other harmful organisms. In fact, capsicum which constitutes 40% of fruits and vegetables export into the EU is currently banned from being exported for

the same reason by Ugandan government to ensure the problem is internally resolved. This capacity building covers a combined complementary approaches of irradiation, pest free area/low areas of pests, and biological control.

iv) Pest Management & Control for Banana exports

Pests of bananas are one of the key SPS issues that is faced by bananas exports to some countries. Uganda exports around US$780,000 on average between 2014-2018 mostly to the regional market. However, there exists a potential market for bananas from Uganda outside the region, but compliance with pest free produce is currently restricting exports especially to U.S.A. This capacity building covers a combined complementary approaches of irradiation, pest free area/low areas of pests, and biological control.

v) Biocontrol of Aflatoxin in Maize, Sorghum and Groundnuts

Prior efforts to control levels of mycotoxins in groundnuts, maize and other crops elsewhere through improved post-harvest handling have been of limited effectiveness. Biocontrol of Aflatoxin contamination is a promising technology that will enhance the ability of smallholder to meet export market mycotoxin (and especially aflatoxin) limits through the use of a low-cost bio-control methods. The effectiveness of bio-control agents needs to be established in field conditions, and simple, cheap and effective formulations developed for use in famers fields. Integration of these bio-control agents and other farm practices and technologies would provide an environmentally friendly option for the management of Aflatoxin contamination. Atoxigenic strains would be developed from local land races similar to those developed by the International Institute of Tropical Agriculture (IITA) in Nigeria. Studies have shown not only a direct reduction in aflatoxin concentration in crops through use of such atoxigenic strains, but also that these strains can displace toxin-producing strains in the soil. The long term effect is a sustained reduction of aflatoxins in affected crops by between 90 and 99 per cent.

vi) Aflatoxin Control in Grains (Excl. Biocontrol)

Africa loses 670 million USD to the EU market alone due to Aflatoxin related standards. Mycotoxins are a major problem impacting exports of grain from Uganda totaling to 38 Million USD annually. Mycotoxins are generally also a major public health issue in Uganda, with Aflatoxin induced liver cancer at 3,700 new cases annually, monetized at a cost of 577 million USD in treatment annually. Major Mycotoxins of concern in Uganda are Aflatoxin and Fumonism. High aflatoxins concentrations were attributed to poor practices during harvesting, drying, processing, and storage. Uganda is a net surplus producer of maize, a substantial part of which is exported to Kenya that has a periodic deficit of 18 million 50kg bags annually, with about 600,000MT sourced from Uganda. The increase in demand for maize for human consumption and animal feed (1/3 of the maize) in the region coupled with the relevant food safety concerns (Aflatoxin) requires urgent attention to avoid loss of markets. Tackling this problem requires a package of complementary interventions, encompassing five priority areas of awareness creation; advocacy and communication; management of the agriculture value chains; public health management; policy and legislations; and coordination, monitoring and evaluation.

vii) Capacity building in traceability in Grains

Traceability of sources of products ensures that contaminations are easily identified and eliminated. This ensures that a particular threat can be separated from all consignment and does not affect the integrity of the whole consignment and that of the exporting country. For effective management of contaminants in grains, this option will focus on building and implementing a traceability system through Supply chain mapping, effective chain of custody, standardization of data collection and transmission methods (e.g. use of food grade tracers or labels) and product testing and recall procedures.

The following initially proposed capacity building options have been either merged into broader categories or excluded because they are either an activity under a broader option or it's difficult to assign the flow of cost and benefits to them in the context of the P-IMA framework.

- **Horticulture**
    - Irradiation of Horticultural Produce (Covered under pest management and control for Mango, Capsicum, and banana)
    - Establishment of Pest Free Production Sites and Areas of Low Pests Prevalence for Banana, Capsicum & Mango (B. Invadens, Bactrocera Dorsalis, FCM) (covered under pest management and control)
    - Biological control of (FCM and FAW)
    - Capacity Building in controlled places of production for Capsicum for small scale growers (covered under pest management and control)
    - Capacity building in GMPs, PHHs and hygiene practices for horticultural products (this is an activity and would be covered under the appropriate capacity building)
    - Pesticides residue monitoring (included in the accreditation of pesticide testing laboratory)
    - Data capture and forecasting Info System for FCM in Horticulture products for surveillance and monitoring (merged into Pest management and control)
    - Mass trapping of FCM and Bactrocera dorsalis
    - The Certification of Agro – input suppliers and inputs (part of GAPs)
    - GAPs for horticulture production (covered under pest management and control)
    - GAPs (pesticides safe use)
    - Capacity building in traceability (Food safety, plant health) (covered under Grains)
    - Strengthen institutional enforcement capacity for Maize and F&V (it's a regulation issue)
- **Grains**
    - Harmonisation of SPS import requirements for Grains (Maize & Sorghum) between EAC & COMESA (taken up under regional P-IMA)

- The Certification of Agro – input suppliers and inputs (part of GAPs and activity under aflatoxin control and/or biocontrol)
- GAPs (pesticides safe use) - (part of GAPs, GMPs & GHPs and activity under aflatoxin control and/or biocontrol)
- Mycotoxin monitoring & testing (it's part of Biological control project)

4.3 Fish and Fish Products

i) Promote and support improved processing methods in aquaculture and wild catch

Uganda exports substantial amount of fish and fish products. The product also holds a great potential but is currently constrained by several SPS challenges including hygiene controls. This capacity building option is expected to focus on implementing improved processing methods that ensures less contamination. It will cover procurement of on-farm value addition equipment like improved kilns, ice plants, packaging materials, sausage makers and transport vans, and capacity building on value addition for fish processors/ exporters.

ii) Design and implement Good Aquaculture Practices

Small artisanal fishers, who lack the capacity to produce fish in a more professional way, dominate the fish sector, particularly the wild capture. The US and EU has often intercepted fish exports due to production under unhygienic conditions. Smallholder fish farmers are faced with new opportunities resulting from increasing demand and value for fish due to expanding local, regional and international markets. However, the farmers are scattered across the country and can only count on the pond-side markets when they produce surplus for selling. Unfortunately, smallholder farmers cannot take advantage of these new opportunities. Countries even in Africa, for example Rwanda, DR Congo and Sudan, which have been common destinations for Uganda's farmed fish, have indicated that they will soon want proof of quality and safety of the fishery products for guaranteed access to their markets. This option intends to build capacity for fish farmers and artisanal fishers on best practices in the industry to ensure that products meet international requirements. It will encourage smallholder fish farmers to congregate and work together in organized producer groups for (bulking and synchronization). This also requires building the capacity of extension workers within the aquaculture value chain to improve the quality of extension services delivered to the farmers for improved quality and quantity of the aquaculture products.

iii) Design and Implement traceability system for Aquaculture

'Traceability' is a requirement for fish export to most advanced markets that involves the ability to track fish through all stages of production, processing and distribution. In the area of fish products coming into the EU market, the legislation concerning the production and placing on the market, and the labeling of fish and aquaculture products has been in place since 1991. Fish-exporting ACP countries are faced with a colossal task, as in the

case of Uganda, at all levels of production, including handling of fish on the boat, packaging, and transportation. Traceability is focused mainly on ensuring that operations at each stage comply with EU standards of hygiene. This not only requires an appropriate level of public control, but also a fundamental change in the habits and practices of people involved in the production and handling chain, and requires some significant investment in basic infrastructure, including the provision of ice (and the building of ice-making plants), where the water used must be fit for human potable. This option will focus on establishment of a database for all fisheries actors and farmers in the country, establish a traceability system for farm products, input suppliers and manufacturers, as well as develop HACCAP for aquaculture value chain and train practitioners

iv) Building capacity of Inspection & Certification system for Aquaculture VC

The aquaculture value is quite at its infancy and constitute about only 20% of total fish trading. The sector is dominated by small-scale producers who continue to struggle with basic hygiene and/or manufacturing practices. This capacity building option therefore seeks to enhance the inspection and provide a certification system for value chain players that meets the requirement for exports. It would cover the training of inspectors, equipping, and retooling of the laboratory, as well as the design and implementation of a certification system.

v) Build capacity for Value Chain Actors on International Standards, Regulations, Practices, and Guidelines

The aquaculture value chain actors need continuous sensitization on Residue Monitoring and best management practices that minimize contamination. There are a lot of guidelines to this effect but farmers and other value chain actors continuously need sensitization and monitoring to meet export requirements

vi) Establish and/or Enhance infrastructures

Fish is a highly perishable product that changes form and taste as soon as removed from water. Fish farmers in general are scattered in nature and may not have facilities to keep the product till final destination. The purpose of this capacity building option is to put facilities such as holding facility, cold chain, storage facilities, ice making plants, chill vans, and distribution centres in place at four regional centers, to keep live fish

vii) Upgrade and accredit Uganda fisheries laboratory

The current fisheries laboratory has not yet reached the level of accreditation due to inadequacy not only in term of equipment and personnel but also ability to handle all kinds of fish products including farmed products. The laboratory will need equipping and upscaling to handling aquaculture products

viii) Build capacity in residue and microbial monitoring for fish

The world is increasingly getting aware of effects of heavy metals and other contaminants, the market for aquaculture is specifically aware that fish is raised in controlled water

bodies whereby pollution and its effects may be high. The capacity of the technical personnel in terms of human resources and equipment and technical capacity may be low. There is need therefore to build capacity to handle residue monitoring of fisheries and aquaculture products

ix) Establish and implement a surveillance system for fish

Implementation of all planned activities can only be possible if continuously monitored and surveillance information kept for future use. This will be done from time to time and is needed for continuous trade relations.

The following were either merged into other options:

- Develop aquaculture sanitary standards, regulation, Inspection, and Certification system (it's part of the broader capacity building options)
- Testing for Gut Microbiota disease and parasites (PPP) (covered under microbial)
- Developing and Implementing management plans for Gut Microbiota Disease - (covered under microbial)

5.0 The Results

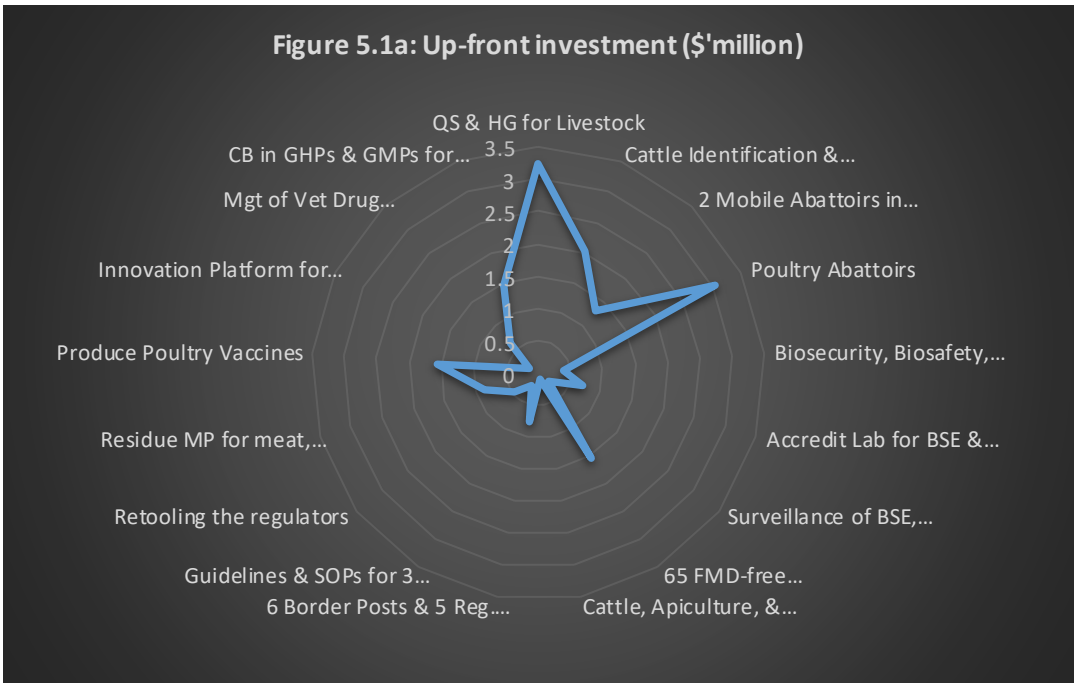
Based on decisions by stakeholders, the results below are presented for each sector separately. For each sector, a spider diagram is used preliminarily to show how each capacity building options performs against each decision criteria. Then, because no individual capacity building option is not able to perform well across all decision criteria, using the spider diagrams, we then employ the outranking system in the D-Sight software package to rank the capacity building options.

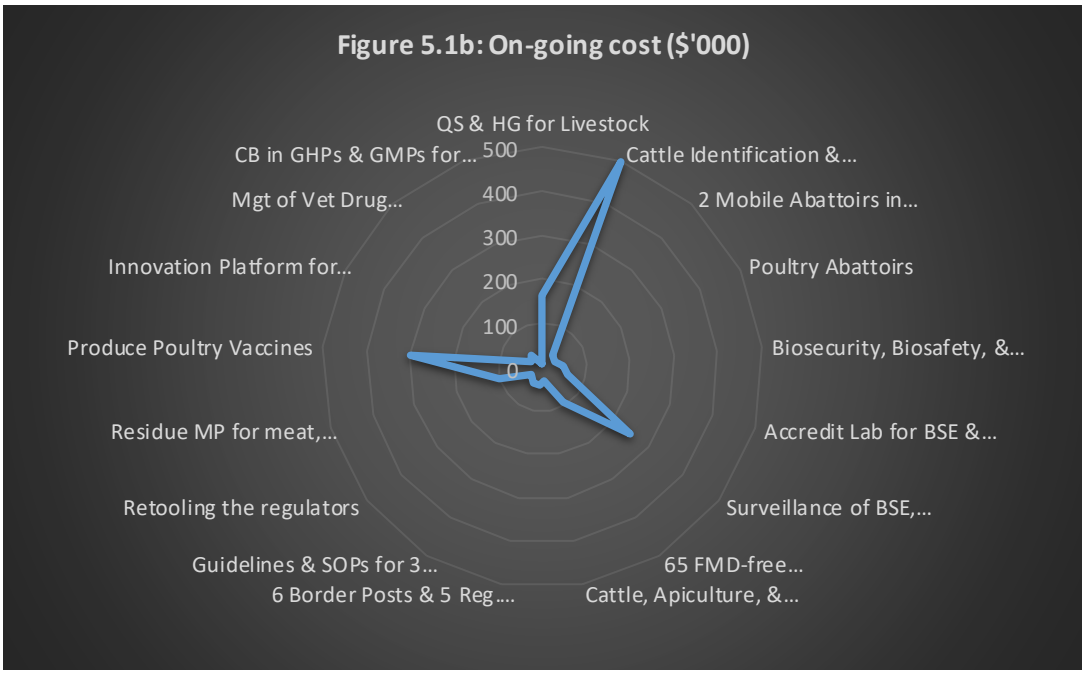
Overall, it would cost about US$74.8 million to implement all the capacity building options and these have the potential of generating an estimated additional trade of about US$1.4 billion annually. Individually, it would cost about US$2.47 million for livestock, dairy and honey, about US$52.3 million for horticulture, and about US$2.1 million for horticulture, and could generate trade worth US$268.3 million, US$546.7 million, and US$604 million, respectively.

