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

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Acronyms

AGRA	Alliance for Green Revolution in Africa
CAADP	Comprehensive Africa Agriculture Development Programme
CBOs	Capacity Building Options
COMESA	Common Market for Eastern and Southern Africa
EU	European Union
DARS	Department of Agricultural Research Services
FCDO	Foreign Commonwealth and Development Service
GAP	Good Agricultural Practices
GHPs	Good Hygiene Practices
GMPs	Good Manufacturing Practices
GVPs	Good Veterinary Practices
HACCP	Hazard Analysis and Critical Control Points
IPPC	International Plant Protection Convention
ITC	International Trade Centre
MCCs	Milk Collection Centres
MCDA	Multi Criteria Decision Analysis
MRLs	Maximum Residue Limits
PHH	Post Harvest Handling
P-IMA	Prioritizing SPS Investments for Market Access
PRA	Pest Risk Analysis
RASFF	Rapid Alert System for Food and Feed
RSB	Rwanda Standards Board
STDF	Standards and Trade Development Facility
SPS	Sanitary and Phytosanitary
TOT	Training of Trainers
USAID	United States Agency for International Development
UNOPS	United Nations Office for Project Services
WTO	World Trade Organization

Executive Summary

COMESA has been implementing a