5.1 Results – Livestock, Dairy and Honey

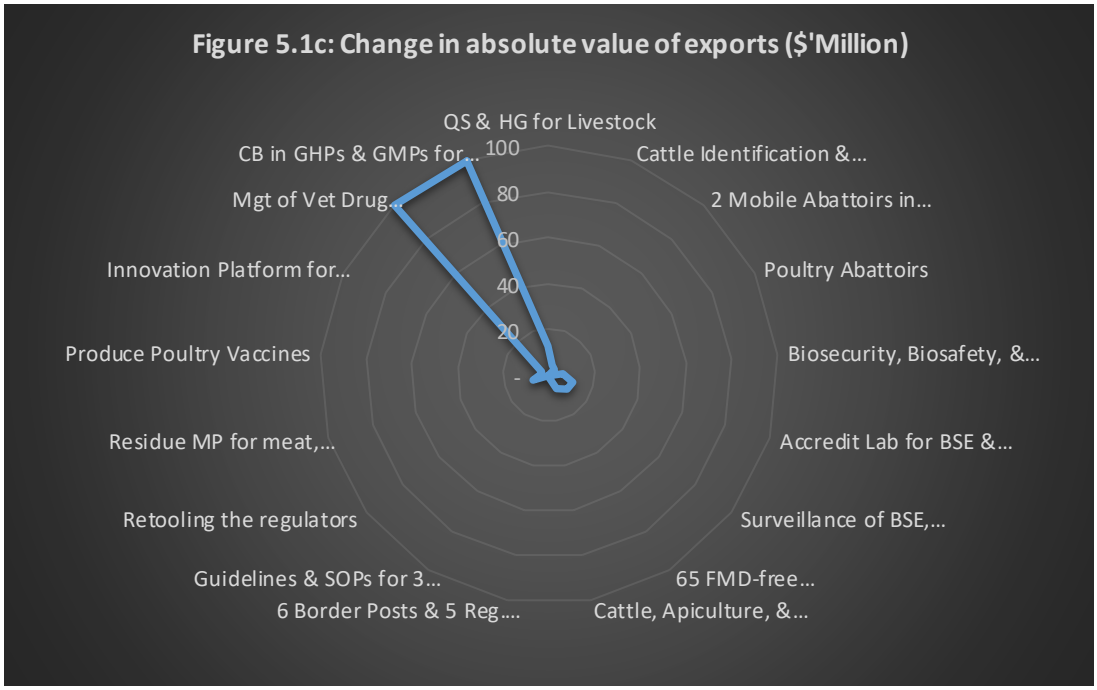
Figures 5.1a-c presents a quick overview of the relative strengths and weaknesses of all capacity building options against three decision criteria, i.e. Up-front investment (Figure 5.1a), ongoing cost (Figure 5.1b), and change in the absolute value of export (Figure 5.1c), that were measured using linear data. The establishment of SPS infrastructure for livestock quarantine stations and holding grounds using PPP approach, and establishment of poultry abattoirs are the most expensive options, in terms of upfront investment at over $3 million. Overall, on-going costs seems to be very minimal cost for

most options, although cattle identification and traceability system stands out at $500,000, followed by production of poultry vaccines at $300,000, and surveillance of BSE, FMD, AI & AFB at $250,000.





In terms of impact on exports (Figure 5.1c), the capacity building options with stronger orientation towards change in absolute value of exports are Management of veterinary drug residues and aflatoxins in milk and milk products; and Capacity Building in GHPs & GMPs for Milk and Milk Products; both at $100 million each. On the reverse, the establishment of poultry abattoirs including mobile abattoirs; supporting private sector in cattle, apiculture, and poultry associations in advocacy and self-regulation; equipping 6 border post laboratories, improving the capacity of 5 regional diagnostic laboratories, and procurement of 2 mobile laboratories for livestock; development of guidelines and SOPs for beef, honey and poultry value chain actors; and training, equipping and retooling of regulators of animal food products in risk-based inspections approaches, are weaker in terms of generating any change in exports.

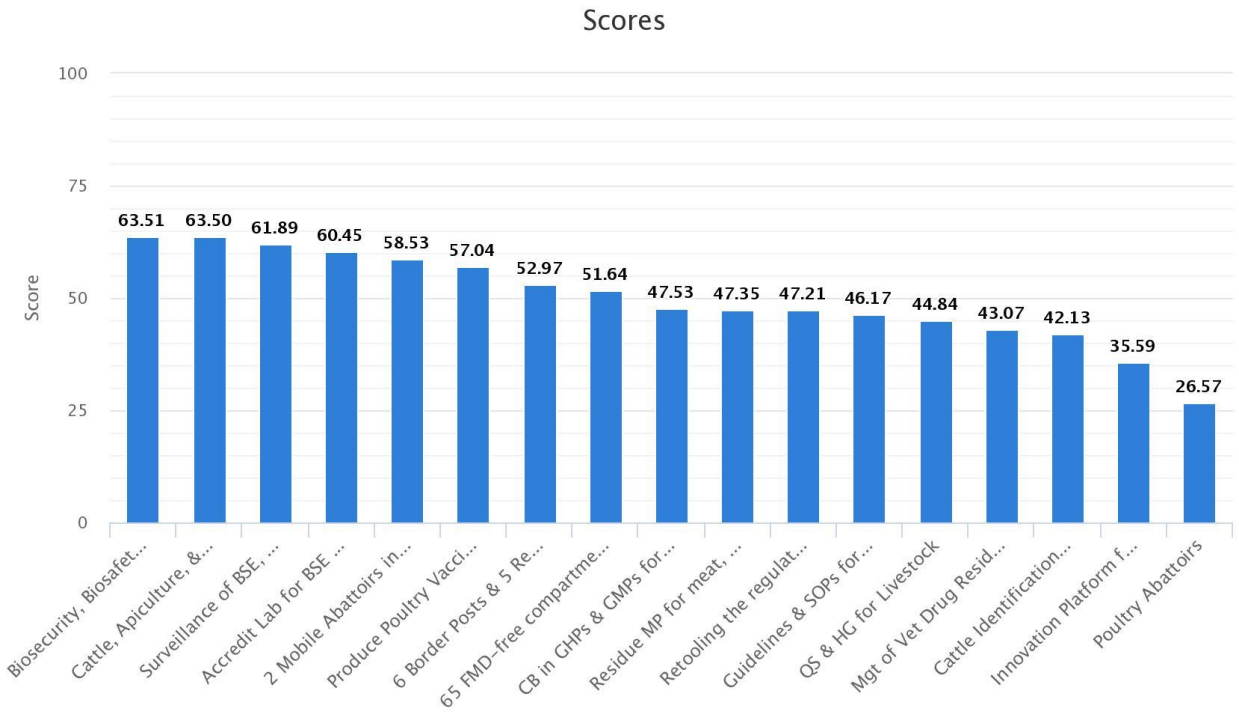


The remaining decision criteria that were measured using non-linear data are not presented here using the spider diagrams because they do not present a striking difference in the performance of each option against the other. Thus, given a better data and the criteria measured in a linear way, e.g. the number of the poor that a capacity building option would impact, these could be presented using the spider diagrams as well. This notwithstanding, Figure 5.1e below presents the criteria contribution to the ranking of the capacity building options, which is another quick way of looking at the influence of each decision criteria on the overall performance of an option.

Figure 5.1d presents the main result of the baseline model i.e. using the decision criteria and weights agreed with key stakeholders during the national workshops. The result shows that technical capacity building in biosecurity, biosafety, and technology for beef, poultry and bee products; support for private sector in cattle, apiculture and poultry

associations in advocacy and self-regulation; surveillance of BSE, FMD, Avian Influenza (AI), and American Foulbrood (AFB); and accreditation of BSE and FMD analysis laboratory, are the top four best options, with scores above 60. That's, these options would bring the best benefits across trade, productivity and social impacts than any other capacity building option. On the other hand, establishment of poultry abattoirs ranks the lowest, followed by establishment and support for innovation platform for poultry value chain actors; and establishment of and implementation of cattle identification and traceability system. It should, however, be noted that because an option ranked low does not imply that it's not important for implementation, but rather, it simply shows that, in terms of priority setting, based on assigned costs and flow of benefits, a lower ranked capacity building option is not the best option to be implemented now given limited resources.

Figure 5.1d: Baseline Model – Prioritization of Livestock and Honey Products



To see why some capacity building options ranked better than others, the criteria contribution analysis in Figure 5.1e shows the contribution of each decision criteria to the ranking of a capacity building option. In effect, the top ranked capacity building options turns to have better contribution from all decision criteria than the bottom capacity building options. Thus, the lowest ranked capacity building option, for instance, had no or very minimal contribution from most decision criteria, except for on-going cost, ease of implementation, and impact on domestic public health.

To ensure that there is confidence in the baseline analysis, a sensitivity analysis is performed by setting the weights equal and also run a cost and trade impact only analysis,

to see whether there would be striking changes in the ranking of the options. Figures 5.1f & 5.1g presents these scenarios. In Figure 5.1f, we present a scenario where all the weights for all the decision criteria were set equal. You would see from the result that there were some changes, although not substantial. That's, the first and second ranked options in the baseline model (i.e. technical capacity building in biosecurity, biosafety, and technology for beef, poultry and bee products; and support for private sector in cattle, apiculture and poultry associations in advocacy and self-regulation) have merely switched places in the equal weights model. Meanwhile, establishment of 2 mobile export abattoirs in FMD-endemic regions have moved from its fifth position to third position displacing surveillance of BSE, FMD, Avian Influenza (AI), and American Foulbrood (AFB); and production of poultry vaccines have gained one step upward. Notably, the bottom five options have not changed their positions in both models.

Figure 5.1e: Criteria Contribution – Prioritization of Livestock and Honey Products

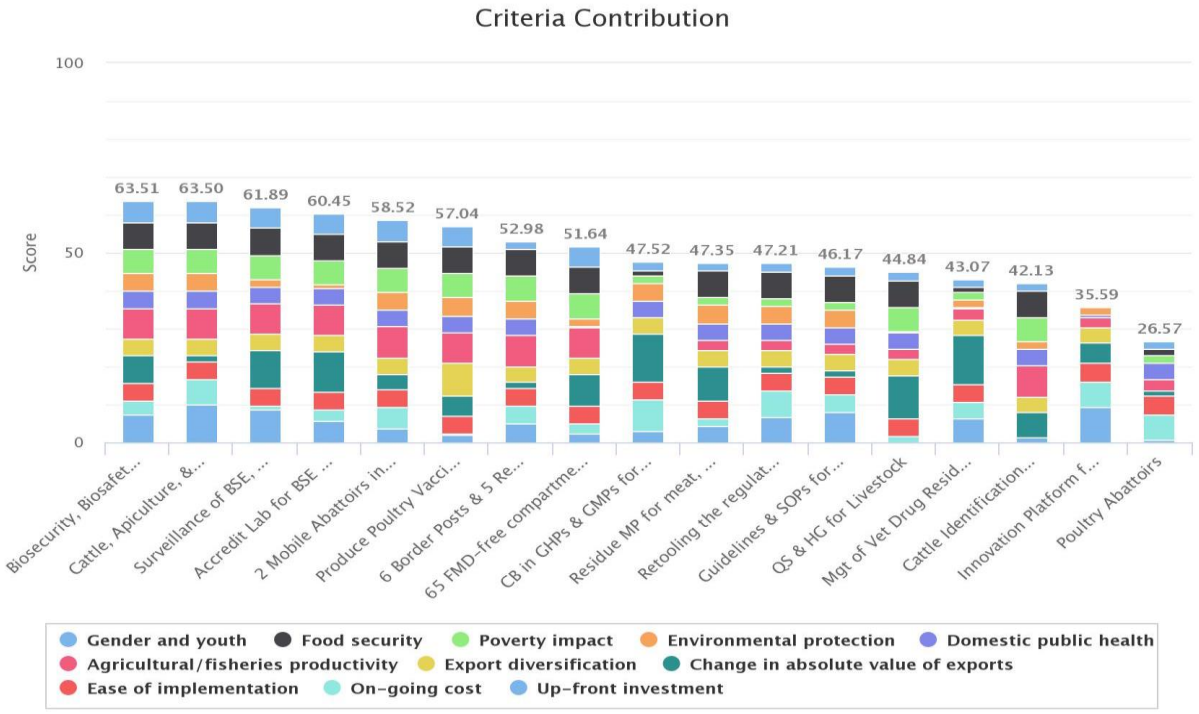
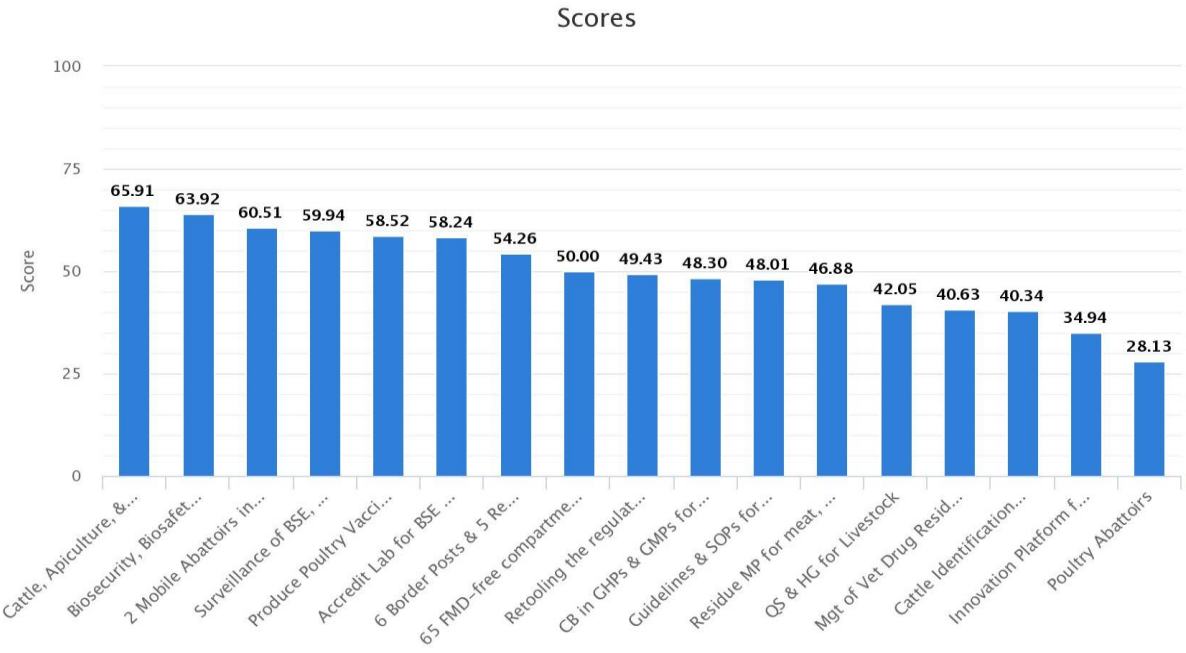


Figure 4.1f: Equal Weight Model – Prioritization of Livestock and Honey Products



The cost and trade model, presented in figure 4.1g, shows some drastic changes. For instance, capacity Building in GHPs & GMPs for Milk and Milk Products; management of veterinary drug residues and aflatoxins in milk and milk products; and the establishment and support for innovation platform for poultry value chain actors, have moved from the bottom half of the ranking to the top three, pushing downward the top three. Another notable change is the movement of production of poultry vaccines, which ranked sixth and fifth, respectively, in previous models, to the lowest rank. In the bottom, the establishment of and implementation of cattle identification and traceability system; and the establishment of poultry abattoirs, still ranked in the bottom three just like previous scenarios. You may also notice that the establishment of 2 mobile export abattoirs in FMD-endemic regions have dropped from its usual fifth and third positions in the two previous models, respectively, to eleventh position in the cost and trade model.

These results, thus, show that the analysis is quite sensitive to particularly trade considerations. Thus, if the priority setting is to be based on trade considerations only, then the priority options would be slightly different from those that are based on several objectives (i.e. decision criteria). However, since the priority setting in this framework considers all decision criteria, then the following capacity building options consistently ranked in the top six:

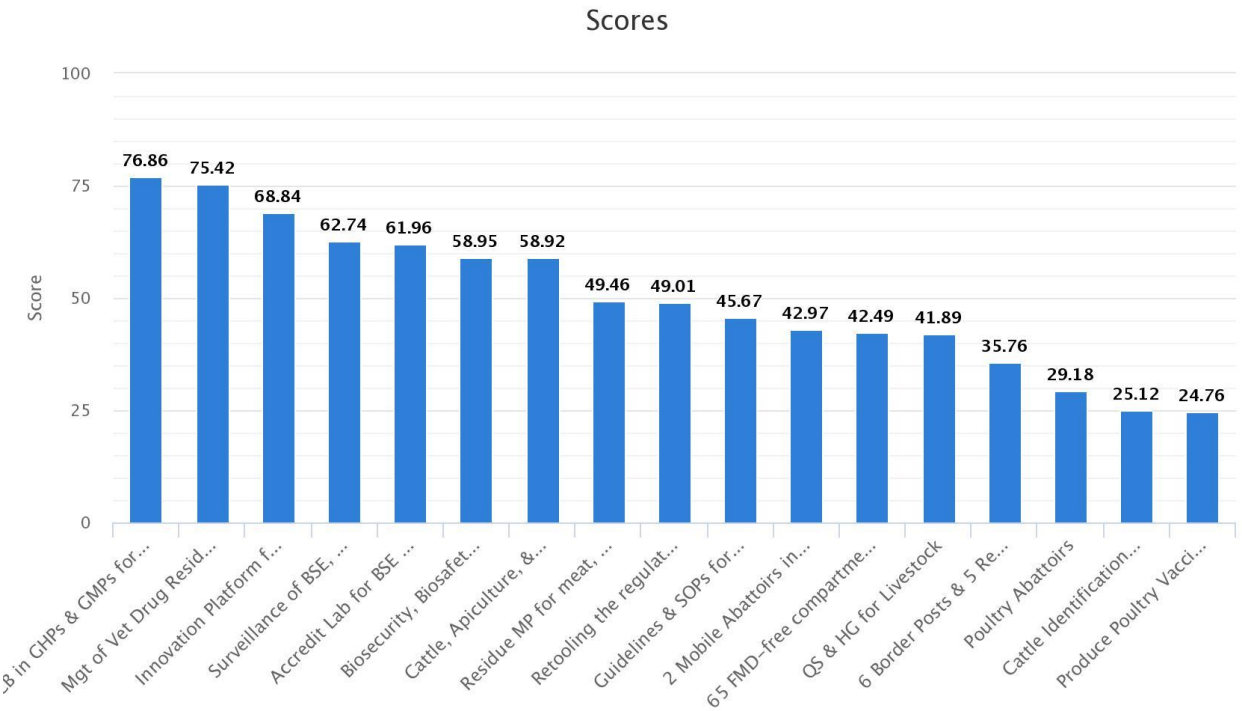
- technical capacity building in biosecurity, biosafety, and technology for beef, poultry and bee products;
- support for private sector in cattle, apiculture and poultry associations in advocacy and self-regulation;
- surveillance of BSE, FMD, Avian Influenza (AI), and American Foulbrood (AFB);

- accreditation of BSE and FMD analysis laboratory
- production of poultry vaccines

Whiles, the following were also constantly in the bottom five:

- establishment of poultry abattoirs;
- establishment and support for innovation platform for poultry value chain actors
- establishment of and implementation of cattle identification and traceability system

Figure 4.1g: Cost and Trade Impact Model – Prioritization of Livestock and Honey Products

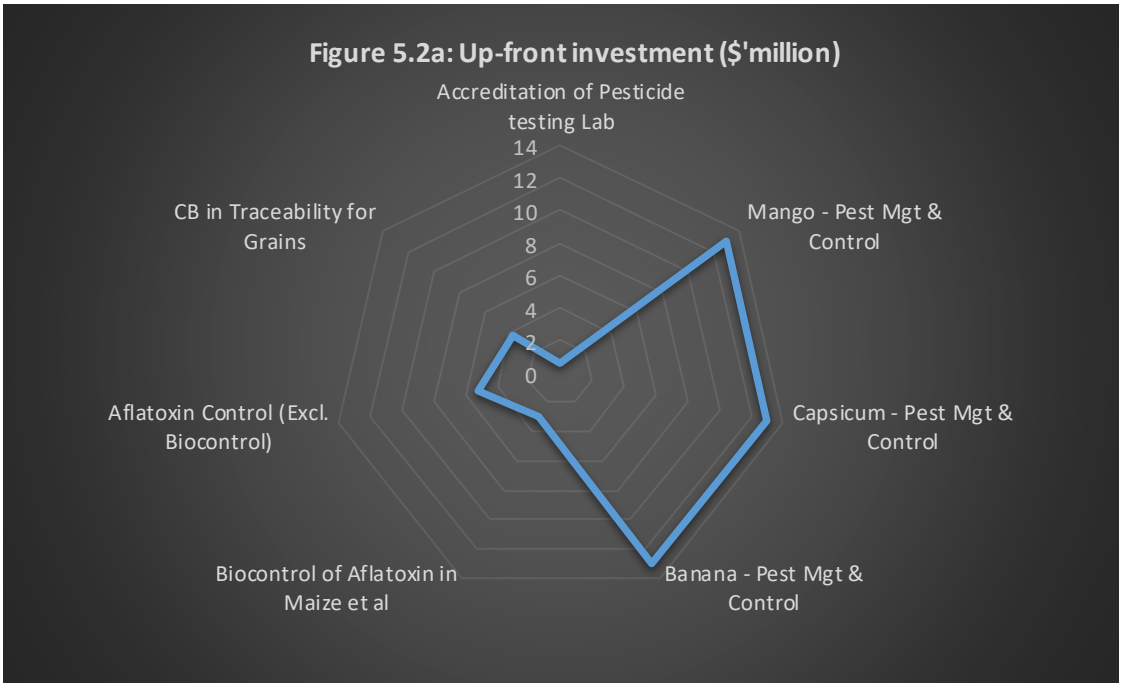


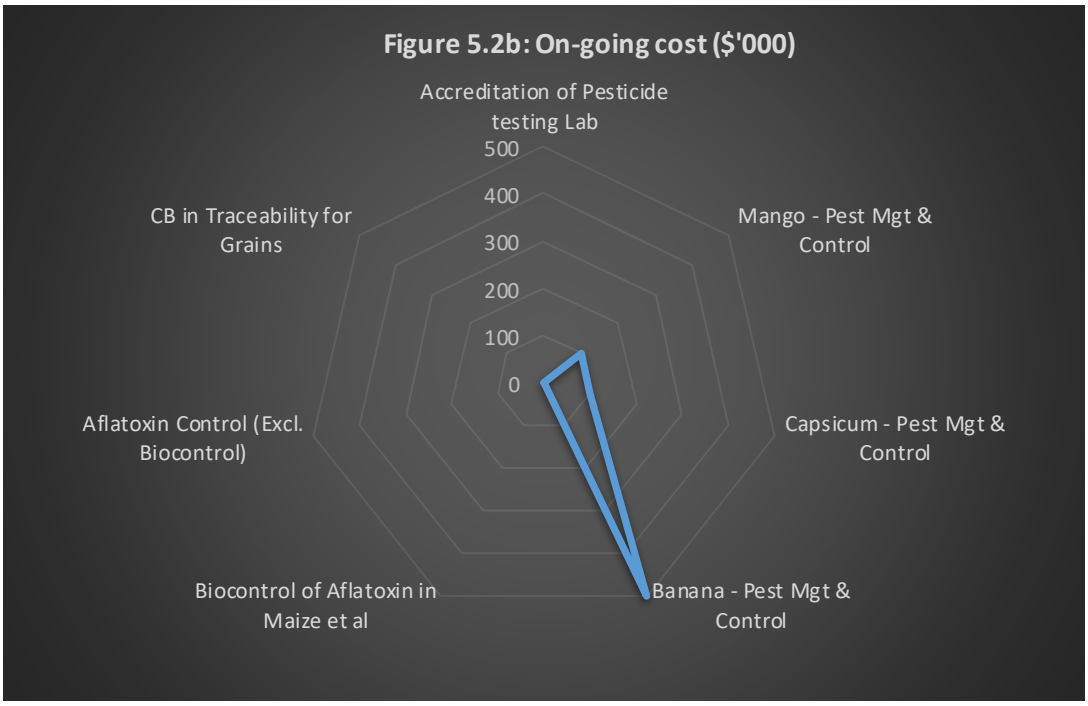
5.2 Results – Horticulture and Grains

Before taking a look at the results of the prioritization framework using the D-Sight software package, we examine the relative strengths and weaknesses of the capacity building options against the decision criteria up-front investment, on-going cost, and change in the absolute value of exports in Figures 5.2a-c. The strengths and weaknesses of the decision criteria measured using non-linear data, i.e. ease of implementation, export diversification, agricultural/fisheries productivity, domestic public health, environmental protection, poverty impact, food security, and gender and youth, has not

been presented here as the spider diagrams do not show striking differences for easy visual comparisons.

Figure 5.2a shows the strengths and weaknesses of each option against up-front investment cost. The graph shows that Pest Management & Control for Capsicum exports, Pest Management & Control for Mango exports, and Pest Management & Control for Banana exports are the most expensive investment options. Similarly, in Figure 5.2b, Pest Management & Control for Banana exports is the option that requires the highest on-going cost of $500,000. In terms of trade impacts, the capacity building options related to aflatoxin controls has the strongest orientation towards generating exports worth $190 million. Also, the capacity building in traceability for Grains will yield over $116 million exports. Accreditation of pesticide testing laboratory to fulfil pesticide residues market requirements for products destined for EU is the capacity building option with the weakest impact on trade.





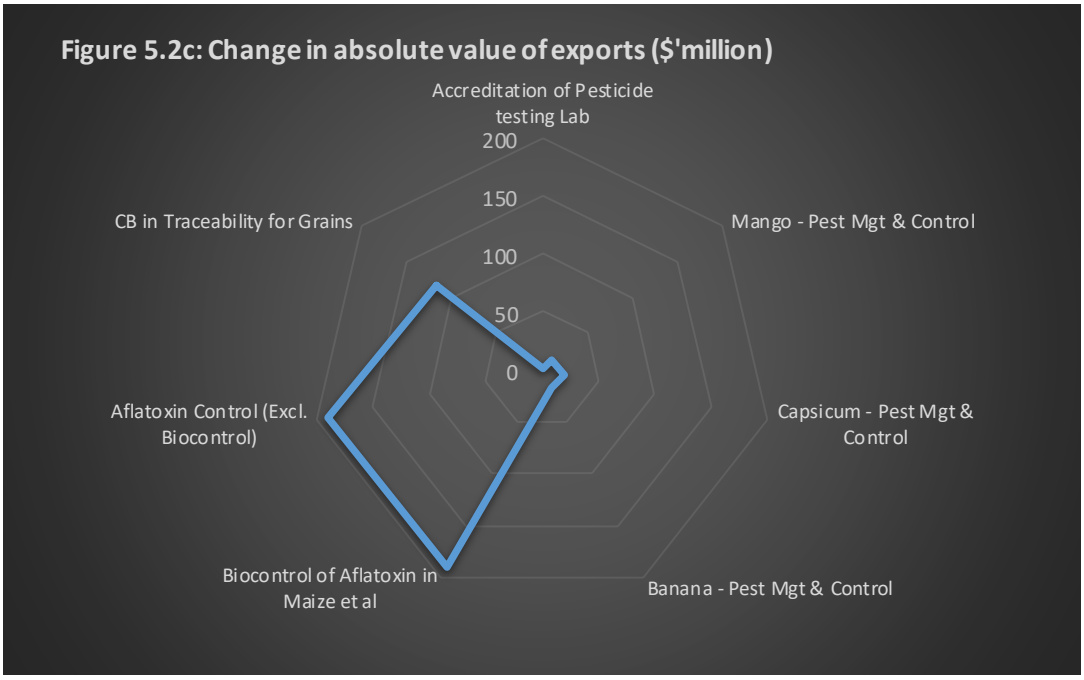
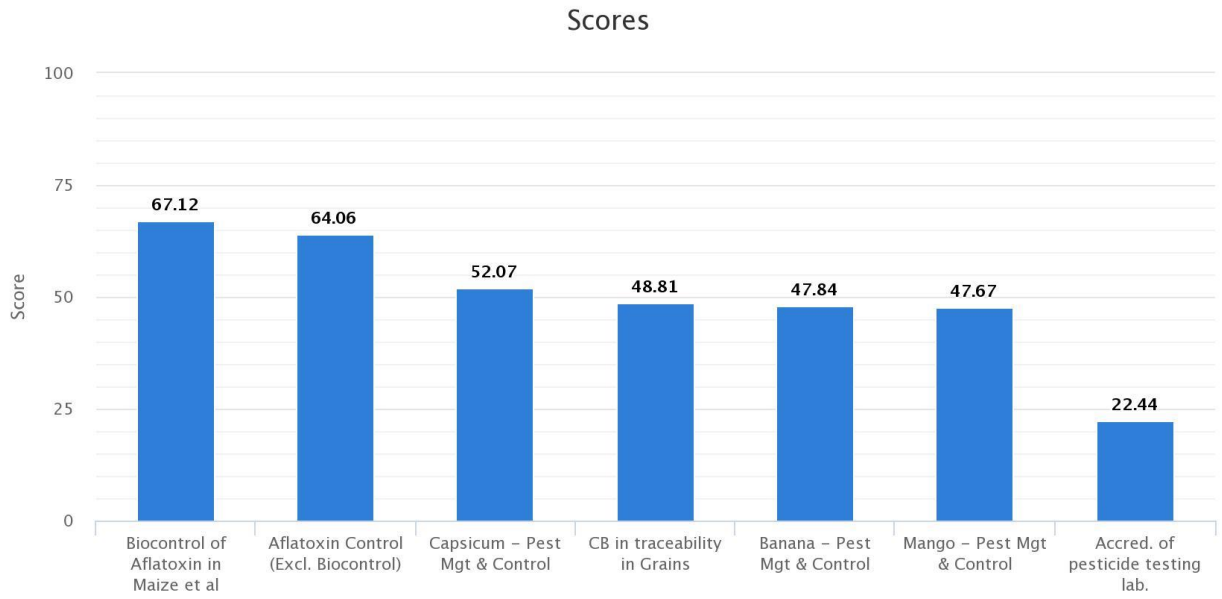


Figure 5.2d present the main result of the prioritization framework using outranking in the D-Sight software package and based on the decision criteria and weights agreed by stakeholders. In all, Biocontrol of Aflatoxin in Maize, Sorghum and Groundnuts; and Aflatoxin Control in Uganda (Excl. Biocontrol) ranks the best options with scores of

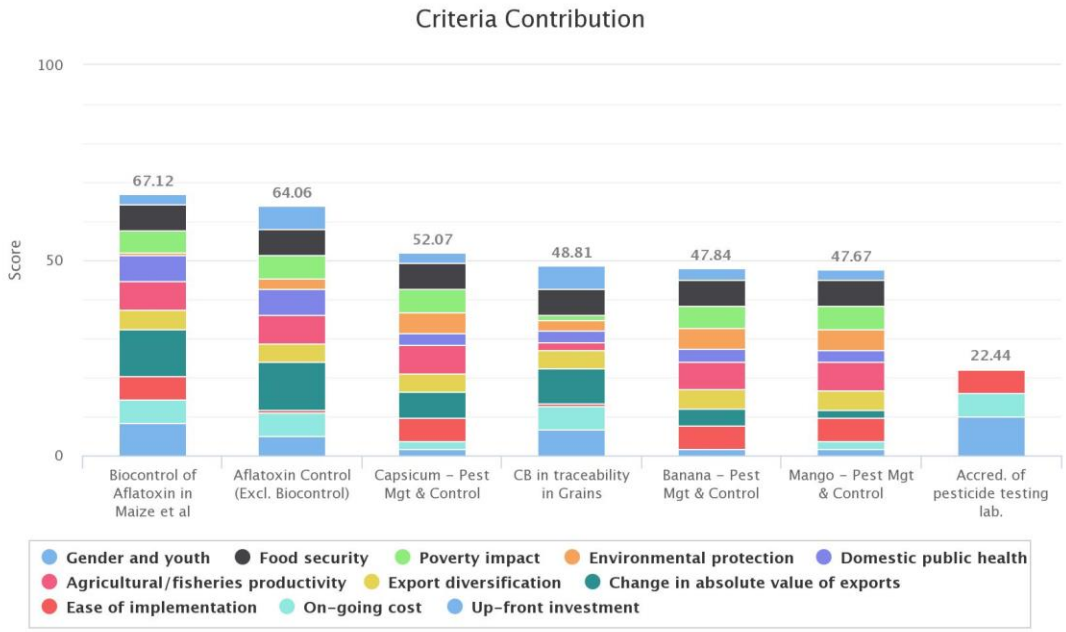
approximately 67 and 64, respectively. This means that, overall, these capacity building options have higher positive net-flows (i.e. net benefits), on the decision criteria as compared with all other capacity building options. On the flipside, accreditation of pesticide testing laboratories to fulfil market requirements for pesticide residues for products destined for EU would have the lowest return on investment and therefore ranked the lowest followed by Pest Management & Control for Mango exports. Again, note that this ranking does not mean that the lowest ranked options are not worth investing into, but rather, in terms of priority setting against limited resources, they do not come first.

Figure 5.2d: Baseline Model – Ranking of Horticulture and Grains CBOs



In Figure 5.2e the contribution of each decision criteria towards the overall performance of each capacity building option is shown. In effect, it is noticeable that the top two best options performed fairly well on almost all decision criteria. On the other hand, the lowest ranked option, accreditation of pesticide testing laboratories, did not perform well on most decision criteria, except for up-front investment, on-going cost, and ease of implementation because it is the cheapest investment option. On all other decision criteria, it has no (i.e. zero impact) or negative impacts.

Figure 5.2e: Criteria Contribution



To test the robustness of the above result, two sensitive analyses were performed by setting the weights equal and running a cost and trade impact only model but using the baseline model relative weights, and the results are shown in Figures 5.2f and 5.2g, respectively. Overall, the capacity building options shows very limited sensitivity to these changes. In the equal weights model, all the options maintained their positions as in the baseline model except that the options related to Mango and Banana switched places.

However, in the cost and trade model, there are some level of sensitivities. For instance, accreditation for pesticide testing laboratories, which ranked the lowest in both previous models, now ranked fourth. Similarly, pest management & control for capsicum exports, which ranked third in both previous models, is now in third place from the bottom. Also, capacity building in traceability in grains has gained one step up to the third place. These notwithstanding, the top two options from the previous scenarios remained in the same positions.

Thus, despite the above sensitivities, the capacity building options in respect of biocontrol of aflatoxins, aflatoxin control in Uganda (excl. biocontrol), and to a large extent, the capacity building for pest management & control for capsicum exports, remained robust irrespective of the changes, showing some level of confidence in the result.

Figure 5.2f: Equal Weights Model – Ranking of Horticulture and Grains CBOs

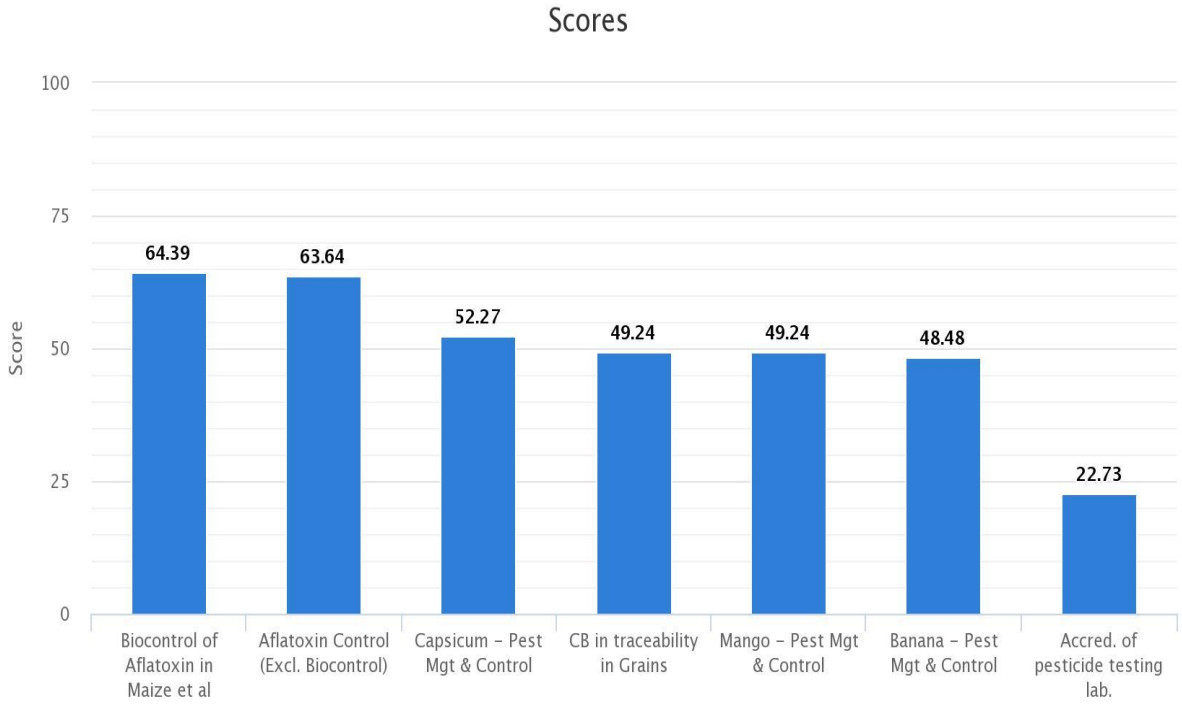
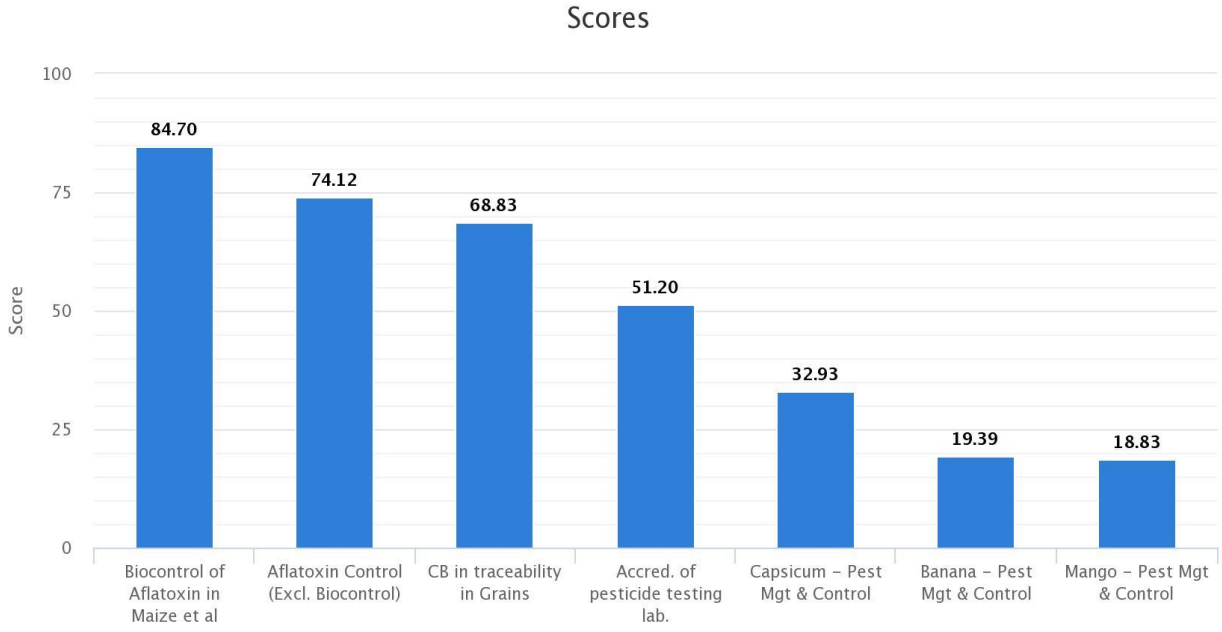


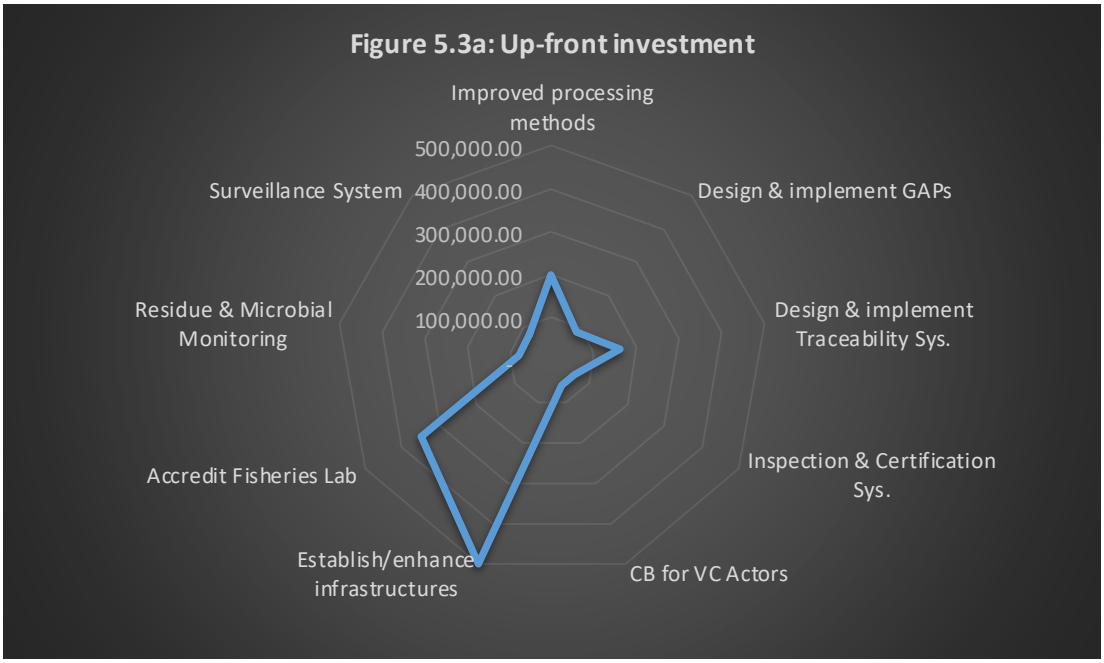
Figure 5.2f: Cost and Trade Model Ranking of Horticulture, Dairy and Grains Capacity Building Options

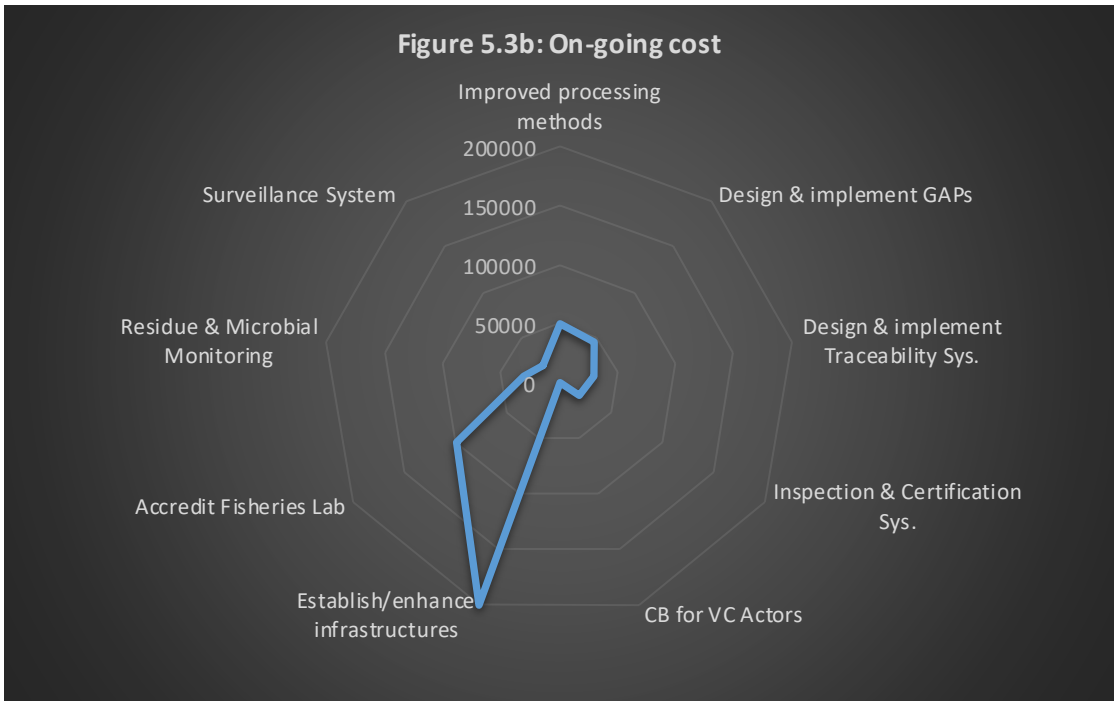


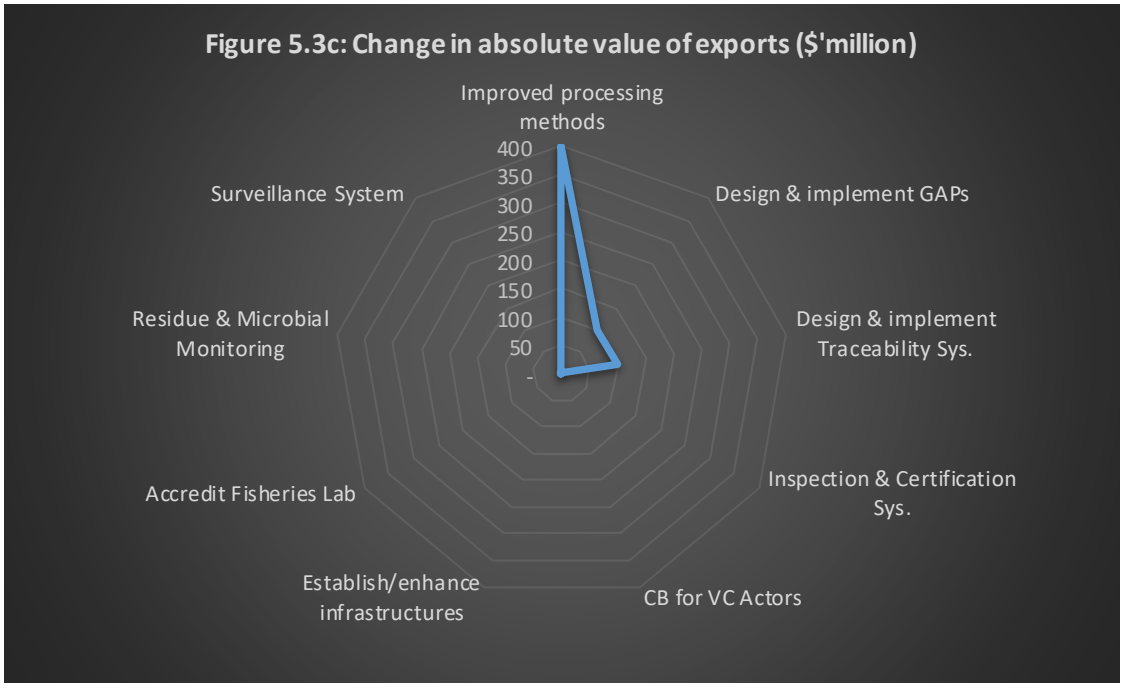
5.3 Results – Fish and Fish Products

Figures 5.3a-c presents a quick overview of the relative strengths and weaknesses of the capacity building options against the decision criteria upfront investment, on-going cost, and change in the absolute value of exports. From figure 5.3a, establishment and/or enhancement of infrastructure is the most expensive option at $500,000 followed by the upgrade and accreditation of Uganda fisheries laboratory at $350,000. Building capacity of inspection and certification system for aquaculture value chain and building the capacity of value chain actors on international standards, regulations, practices, guidelines, etc. are the cheapest investment options at $60,000 each. Similarly, the capacity building options with higher upfront investments turns out to be the options with the highest on-going costs as well and vice versa.

In terms of strengths or weaknesses related to exports, figure 5.3c shows that promoting and supporting improved processing methods in aquaculture and wild catch holds the strongest potential of net trade gain at $400 million. Also, the design and implementation of Good Aquaculture Practices, and the design and implementation of traceability system for aquaculture would yield strong export gains at $100 million each. On the reverse, capacity building of inspection & certification system for aquaculture value chain, capacity building of value chain actors on international standards, regulations, practices, guidelines, etc., and upgrading and accreditation of Uganda fisheries laboratory have no prospects of generating exports – thus, there are zero trade gains estimated. The remaining capacity building options, i.e. establishment and/or enhancement of infrastructures and establishment and implementation of a surveillance system, have very limited return on investment with respect to trade.







The main result, which is the ranking of the nine capacity building options using outranking technique in the D-Sight software package, is presented in figure 5.3d. The result shows that the establishment and implementation of surveillance system for fish, building capacity in residue and microbial monitoring for aquaculture and wild catch, design and

implement Good Aquaculture Practices, and promote and support improved processing methods in aquaculture and wild catch, are the options with the highest net benefits, scoring between 63-66 out of 100. Conversely, upgrading and accreditation of Uganda fisheries laboratory, and capacity building of value chain actors on international standards, regulations, practices, guidelines, etc. are the options with the lowest scores of below 30.

Figure 5.3d: Ranking of CBOs Using Baseline Model

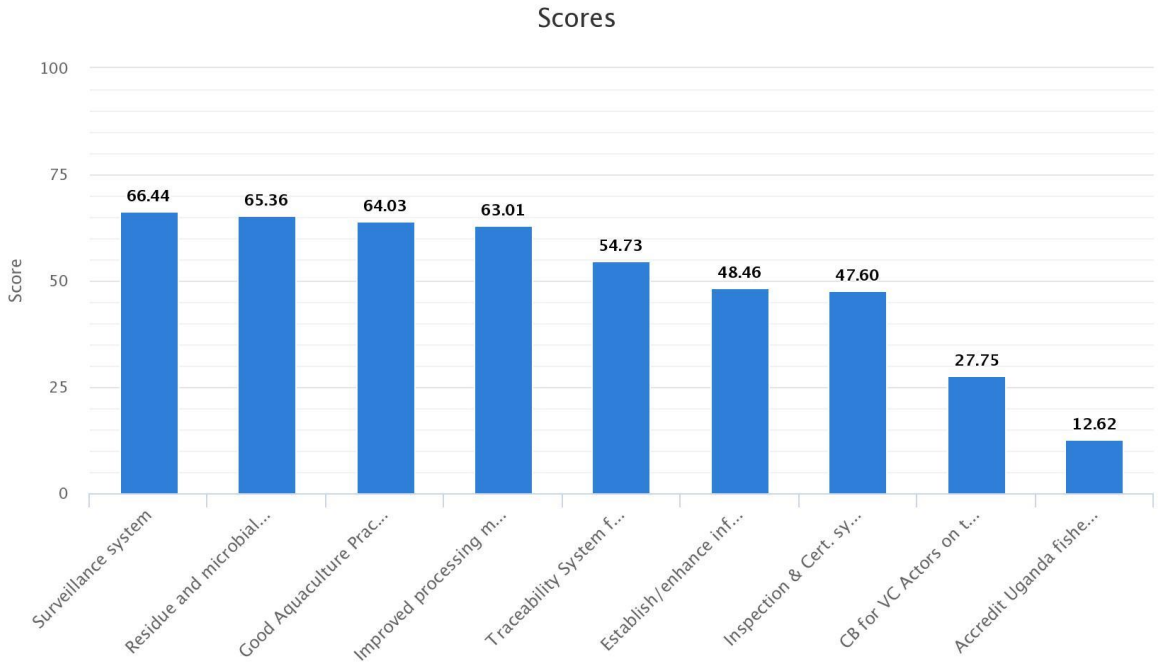


Figure 5.3e shows the contribution of each decision criteria towards the overall ranking of the options. It is obvious that the top ranked options had more contributions from all decision criteria than the lower ranked ones. That's, there's the presence of each decision criteria's bar and its size is fairly larger for the top ranked options than the lower ranked options. For instance, you would realise that the contribution of decision criteria, upfront investment, to the ranking of establishment and/or enhancement of infrastructure was null because it is the most expensive investment option and therefore was outranked by all capacity building options. Meanwhile, the same decision criteria made the largest contributions to the second and third lowest ranked options because they are the cheapest investment options.

To validate this result, like previous sectors presented above, we run a sensitivity analysis through a cost and trade impact only criteria model and an equal weights model to see if there would be dramatic changes in the ranking of the capacity building options. This analysis shows that whereas there was only one movement, i.e. capacity building of inspection & certification system for aquaculture value chain and establish and/or

enhance infrastructures switching places in the equal weights model, the cost and trade model shows relatively more sensitivities. For instance, capacity building for value chain actors on international standards, regulations, practices, guidelines, etc. has jumped from its last but one position to the third place. Similarly, the top two in both previous models have switched places. The options on the design and implement Good Aquaculture Practices, and promote and support improved processing methods in aquaculture and wild catch have also moved from their usual third and fourth places, respectively, in both previous models to fifth and sixth place in the cost and trade model. In addition, the establishment of infrastructure which was in fourth and third places bottom has now moved to second place in the bottom.

Nonetheless, overall, the top two ranked options, i.e. establishment and implementation of surveillance system for fish, building capacity in residue and microbial monitoring for aquaculture and wild catch, as well as the lowest ranked option, upgrading and accreditation of Uganda fisheries laboratory, maintained their positions in the three different models, except that in the cost and trade model, the top two switched places. We can therefore, given the quality of the data, safely say that the results are fairly robust.

Figure 5.3e: The Contribution of Each Decision Criteria to the Performance of an Option

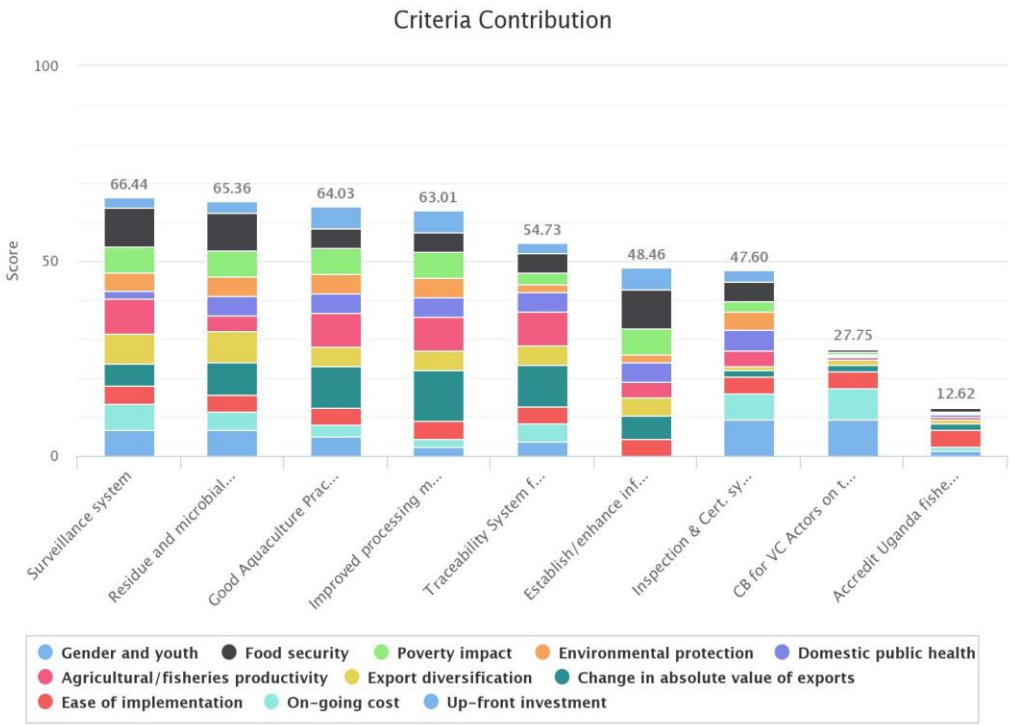


Figure 5.3f: Ranking of CBOs Using Equal Weights Model

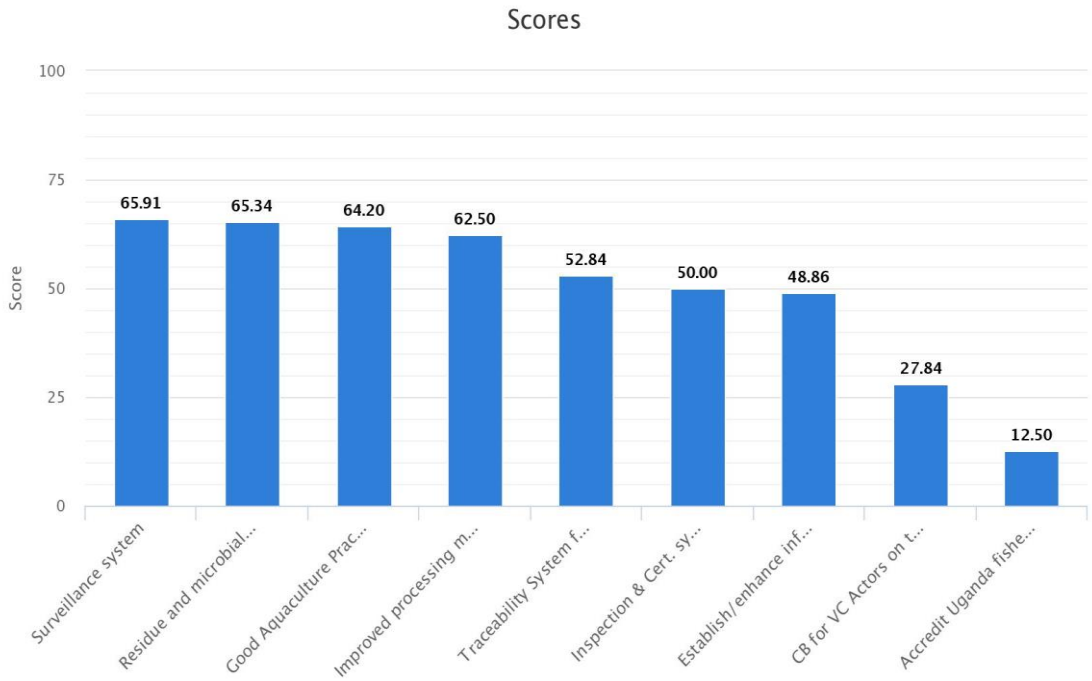
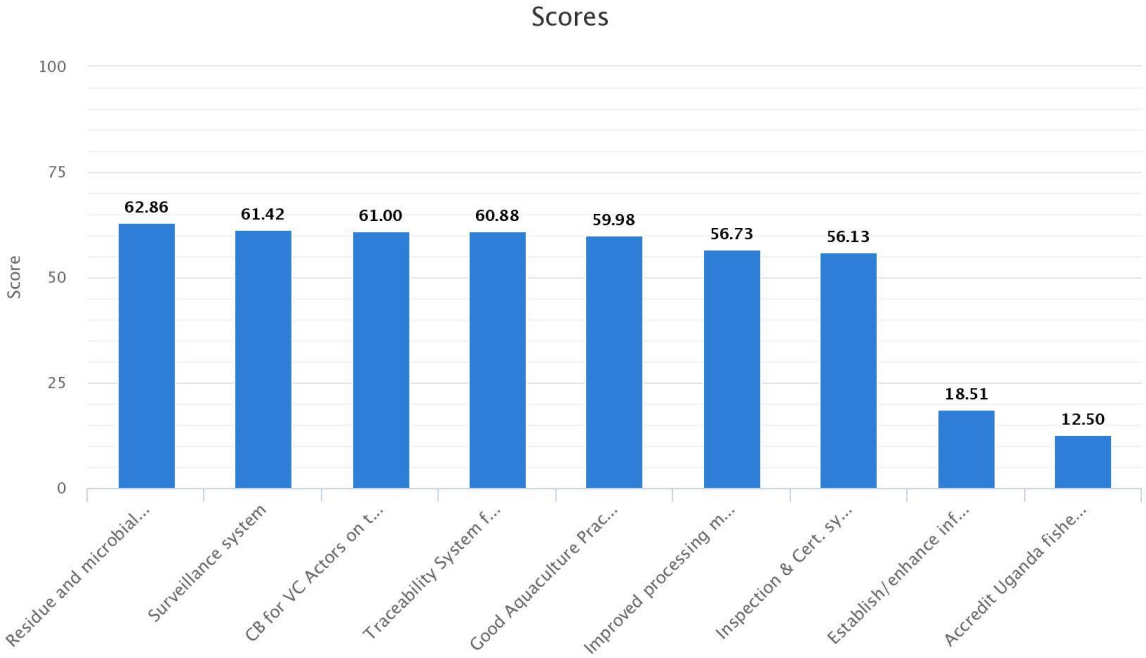


Figure 5.3g: Ranking of CBOs Based on Cost and Trade Model



6.0 Conclusion

At the outset, it must be noted that the above results of the framework are based on the availability and quality of data. As such, the results must be revised in an on-going basis once a better data becomes available. In this regard, as part of the COMESA P-IMA project, a minimum of three persons were trained as P-IMA National Experts to assist in subsequent revision/re-application of the framework. Over 15 were also trained on the framework but who could not be considered as experts.

This report presents the outcomes of 33 SPS capacity building options that were estimated to cost about US$74.8 million to be implemented and could rake in over US$1.4 billion worth of additional exports. These were ranked based on a structured process of identifying the SPS capacity building options that are relevant for market access, prior agreed objectives (called decision criteria), and agreed weights assigned to the decision criteria. The actual priority setting was carried out using Multi-Criteria Decision Analysis (MCDA) in the D-Sight software package. Based on this, and the decision to rank the options in groups (mostly sectors), the following are the options that consistently ranked better than the others:

Livestock and Honey

- technical capacity building in biosecurity, biosafety, and technology for beef, poultry and bee products;
- support for private sector in cattle, apiculture and poultry associations in advocacy and self-regulation;
- surveillance of BSE, FMD, Avian Influenza (AI), and American Foulbrood (AFB);
- accreditation of BSE and FMD analysis laboratory
- production of poultry vaccines

Horticulture and Grains

- biocontrol of Aflatoxin Maize, Sorghum and Groundnuts
- aflatoxin control in Uganda (excl. biocontrol)
- pest management and control for capsicum exports (*to a large extent*)

Fish and Fish Products

- establishment and implementation of surveillance system for fish,
- building capacity in residue and microbial monitoring for aquaculture and wild catch
- Design and implement Good Aquaculture Practices (*to a large extent*)
- Promote and support improved processing methods in aquaculture and wild catch (*to a large extent*)

It must however be noted that the ranking of certain capacity building options low does not presuppose that they are not important. Rather, it simply meant that, based on agreed objectives and limited resources availability, they do not come first in terms of priority. With time and availability of resources, all these capacity building needs must be resolved. It is also important to remember that this document is a 'living document', thus,

it must be revised regularly, particularly, once a new data and/or a better data becomes available.

Annex 1: 2013 Capacity Building options vs 2020 Capacity Building Options

	2020 Capacity Building Options	2013 Capacity Building Options
1	Establishment of SPS infrastructure for livestock Quarantine Stations and holding grounds using PPP approach	Accreditation of pesticide testing laboratories in Uganda
2	Establishment of and Implementation of cattle identification and traceability system	Implementation of good agricultural practices in maize production and handling to reduce pesticides and improve quality – including reduction of moulds and pot harvest losses
3	Establish 2 mobile export abattoirs in FMD-endemic regions to overcome quarantine	Meat exports within the region to countries where foot and mouth disease is endemic
4	Establish Poultry abattoirs including mobile abattoirs	Meat exports from a foot and mouth disease free compartment in Uganda to European Union and other countries where the disease is not present
5	Technical capacity building in Biosecurity, Biosafety, and technology for beef, poultry and bee products	Awareness of pesticide use in crops where downstream contamination of fish stocks are possible
6	Accredit Laboratory for BSE and FM	Compliance with dairy standards – exports destined for EAC/COMESA countries
7	Surveillance of BSE, FMD, Avian Influenza (AI), & American Foulbrood (AFB)	The development, upgrading and capacity building of fish traceability systems in private, artisanal fishermen and public sectors
8	Establish 65 FMD Free compartments	Disinfestation of horticultural produce, in particular fruit, through cold storage
9	Support private sector in cattle, apiculture and poultry associations in advocacy and self-regulation	The certification of agro – input suppliers and inputs
10	Equip 6 border post laboratories, improve capacity of 5 regional diagnostic laboratories, and procure 2 mobile laboratories for livestock	Determining the pest status of bananas with respect to Bactrocera invadens
11	Developing guidelines and SOPs for beef, honey and poultry VC actors	Biological control of Bactrocera invadens
12	Training, equipping and retooling the regulators of animal food products in risk-based inspections approaches.	Aflatoxin controls for groundnuts and maize

13	Develop and implement residue monitoring plan in meat, dairy poultry, & bee products	Developing a mycotoxin testing capacity within Uganda
14	Produce Poultry Vaccines	Oilseed good agricultural practices for productivity and product quality and safety
15	Establish and Support Innovation Platform for Poultry VC actors	
16	Accreditation of pesticide testing labs. to fulfil pesticide residues market requirements for products destined for EU	
17	Pest Management & Control for Mango exports	
18	Pest Management & Control for Capsicum exports	
19	Pest Management & Control for Banana exports	
20	Management of veterinary drug residues and aflatoxins in milk and milk products	
21	Capacity Building in GHPs & GMPs for Milk and Milk Products	
22	Biocontrol of Aflatoxin Maize, Sorghum and G.nuts	
23	Aflatoxin Control in Uganda (Excl. Biocontrol)	
24	Capacity building in traceability in Grains	
25	Promote and support improved processing methods in aquaculture and wild catch	
26	Design and implement Good Aquaculture Practices	
27	Design and Implement traceability system for Aquaculture	
28	Building capacity of Inspection & Certification system for Aquaculture VC	
29	Build capacity for VC Actors on the international standards, regulations, Practices, Guidelines, etc.	
30	Establish and/or Enhance infrastructures	
31	Upgrade and accredit Uganda fisheries laboratory	
32	Build capacity in residue and microbial monitoring for aquaculture and wild catch	
33	Establish and implement a surveillance system for fish	

Annex 2: Ugandan agri-food exports and attendant Sanitary and Phytosanitary requirements

(average annual exports between 2009 and 2018)

Code	Product label	Average Exports	Proportion of Total SPS Sensitive Exports	Sensitive			
				Plant Health	Animal Health	Food Safety	Private Standards
'01	Live animals	2,361.90	0.16%		XXX		
'02	Meat and edible meat offal	1,998.70	0.14%		XXX		
'03	Fish and crustaceans, molluscs and other aquatic invertebrates	130,314.20	8.97%		XXX		XXX
'04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	36,800.50	2.53%		XX	XX	XXX
'05	Products of animal origin, not elsewhere specified or included	3,370.90	0.23%		X		
'06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	53,645.30	3.69%	XX			XX
'07	Edible vegetables and certain roots and tubers	53,729.90	3.70%	XX			XXX
'08	Edible fruit and nuts; peel of citrus fruit or melons	3,513.60	0.24%	XXX			XXX
'09	Coffee, tea, maté and spices	483,949.80	33.32%	X		XX	XXX
'10	Cereals	106,052.50	7.30%	XX		XX	
'11	Products of the milling industry; malt; starches; inulin; wheat gluten	34,862.60	2.40%	X		XX	
'12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ...	34,378.80	2.37%	XXX		XX	XXX
'13	Lac; gums, resins and other vegetable saps and extracts	157.20	0.01%			XXX	XXX
'14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	1,376.70	0.09%	X			
'15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal ...	80,960.70	5.57%			XX	

'16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	1,939.60	0.13%		X	XXX	XXX
'17	Sugars and sugar confectionery	83,231.90	5.73%			X	
'18	Cocoa and cocoa preparations	51,510.10	3.55%			X	
'19	Preparations of cereals, flour, starch or milk; pastrycooks' products	12,752.00	0.88%			X	
'20	Preparations of vegetables, fruit, nuts or other parts of plants	5,856.30	0.40%			XX	XX
'21	Miscellaneous edible preparations	6,756.70	0.47%			X	
'22	Beverages, spirits and vinegar	40,960.40	2.82%			X	
'23	Residues and waste from the food industries; prepared animal fodder	29,207.30	2.01%	XX	XX		
'24	Tobacco and manufactured tobacco substitutes	71,870.70	4.95%			X	
'41	Raw hides and skins (other than furskins) and leather	44,977.90	3.10%				
'44	Wood and articles of wood; wood charcoal	15,863.60	1.09%	X			X
'46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	132.00	0.01%	X			
'47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ...	373.90	0.03%				
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	17,218.20	1.19%	X			X
'50	Silk	4.00	0.00%			X	
'51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	4.50	0.00%		X		
'52	Cotton	42,422.70	2.92%		X		
'53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	16.30	0.00%				
	Total	**1,452,571.40**					

Annex 3: Information Cards for Livestock

1. Establishment of SPS infrastructure for livestock Quarantine Stations and holding grounds using PPP approach

Decision Criterion	Estimated Value	Details	Level of Confidence
Cost			
Up-front investment	$3,239,865	Construction of the necessary infrastructure - Designing 5 structures - 3 quarantine and 2 animal holding grounds $ 675,676 (@ $135,135) - Fencing 5 pieces of land $ 270,270 (@ $ 54,054) - Constructing 5 water systems $ 810,811 (@ @162,162) - Constructing 5 animal sheds $ 472,973 ($ 94,595) - Constructing 5 staff quarters and office block $ 162,162 (@ 32,432) - Constructing 5 mini laboratories $ 75,000 (@ 15,000) - Equipping 5 mini laboratories $ 50,000 (@10,000) - Providing power source $ 27,027 (@ 5,405) - Constructing 5 crushes and spray races $ 60,811 (@ 12,162) - Pasture improvement $ 135,135 (@ 27,027) - Operation costs $ 200,000 (@ 40,000) - Procuring 5 field vehicles $ 300,000 (@ 60,000)	High
On-going cost	$162,000	- Health checks and maintenance of the animals $ 60,000 (@ 12,000) - Maintaining quarantine stations and AHGs $ 2,000 - Inspection and certification services $ 100,000	High
Ease of Implementation	Yes	Establishment of infrastructure takes about a year to complete, It involves identification of suitable sites and contracting construction companies to execute the works. Other operation activities will involve regular inspection, certification and conducting patrols of stock routes and borders as well as stakeholder awareness.	High
Trade Impacts			
Change in absolute value of exports	$12.834 million	Based on ITC estimates, untapped export potential for live animals and livestock products could stand at $12.834 million (i.e. Live bovine animal export could be $4.18, all meat products could be $7.4, plus other live animals export $1.254, which we assume to 30% of bovine animals export)	High

Export Diversification (Market/Product)	Yes	Will access Middle east and China markets if FMD free area and control infrastructure is established	High
Domestic Spillovers			
Agricultural productivity	1	Healthy stocks and steady income of farmers is ensured Reduction in disease outbreak and spread,	High
Domestic public health	2	Healthy animals thus safe animal products and reduced use of antibiotics, Reduction in animal diseases and spread to humans	High
Environment	-1	Waste management enhanced thus minimizing negative impacts	High
Social Impacts			
Impact on poverty	2	Improved income for farmers and other value chain actors	High
Food Security	2	Improved income for VC actors	High
Vulnerable Groups[10]	1	Improved household income	Medium

[10] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

2. Establishment of and Implementation of cattle identification and traceability system

Decision Criterion	Estimated Value	Details	Level of Confidence
Cost			
Up-front investment	$2,010,649	- Developing regulations and guidelines for cattle identification and traceability -$ 98,081 - Consultancy to guide system establishment -$ 136,216 - Procuring hardware for cattle identification -$ 1,256,757 - Procuring software for cattle identification and traceability -$ 25,000 - Staff and farmer capacity building in cattle identification and traceability -$ 194,595 - Operation and maintenance -$ 300,000 -	High
On-going cost	$500,000	Expansion of the program	Medium
Ease of Implementation	No	Records keeping is a challenge	High
Trade Impacts			
Change in absolute value of exports	$4.18 million	Live Cattle export has on average, 2015-2017, hovered around $1.2 million (FAO & Trademap data). ITC has estimated untapped export potential for Live bovine animals, which in the case of Uganda comprise about 95% cattle, at $836,100.	Medium
Export Diversification (Market/Product)	Yes	New markets would be accessed	High
Domestic Spillovers			
Agricultural productivity	2	Backward linkage with improved income through new market access	High
Domestic public health	2	It helps trace back animal diseases and facilitate rapid response	High

Environment	1	Since the origin of animals is known, the surroundings can easily be de-contaminated	Medium
Social Impacts			
Impact on poverty	2	Improved income for farmers	High
Food Security	2	Improved income for VC actors	High
Vulnerable Groups	1	Improved household income	Medium

3. Establish 2 mobile export abattoirs in FMD-endemic regions to overcome quarantine

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$ 1,294,959	Source: Project document - Conducting benchmark visit in South Africa and Mozambique -$ 60,000 - Consultancy to train abattoir management staff -$ 35,000 - Facilitating abattoir management staff to undertake training-$ 8,200 - Stakeholder mobilization and sensitization -$ 40,500 - Procuring and assembling of 2 mobile abattoirs -$ 700,000 (@ 350,000) - Procuring 2 refrigerated trucks - $ 270,000 (@ 135,135) - Construction of the water and sanitary systems - $ 324,324 (@ $162,162) -	High
On-going cost	$35,000	Maintenance & staffing	Low
Ease of Implementation	Yes	Procurement and installation of some infrastructure	High
Trade Impacts			

Change in absolute value of exports	$2.825 million	Cattle meat/beef export has, on average 2015-2017, been $258,000 (FAO data). ITC has estimated untapped export potential for frozen boneless bovine cuts as $242,500. Considering that exports of this product line is on average (2014-2017) about 30%, then untapped export potential for all bovine meat could be around $565,000	Medium
Export Diversification (Market/Product)	Yes	Regional market and Saudi market	High
Domestic Spillovers			
Agricultural productivity	2	Enhanced income giving rise to plough back investment and efficient production system	High
Domestic public health	2	Reduction in contaminated product. Higher hygiene practices	High
Environment	2	Better waste management	High
Social Impacts			
Impact on poverty	2	Improved income	High
Food Security	2	Improved income	High
Vulnerable Groups	2	Improved income	High

4. Establish Poultry abattoirs including mobile abattoirs

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$ 3,048,923	Build plant, procure equipment, prepare poultry vaccines - Benchmarking visit to South Africa and Mozambique -$ 60,000 - Consultancy to train abattoir management staff -$ 35,000 - Facilitating g abattoir management staff to undertake training-$ 16,400 - - Stakeholder mobilization and sensitization -$ 40,500 - Securing land for 2 stationary abattoirs -$ 243,243 (@ $121,622) - Designing abattoirs -$ 270,270 (@ $ 135,135) - Constructing abattoirs - $ 162,162 (@ $ 81,081) - Procuring and installing slaughter line equipment - $ 121,621 (@ $ 60,811) - Procuring and assembling cold room chambers - $ 189,189 (@ $ 94,595) - Procuring and assembling of 2 mobile abattoirs - $ 700,000 (@ $ 350,000) - Procuring 2 refrigerated trucks $ 270,000 (@ $ 135,135) - - Constructing water and sanitary systems $ 648,648 (@ $162,162) - Power installation - $ 21,620 (@ $ 5,405) - - Constructing water and waste treatment systems - $ 270,270 (@ $ 135,135)	Medium
On-going cost	$30,000	Operational and maintenance	Medium
Ease of Implementation	Yes	Long term, heavy initial investment in infrastructure and technology	High
Trade Impact			
Change in absolute value of exports	$0	Uganda exported roughly $400,000 Poultry meat, on average over 2015-2017 (FAO data). Although ITC estimated untapped export potential of $10.5 million, authorities say that current supply does not meet domestic demand. Also, Poultry abattoirs will not have direct impact on production but just slaughtering. We, therefore, expect the net impact to be zero or very minimal	Medium

Export Diversification (Market/Product)	No	No direct impact	High
Domestic Spillovers			
Agricultural productivity	1	Increased sales to stimulate production	Medium
Domestic public health	2	Use of standard hygiene standards. Chicken is inspected and certified by a competent person	High
Environment	-1	Clearing land for permanent structures, proper waste management and disposal	High
Social Impacts			
Impact on poverty	1	Improved income from increased poultry productivity	High
Food Security	1	Improved safety of foods of animal origin	High
Vulnerable Groups	1	Vulnerable groups depend on poultry for livelihood	High

5. Technical capacity building in Biosecurity, Biosafety, and technology for beef, poultry and bee products

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$ 401,559	- Training for beef products - $ 100,000 - Training for poultry products - $ 80,000 - Training for bee products – 20,000 - Sensitization of farmers, traders, handlers, transporters and processors for beef – 6,405 - Sensitization of farmers, traders, handlers, transporters and processors for poultry products 5,700	Low

		- Sensitization of farmers, traders, handlers, transporters and processors for bee products - $ 4,600 - - Regular inspection and enforcement of beef standards – $ 128,100 - Regular inspection and enforcement of beef standards - $ 54,054 - Regular inspection and enforcement of beef standards - $ 27,000	
On-going cost	$50,000	Refresher courses for key stakeholders - $ 60,000	Low
Ease of Implementation	Yes	Information, education and communication materials, workshops	High
Trade Impact			
Change in absolute value of exports	$6.17 million	Uganda exports virtually no honey; about $269,000 live poultry and $400,000 poultry meat; about $1.2 million live cattle and $258,000 beef, which all sum up to about $2.1 million, on average. Based on ITC estimates, there is untapped export potential of beef at $565000 p.a. Although ITC estimated untapped export potential for poultry at $10.5 million, authorities say supply does not meet domestic demand. So, we can only assume that this CB option will safeguard the existing export of $669,000 p.a. Therefore, the total effect of CB can be said to be $6,170,000 (i.e. $565,000x5 + $669,000x5).	Medium
Export Diversification (Market/Product)	Yes	Improved quality, safety, and competitiveness of the product	High
Domestic Spillovers			
Agricultural productivity	2	Increased market access due to improved quality and competitiveness and therefore, improved income and more investments in Agriculture	High
Domestic public health	2	Improved animal health, improved safety for better public health	High
Environment	2	Proper use of pesticides, observing better window periods and preventing contaminants	High
Social Impacts			
Impact on poverty	2	High incomes, leading to job creation	High

Food Security	2	Safe consumption	High
Vulnerable Groups	2	Improved food security	High

6. Accredit Laboratory for BSE and FMD analysis

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$ 710,500	- Accreditation process = $ 420,000 - Procurement of equipment and reagents for BSE = $ 120,000 - Procurement of equipment and reagents for FMD = $ 120,000 - Staff training = $ 50,500	High
On-going cost	$ 60,000	Equipment maintenance = $ 10,000 Procurement of reagents = $ 50,000	High
Ease of Implementation	Yes	Equipment, reagents	High
Trade Impact			
Change in absolute value of exports	$10.8 million	Export impact for this could virtually be zero since accredited testing capacity already exists in country or in the region. However, authorities say there is import interest from UN missions worth 400 tones in the region and this test is a pre-requisite. It will also ease Monitoring Plan for the beef industry that complies with the EU SPS regulations, EC Directive 96/23/EC. At a price of $5.4/kg, 400 tones will amount to $2.16 million a year and a total of $10.8 million for 5 years.	Medium

Export Diversification (Market/Product)	Yes	UN missions in Africa	High
Domestic Spillovers			
Agricultural productivity	2	Diversification	High
Domestic public health	2	Safe meat	High
Environment	0	No impact	Low
Social Impacts			
Impact on poverty	2	Improved income	High
Food Security	2	Improved income	High
Vulnerable Groups	2	Improved income	High

7. Surveillance of BSE, FMD, Avian Influenza (AI), & American Foulbrood (AFB)

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$200,000	- Procuring equipment/kits/reagents for AI analysis - $ 100,000 - Procuring equipment/kits/reagents for AFB analysis - $ 100,000 -	High
On-going cost	$250,000	Sample collection and analysis - Sample collection for BSE - $ 50,000	High

		- Sample collection for FMD - $ 50,000 - Sample collection for AI - $ 50,000 - Sample collection for AFB - $ 50,000 - Referencing costs - $ 50,000	
Ease of Implementation	Yes	Field visits, lab work	High
Trade Impact			
Change in absolute value of exports	$10.35 million	Uganda exports about $269,000 live poultry and $400,000 poultry meat; about $1.2 million live cattle and $258,000 beef. Based on ITC export potential estimates, there is untapped export potential of Live bovine at $836,100 and beef at $565000. For poultry, although ITC estimated untapped export potential of $10.5 million, authorities say supply does not meet domestic demand. So, we can only assume that this CB option will safeguard the existing export of $669,000 p.a. Therefore, the total impact will be $10,350,500 [i.e. ($836,100+565,000+669,000)x5	Medium
Export Diversification (Market/Product)	Yes	New products e.g. brain, spinal cords, penis, testicles, etc. could be exported	High
Domestic Spillovers			
Agricultural productivity	2	Reduction wastage and production stimulation	High
Domestic public health	2	Reduction in human cases of zoonosis	High
Environment	1	Reduced environmental contamination with infectious agents/organisms	High
Social Impacts			
Impact on poverty	2	Improved income	High
Food Security	2	Improved income	High
Vulnerable Groups	2	Improved income	High

8. Establish 65 FMD Free compartments

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$1,533,000	- Profiling cattle farmers in the different disease control zones - $ 32,000 - Mobilizing farmers _- $ 41,000 - Establishing/refurbishing disease control infrastructure – 195,000 (@ $ 3,000) - Training cattle farmers and handlers - $ 40,000 - Procuring 350,000 doses of FMD vaccines - $ 1,050,000 - Administration of FMD vaccines- $ 175,000	High
On-going cost	$90,000	Training & monitoring - Conducting regular surveillance - $ 50,000 - Training of stakeholders - $ 40,000	High
Ease of Implementation	Yes	Meetings, technical guidance, technical supervision, contracts for vaccine procurement and infrastructure establishment/refurbishment	High
Trade Impact			
Change in absolute value of exports	$7 million	Uganda exports about $1.2 million live cattle and $258,000 beef, which all sum up to about $1.46 million, on average. Based on ITC export potential estimates, there is untapped export potential of these two products totaling roughly $1.4 million p.a. [i.e. Live bovine ($836,100) and beef ($565000)]	medium
Export Diversification (Market/Product)	Yes	New markets	High
Domestic Spillovers			
Agricultural productivity	2	Animal are more healthy, trading partners are confident	High
Domestic public health	1	Reduction in disease incidences, safer animal products	High

Environment	1	Biosecurity improves the environment	Low
Social Impacts			
Impact on poverty	2	Improved income	High
Food Security	2	Improved income, safer animal products	High
Vulnerable Groups	2	Employment, Improved income	High

9. Support private sector in cattle, apiculture and poultry associations in advocacy and self-regulation

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$100,000	- Mobilization of value chain actors for meats (beef, goat, chicken, pork) dairy, eggs, bee products – $ 8,000 - Advocacy sensitization meetings - $ 140,000 - Self-regulation sensitization meetings - $ 140,000 - Learning/exchange visits by meat, dairy and bee products value chain actors - $ 50,000	Medium
On-going cost	$30,000	Coordinating other farmers to follow the success	Medium
Ease of Implementation	Yes	Meetings/workshops, self-enforcement, learning/exchange visits	High
Trade Impact			
Change in absolute value of exports	$0	This may not have a direct impact on increasing exports as advocacy and self-regulation is voluntary in nature. This does not build any real capacity in itself.	Medium

Export Diversification (Market/Product)	Yes	Access to new markets	High
Domestic Spillovers			
Agricultural productivity	2	Improved production methods and GHPs	High
Domestic public health	2	Improved GHPs	High
Environment	2	GHPs has positive impact	High
Social Impacts			
Impact on poverty	2	Improved income	High
Food Security	2	Improved income	High
Vulnerable Groups	2	Improved income	High

10. Equip 6 border post laboratories, improve capacity of 5 regional diagnostic laboratories, and procure 2 mobile laboratories for livestock

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			

Up-front investment	$ 762,000	- Procuring equipment/kits/reagents for 5 regional laboratories – $ 500,000 - Equipping six border post laboratories - $ 237,798 - Procurement of six vehicles - $ 240,000 - Laboratory staff training – $ 22,000	Medium
On-going cost	$40,000	Reagents, sample collection and staff training	Medium
Ease of Implementation	Yes	Procurement, field and lab work	High
Trade Impact			
Change in absolute value of exports	$0	This may not have a direct impact on increasing exports as advocacy and self-regulation is voluntary in nature. This does not build any real capacity in itself.	Medium
Export Diversification (Market/Product)	Yes	Access to new markets	High
Domestic Spillovers			
Agricultural productivity	2	Improved health, productivity and production	High
Domestic public health	2	Improved safety of animal products	High
Environment	2	Reduced unnecessary use of veterinary drugs	High
Social Impacts			
Impact on poverty	2	Improved animal production	High
Food Security	2	Safer animal products	High
Vulnerable Groups	1	Improved employment opportunities	High

11. Developing guidelines and SOPs for beef, honey and poultry VC actors (one for each value chain)

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$225,000	- Consultancy for 90days @ $500 x 3 value chains = $ 135,000 - Conducting consultative meetings for beef value chain - $35,000 - Conducting consultative meetings for poultry value chain - $35,000 - Conducting consultative meetings for honey value chain - $20,000	High
On-going cost	$ 40,000	Dissemination of guidelines	High
Ease of Implementation	Yes	Through workshops and mass media	High
Trade Impacts			
Change in absolute value of exports	$0	This may have very minimal impact on exports as developing SOPs and guidelines is one thing and application is another. VC actors may have the SOPs and Guidelines in hand but may not have the capacity to implement them.	Medium
Export Diversification (Market/Product)	Yes	Access to new markets	High
Domestic Spillovers			
Agricultural productivity	1	Indirect impact	Medium
Domestic public health	2	Safer animal products	High
Environment	2	Safe waste disposal, protection of the environment	High

Social Impacts			
Impact on poverty	1	Enhanced demand results in increased income	Medium
Food Security	2	Safer animal products	High
Vulnerable Groups	1	Increased employment opportunities	Medium

12. Training, equipping and retooling the regulators of animal food products in risk-based inspections approaches.

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$ 451,500	- Training 250 inspectors for meat, bee, & dairy products - $ 250,000 - Equipping 250 inspectors for meat, bee & dairy products - $ 121,500 - Develop inspection guidelines for meat, dairy & bee products - $ 80,000	Medium
On-going cost	$30,000	Refresher training and training new inspectors coming on board	Medium
Ease of Implementation	Yes	Workshops, information, education and communication materials, procurement and provision of equipment	High
Trade Impact			
Change in absolute value of exports	$0	This will not have a direct impact on boosting production and hence increasing exports. This would probably only facilitate smooth and faster trade.	Medium
Export Diversification (Market/Product)	Yes	Access to new markets due to enhanced customer confidence	High
Domestic Spillovers			

Agricultural productivity	1	Stimulated by increased exports	High
Domestic public health	2	Health risks managed more efficiently	High
Environment	2	Reduced unnecessary use of chemicals	High
Social Impacts			
Impact on poverty	1	Improved income	High
Food Security	2	Improved safety of foods of animal origin	High
Vulnerable Groups	1	Improved employment opportunities	High

13. Develop and implement residue monitoring plan in meat, dairy poultry, & bee products

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$ 825,632	- Baseline studies consultancy $ 180,000 - Conducting consultative meetings for beef, dairy, & poultry VCs $105,000 - Developing residue monitoring plans and guidelines for the four value chains @ 67,568 = $ 270,632 - Procuring equipment - $ 120,000	Medium

		- Procuring reagents - $ 90,000 - Piloting the plan and guidelines - $ 60,000	
On-going cost	$100,000	- Procuring reagents - $ 18,000 - Collecting samples regularly – 10,811 - Upscaling the monitoring activities - $ 12,000 - Coordination with relevant Ministries, Departments and Agencies – 1,000	Medium
Ease of Implementation	Yes	Recruiting consultants, conducting consultative meetings, information collection, printing education and communication materials, sample collection and analysis, results dissemination	High
Change in absolute value of exports	$7.404 million	Uganda exported over $3 million of all meat products (incl. cattle, poultry, goat, duck, horse, sheep, and pig), on average over 2015-2017 (FAO data). Based on ITC export potential estimates, there is untapped export potential of beef at $565000. For poultry, although ITC estimated untapped export potential of $10.5 million, authorities say supply does not meet domestic demand. So, we can only assume that this CB option will safeguard the existing export of $669,000 p.a. Therefore, the total impact will be $7,404,000 [i.e. (565,000+669,000)x5 plus 20% for all other meat products, since export of these constitute about 20% on average over 2015-2017]	Medium
Export Diversification (Market/Product)	Yes	Access to new markets such as EU due to enhanced customer confidence	High
Domestic Spillovers			
Agricultural productivity	1	Stimulated by increased exports	High
Domestic public health	2	Health risks managed more efficiently	High
Environment	2	Reduced unnecessary use of chemicals	High
Social Impacts			
Impact on poverty	1	Improved income	High
Food Security	2	Improved safety of foods of animal origin	High

Vulnerable Groups	1	Improved employment opportunities	High

14. Produce Poultry Vaccines

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$1,563,324	- Building technical staff capacity in vaccine production and plant management – 5 staff @ $ 20,000 - $ 100,000 - Designing and approving the plant plan - $ 135,135 - Building vaccine plant - $ 189,189 - Procuring and installing equipment - $ 643,000 - Developing - and testing seed vaccines – 152,000 - Developing commercial vaccines - $ 85,000 - Procuring 2 cold chain vaccine vans - @ 80,000 = - Constructing waste treatment and handling facilities – $ 154,000 - Collaborating with existing vaccine manufacturers - $ 25,000	Medium
On-going cost	$300,000	- Producing vaccines - Marketing vaccines	Medium
Ease of Implementation	Yes	There is already an existing local manufacturer of poultry vaccines.	High
Trade Impact			
Change in absolute value of exports	$3.345 million	Uganda exported roughly $400,000 Poultry meat, on average 2015-2017 (FAO data). Although ITC estimated untapped export potential of $10.5 million, authorities say supply	Medium

		does not meet domestic demand. So, we can only assume that this CB option will safeguard the existing export of $669,000 p.a. making a total impact of $3,345,000	
Export Diversification (Market/Product)	Yes	No direct impact due to popularity of free-range poultry.	High
Domestic Spillovers			
Agricultural productivity	2	Improved poultry health and productivity	High
Domestic public health	2	• Less use of antibiotics therefore less diseases and less antibiotic residues in eggs and chicken • There are few poultry diseases of public health importance.	High
Environment	2	Reduced unnecessary use of antibiotics	High
Social Impacts			
Impact on poverty	2	Improved income from increased poultry productivity	High
Food Security	2	Improved safety of foods of animal origin	High
Vulnerable Groups	2	Vulnerable groups depend on poultry for livelihood	High

15. Establish and Support Innovation Platform for Poultry VC actors

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$ 150,500	- Profiling major stakeholders - $ 30,000 - Mobilization and sensitization of major stakeholders - $ 40,500 - Supporting technical staff coordination activities - $ 10,000 - Supporting awareness creation (talk shows) - $ 20,000	Medium

		- Supporting national meetings for innovation platforms - $ 50,000	
On-going cost	$30,000	- Regular stakeholder mobilization, - Conducting quarterly trainings, - networking - Annual support to meetings for innovation platforms	Medium
Ease of Implementation	Yes	Meetings, communication, workshops	High
Trade Impact			
Change in absolute value of exports	$3.345 million	Uganda exported roughly $400,000 Poultry meat, on average 2015-2017 (FAO data). Although ITC estimated untapped export potential of $10.5 million, authorities say supply does not meet domestic demand. So, we can only assume that this CB option will safeguard the existing export of $669,000 p.a. making a total impact of $3,345,000	Medium
Export Diversification (Market/Product)	Yes	Access to new regional markets	High
Domestic Spillovers			
Agricultural productivity	1	Sharing experiences and knowledge	High
Domestic public health	1	Sharing experiences and knowledge	High
Environment	1	Sharing experiences and knowledge	High
Social Impacts			
Impact on poverty	0	Improved incomes and number of jobs from increased poultry productivity	High
Food Security	0	Improved safety of foods of animal origin	High
Vulnerable Groups	0	Vulnerable groups depend on poultry for livelihood	High

16. Management of veterinary drug residues and aflatoxins in milk and milk products

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$662,900	- Surveillance and data collection = $76,900 - Testing capacity upgrade [Equipment and reagents = (Procurement of HPLC (150,000), Charm II immunoassay equipment (100,000); 5 mobile Lab vans ($550,000) & testing kits ($150x120x2 = $36,000) = $586,000)]	High
On-going cost	$40,000	Consultancy service, paying staff, buying consumables, maintenance of equipment for one year.	High
Ease of Implementation	1	Involves purchase of equipment, sample collection and analysis	High
Trade Impacts			
Change in absolute value of exports	$100 million	$20 million more export can be realised per year. Source: DDA, Also, ITC estimates untapped export potential for milk at $103.5 million	
Export Diversification (Market/Product)	YES	Export of whole milk powder, UHT milk, Butter oil, Ghee, Casein, whey protein and yoghurt	Medium
Domestic Spillovers			
Agricultural/fisheries productivity	1	Reduction in waste	Medium
Domestic public health	1	Safe products	Medium
Environment	1	Proper waste disposal	Medium
Social Impacts			

Impact on poverty	1	Reduced waste will increase outputs and sale and translate to higher income for small poor producers	Medium
Food Security	1	Increased income will ensure food security	Medium
Vulnerable Groups[11]	1	Indirect impact	Medium

17. Capacity Building in GHPs & GMPs for Milk and Milk Products

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$1,475,000	- Cold chain facility [US$625,000 – Equipping 10 Milk collection Centers (Coolers-5000L and Generator) and US$500,000 - Construction works - Training (12 trainings, 2 per region = $70,000 per year) = $350,000	High
On-going cost	$8,000	Maintenance of the coolers, HACCP Certification, Power costs	High
Ease of Implementation	1	Involves only equipment purchase and training	High
Trade Impacts			
Change in absolute value of exports	$100 million	$20 million more export can be realised per year. Source: DDA. Also, ITC estimates untapped export potential for milk at $103.5 million	Medium
Export Diversification (Market/Product)	1	Product safety ensures access to new markets and probably the development of new products	Medium
Domestic Spillovers			

[11] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

Agricultural Productivity	0	No impact	High
Domestic public health	2	Ensures safety of the product	High
Environment	2	Good management of waste	Medium
Social Impacts			
Impact on poverty	1	Medium impact through reduced waste and hence output and income increase	Medium
Food Security	1	Income increase and reduced waste	Medium
Vulnerable Groups[12]	1	Medium impact through reduced waste and hence output and income increase	Medium

[12] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

Annex 4: Information Cards for Horticulture Products and Grains Capacity Building Options

1. Accreditation of pesticide testing labs. to fulfil pesticide residues market requirements for products destined for EU

Decision Criterion	Estimated Value	Details	Level of Confidence
Cost			
Up-front investment	$630,000	The option is for both the setting up of an accreditation system plus the necessary metrology laboratory	Low
On-going cost	$0	Exporters would be expected to pay for the testing which would cover the on-going costs	Medium
Ease of Implementation	Yes	Involves equipment purchase	High
Trade Impacts			
Change in absolute value of exports	$0	Turnaround time is long and cost of internal testing would still be more than Europe. Exporters will still use Europe. In addition, there is no direct link between accredited testing and exports as tests are already accessed in other labs.	High
Export Diversification (Market/Product)	No	Tests already happen and so, any potential market or product could have been achieved without accreditation	Medium
Domestic Spillovers			
Agricultural productivity	0	No direct link between accredited testing capacity and productivity	Medium
Domestic public health	0	No direct link between accredited testing capacity and public health	Medium
Environment	0	No direct link between accredited testing capacity and environment	Medium
Social Impacts			
Impact on poverty	0	No direct link between accredited testing capacity and poverty	Medium

Food Security	0	No direct link between accredited testing capacity and food security	Medium
Vulnerable Groups[13]	0	No direct link between accredited testing capacity and vulnerable group	Medium

2. Pest Management & Control for Mango exports

Decision Criterion	Estimated Value	Details	Level of Confidence
Cost			
Up-front investment	$13 million	Irradiation $10 million Pest Free Area (B. Invadens, Bactrocera Dorsalis, FCM) $2 million Biological control of FCM & FAW $1 million	Medium
On-going cost	$100,000	Maintenance	Low
Ease of Implementation	Yes	It's straight forward – equipment purchase and training	High
Trade Impacts			
Change in absolute value of exports	$11.75 million	The highest exports of mango (which actually includes guavas) in the last ten years was $1.5 million in 2017. Authorities say about 30% of this, i.e. $450,000, is lost at farm level. ITC estimates that there's untapped export potential of Mango at $1.9 million. Assuming this can be unlocked by this CB option, exports in 5 years can be around $11.75 million	Medium
Export Diversification (Market/Product)	Yes	New markets such as Australia & US would be accessed	High
Domestic Spillovers			
Agricultural productivity	2	Reduction in lost at farm level	High

[13] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

Domestic public health	1	Reduced use of Pesticides	High
Environment	2	Reduced use of Pesticides	High
Social Impacts			
Impact on poverty	2	More income by addressing 15-30% lost at farm level	High
Food Security	2	More food or income by addressing 15-30% lost at farm level	High
Vulnerable Groups	1	A lot of women and children involved in these VCs	Medium

3. Pest Management & Control for Capsicum exports

Decision Criterion	**Estimated Value**	**Details**	**Level of Confidence**
Cost			
Up-front investment	$13 million	Irradiation $10 million Pest Free Area (B. Invadens, Bactrocera Dorsalis, FCM) $2 million Biological control of FCM & FAW $1 million	High
On-going cost	$100,000	Maintenance	Low
Ease of Implementation	Yes	It's straight forward – equipment purchase and training	High
Trade Impacts			
Change in absolute value of exports	$19.878 million	Uganda's highest export of Pepper of the genus Piper and capsicum was $3.5 million in 2016. The product has seen an annual growth of 53% between 2014-2018. Assuming the same growth over the next five years from 2018 export of $2.371 million, total impact should be $19.878 million, although higher than ITC's estimated value of $5.695 million in 5 years.	Medium

Export Diversification (Market/Product)	Yes	New markets such as Australia & US would be accessed	High
Domestic Spillovers			
Agricultural productivity	2	Reduction in lost at farm level	High
Domestic public health	1	Reduced use of Pesticides	High
Environment	2	Reduced use of Pesticides	High
Social Impacts			
Impact on poverty	2	More income by addressing 15-30% lost at farm level	High
Food Security	2	More food or income by addressing 15-30% lost at farm level	High
Vulnerable Groups	1	A lot of women and children involved in these VCs	Medium

4. Pest Management & Control for Banana exports

Decision Criterion	**Estimated Value**	**Details**	**Level of Confidence**
Cost			
Up-front investment	$13 million	Irradiation $10 million Pest Free Area (B. Invadens, Bactrocera Dorsalis, FCM) $2 million Biological control of FCM & FAW $1 million	High
On-going cost	$500,000		
Ease of Implementation	Yes	It's straight forward – equipment purchase and training	High

Trade Impacts			
Change in absolute value of exports	$18.5 million	Uganda's highest export of bananas incl. plantain was about $1 million in 2016. ITC estimated $3.4 million untapped export potential for bananas. Authorities also say about 30% of exports, i.e. $300,000 are lost at farm level. This implies that a total of $18.5 million of exports can be realised in 5 years.	Medium
Export Diversification (Market/Product)	Yes	New markets such as Australia & US would be accessed	High
Domestic Spillovers			
Agricultural productivity	2	Reduction in lost at farm level	High
Domestic public health	1	Reduced use of Pesticides	High
Environment	2	Reduced use of Pesticides	High
Social Impacts			
Impact on poverty	2	More income by addressing 15-30% lost at farm level	High
Food Security	2	More food or income by addressing 15-30% lost at farm level	High
Vulnerable Groups	1	A lot of women and children involved in these VCs	Medium

5. Biocontrol of Aflatoxin Maize, Sorghum and G.nuts

Decision Criterion	**Estimated Value**	**Details**	**Level of Confidence**
Cost			
Up-front investment	$3 million	Similar project by IITA in Malawi	High
On-going cost	$0	No on-going cost	Medium

Ease of Implementation	Yes	There is usually collaboration and cooperation among key stakeholders. Also technical skills to manage this are largely available	High
Trade Impacts			
Change in absolute value of exports	$190 million	$38 million annually. Source: Mycotoxin contamination in foods consumed in Uganda study by Prof. N. Kaaya, Makerere University. Also, ITC's estimate of untapped potential export for Maize alone stands at $102.1 million	Medium
Export Diversification (Market/Product)	Yes	Markets that were not easily accessed will now be accessible once aflatoxin levels are reduced	High
Domestic Spillovers			
Agricultural productivity	2	Due to GAPs and Seed selection, such control options are likely to increase/improve agriculture productivity directly	High
Domestic public health	2	Aflatoxin measures has high health impacts if properly managed	High
Environment	0	It's not yet known the effect of this technology on the environment	Low
Social Impacts			
Impact on poverty	2	There is a trickle down effects on the poor households due to the aflatoxin control measures	High
Food Security	2	Since elements of Food Security is food safety, aflatoxin reduction will improve food security	High
Vulnerable Groups[14]	1	Management of aflatoxin ensures that vulnerable groups e.g, children and under under-fives are prevented from contaminated foods	Medium

6. Aflatoxin Control in Uganda (Excl. Biocontrol)

[14] Define vulnerable groups: women, Youth, underage, people with disability, the aged, the sick,

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$5.2 million	Source: Concept for immediate action on Aflatoxin Control in Uganda by NATWG	Medium
On-going cost	$0	No on-going cost	High
Ease of Implementation	No	It's a bit complex and involves	High
Trade Impacts			
Change in absolute value of exports	$190 million	$38 million annually. Source: Mycotoxin contamination in foods consumed in Uganda study by Prof. N. Kaaya, Makerere University. Also, ITC's estimate of untapped potential export for Maize alone stands at $102.1 million	Medium
Export Diversification (Market/Product)	Yes	Access to new markets	High
Domestic Spillovers			
Agricultural productivity	2	Reduced post-harvest losses	High
Domestic public health	2	Increased product safety	High
Environment	1	Reduction and better disposal of waste	High
Social Impacts			
Impact on poverty	2	Increased output will ensure better incomes to the poor	High
Food Security	2	Reduced wastage	High
Vulnerable Groups	2	Increased income to small scale poor producers	High

7. Capacity building in traceability in Grains

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$3.75 million	Training of Extension workers = $50,000 Audit = $100,000 Training of farmers = $3.6 million	Medium
On-going cost	$0	No on-going cost	Medium
Ease of Implementation	No	Collaboration and cooperation from value chain players would be difficult to secure	High
Trade Impacts			
Change in absolute value of exports	$116.6 million	ITC estimates untapped export potential of Maize seed as $99.5 million; Broken Rice at $12.1 million and other Cereals at $5 million, totaling $116.6 million.	Medium
Export Diversification (Market/Product)	Yes	A well-managed Traceability system will give confidence to new markets	Medium
Domestic Spillovers			
Agricultural productivity	1	Identification and elimination of potential threats may reduce wastage and increase output per unit area	Low
Domestic public health	1	Identification of contaminated products will ensure that safe products are on the market	Medium
Environment	1	Proper disposal of contaminated products will ensure safe environment	Low
Social Impacts			
Impact on poverty	1	Safe product is like to attract premium prices	Low

Food Security	2	A good traceability system is a crucial element of food security in terms of safe trade and consumption	High
Vulnerable Groups	2	Traceability ensures that children are prevented from feeding contaminated products	High

Annex 5: Information Cards for Fish and Fish Products

1. Promote and support improved processing methods in aquaculture and wild catch

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$200,000	Procure on farm value addition equipment like improved kilns, ice plants, packaging materials, sausage makers and transport vans, trainings on value addition	Medium
On-going cost	$50,000	Support on-going coaching	Medium
Ease of Implementation	Yes	Training and infrastructure	High
Trade Impacts			
Change in absolute value of exports	$400 million	Yes, because it will reduce post-harvest losses, which now stands at 40%, and currently aquaculture products not being exported to Europe and other markets because of challenges of traceability, residue monitoring and value addition.	High
Export Diversification (Market/Product)	Yes	A variety of fish products that suits varying consumer needs will be available for sale	High
Domestic Spillovers			
Agricultural productivity	2	As the products gains better paying markets, there will be added incentive to produce more and efficiently to generate more profits	High

Domestic public health	2	Improved fish quality through processing will increase fish self-life and nutrient value at consumption time. Products will also reach further in the villages while still in good condition.	High
Environment	2	Better processing methods will means less/no impact on environment since less or no fire woods will be required for energy.	High
Social Impacts			
Impact on poverty	2	About 1.2 million poor people and women are the majority in this sector	High
Food Security	1	Improved nutrition and income due to reduced post-harvest loss	Medium
Vulnerable Groups[15]	2	Improved livelihood due to jobs created for mainly women and youths in processing and marketing	High

2. Design and implement Good Aquaculture Practices

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$90,000	Establish good aquaculture management practices like residue monitoring, biosecurity protocols and quarantine facilities	High
On-going cost	$45,000	Refresher and monitoring	Medium
Ease of Implementation	Yes	Development of material and training	High
Trade Impacts			

[15] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

Change in absolute value of exports	$100 million	There will be increased exports of aquaculture products to foreign markets, better quality products fetch higher prices	Low
Export Diversification (Market/Product)	Yes	Access to new markets	Low
Domestic Spillovers			
Agricultural productivity	2	Improved and efficient production	High
Domestic public health	2	High quality of product	High
Environment	2	Less pollution and waste management	High
Social Impacts			
Impact on poverty	2	Increased productivity. About 1.2 million poor people and women are the majority in this sector	High
Food Security	1	Improved income	Medium
Vulnerable Groups[16]	2	Improved livelihood from sale of better-quality products even if the volume sold remains about the same	High

[16] Define vulnerable groups: women, Youth, underage, people with disability, the elderly, the sick,

3. Design and Implement traceability system for Aquaculture

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$160,000	Establishment of a database for all fisheries actors and farmers in the country, establish a traceability system for farm products, input suppliers and manufacturers	Medium
On-going cost	$30,000	Refresher trainings, web based app maintenance and staff hire	Medium
Ease of Implementation	Yes	Develop HACCAP for aquaculture value chain and train practitioners	Medium
Trade Impacts			
Change in absolute value of exports	$100 million	Less health risks will create more market for the products	High
Export Diversification (Market/Product)	Yes	Confidence in the products will be boosted and hence access to new markets	High
Domestic Spillovers			
Agricultural productivity	2	The use of quality production inputs (feeds, seeds etc.) will be ensured hence increased productivity	High
Domestic public health	2	Healthier products for consumption will be on the market	High
Environment	1	Limited/no pollution due to use of poor inputs	High
Social Impacts			

Impact on poverty	1	Increased prices per unit measure due improved/ perceived improved quality of products	High
Food Security	1	More food available due to use of improved inputs	High
Vulnerable Groups	1	More employment	High

4. Building capacity of Inspection & Certification system for Aquaculture VC

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$60,000	Training of inspectors, equipping, and retooling of the laboratory	High
On-going cost	$20,000	Follow up inspections	Medium
Ease of Implementation	Yes	It involves training, design of certification scheme, and purchase of equipment	High
Trade Impacts			
Change in absolute value of exports	$0	No Impact	Medium
Export Diversification (Market/Product)	No	No direct impact	Medium
Domestic Spillovers			

Agricultural productivity	1	Enhanced compliance	High
Domestic public health	2	High quality product ensured	High
Environment	2	Improved efficiency and reduction in pollution	High
Social Impacts			
Impact on poverty	1	Prices of certified products are likely to go higher hence producers earn more.	Medium
Food Security	1	Producers encouraged to produce more to gain more income from certified products	Medium
Vulnerable Groups	1	More employment, more income	Medium

5. Build capacity for VC Actors on the international standards, regulations, Practices, Guidelines, etc.

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Up-front investment	**$60,000**	Training and sensitization	High
On-going cost	$0	No on-going cost	
Ease of Implementation	Yes	Local capacity available and responsive	High
Trade Impacts			

Change in absolute value of exports	$0	No direct link between mere knowledge of the requirements and a surge in exports	Medium
Export Diversification (Market/Product)	No	No impact	High
Domestic Spillovers			
Agricultural productivity	0	No impact	Medium
Domestic public health	0	No impact	Medium
Environment	0	No impact	High
Social Impacts			
Impact on poverty	0	No impact	High
Food Security	0	No impact	Medium
Vulnerable Groups	0	No impact	Medium

6. Establish and/or Enhance infrastructures

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$500,000	Holding facility, cold chain, storage facilities, and distribution centres	High
On-going cost	$200,000	For operation and maintenance	

Ease of Implementation	Yes	It involves purchase of equipment mostly	Medium
Trade Impacts			
Change in absolute value of exports	$1 million	Improved quality of exports and ready availability in required numbers and quality	High
Export Diversification (Market/Product)	1	Increased in variety of exportable fish product forms	Medium
Domestic Spillovers			
Agricultural productivity	1	Reduction in wastage	Medium
Domestic public health	2	Reduced contamination	Medium
Environment	1	Environment protection	Medium
Social Impacts			
Impact on poverty	2	Reduced poverty	High
Food Security	2	Improved food security due to enhanced income	High
Vulnerable Groups	2	More employment opportunities	High

7. Upgrade and accredit Uganda fisheries laboratory

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$350,000	Purchase of equipment and training of personnel	High
On-going cost	$100,000	Maintenance	Medium
Ease of Implementation	Yes	Personnel available but need capacity building	Medium
Change in absolute value of exports	$0	No direct link between Lab upgrade and exports as tests already take place	Medium
Export Diversification (Market/Product)	No	No impact	Medium
Domestic Spillovers			
Agricultural productivity	0	No impact	Medium
Domestic public health	0	No impact. Lab exist and an upgrade and accreditation does not necessarily increase the safety of the product. It only ensures international confidence	Medium
Environment	0	No impact	High
Social Impacts			
Impact on poverty	0	No impact	Medium

Food Security	0	No impact	Medium
Vulnerable Groups	0	No impact	Medium

8. Build capacity in residue and microbial monitoring for aquaculture and wild catch

Decision Criterion	Estimated Value	Source of Data and Method of Estimation	Level of Confidence
Cost			
Up-front investment	$80,000	Sampling and testing	Medium
On-going cost	$30,000	Maintenance	Medium
Ease of Implementation	Yes	Personnel is available but needs more training and equipment	High
Change in absolute value of exports	$2 million	Increased acceptability of the product in the world markets due to trust in personnel	High
Export Diversification (Market/Product)	2	Increases chances of farmed fish being exported to foreign markets	High
Domestic Spillovers			
Agricultural productivity	1	Less chances of disease outbreaks	Medium
Domestic public health	2	Increased awareness makes people demand healthy and clean products	High

Environment	2	Increases chances of being highly monitored	High
Social Impacts			
Impact on poverty	2	High fish recovery rate at harvest resulting into more income to producers	High
Food Security	2	People will have money to procure food and hence impact on food security	High
Vulnerable Groups	1	May increase their chances of being employed	medium

9. Establish and implement a surveillance system for fish

Decision Criterion	**Estimated Value**	**Source of Data and Method of Estimation**	**Level of Confidence**
Cost			
Up-front investment	$80,000	Sampling and testing	High
On-going cost	$20,000	Follow up annual surveillance	Medium
Ease of Implementation	Yes	Personnel available	Medium
Change in absolute value of exports	USD 1 million	Increased acceptability of the product in the world markets due to trust in personnel	High
Export Diversification (Market/Product)	2	Aquaculture products able to access foreign markets	High

Domestic Spillovers			
Agricultural productivity	2	Increases due to enhanced market access	Medium
Domestic public health	1	Increases awareness on fish health	High
Environment	2	Increased environmental protection and awareness	High
Social Impacts			
Impact on poverty	2	Increase value of exports reduces poverty levels	High
Food Security	2	More money available to farmers means food security	Medium
Vulnerable Groups	1	Employment opportunities for women and youth increase	Medium

Annex 6: Workshops Participants' List

LIST OF PARTICIPANTS FOR THE MAINSTREAMING SPS PRIORITIES INTO NATIONAL POLICY AND INVESTMENT; HIGH LEVEL INCEPTION MEETING AND NATIONAL TRAINING WORKSHOP, 18 -21 DECEMBER 2018 IN KAMPALA, UGANDA

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PIMA NATIONAL WORKSHOP 26 – 30 AUGUST 2019

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Annex 7: Information Dossier

Establishing Priorities for SPS Capacity-Building in Uganda Using Multi Criteria Decision Analysis (March 2013)

Kiconco D. (2018). 'SPS Issues in the Livestock Sector.' PowerPoint Presentation

Omanyi B. P. (2018). 'SPS Constraints and Fish Trade.' PowerPoint Presentation

Sebutare G. (2018). 'SPS constraints in Maize Trade in Uganda.' PowerPoint Presentation

Tumuboine E. (2018). 'Sanitary and Phytosanitary Constraints to Horticulture Trade.' PowerPoint Presentation

COMESA (2019), Uganda Trade Flow Synthesis Report

N. A. Kaaya and H.L. Warren (2005). A Review of Past and Present Research on Aflatoxin in Uganda. Peer Reviewed Article No. 5

International Trade Centre (2018). Uganda: Company Perspectives. An ITC Series on Non-Tariff Measures

World Bank (2019). Economic Development & Human Capital in Uganda: A Case for Investing more in Education. Uganda Economic Update, 13th Edition

Uganda Agribusiness Alliance Limited (UAA) (2019). Diagnostic Mapping of the Sanitary and Phytosanitary System in Uganda

World Bank (2019). Toward Scaled-Up and Sustainable Agriculture Finance and Insurance in Uganda

World Bank (2013). Diagnostic Trade Integration Study (DTIS) update

Ministry of Trade Tourism and Industry (2012) Study Report on the Assessment of the Capacity Needs of SMCA Service Providers in Uganda to Support Priority Product Value Chains

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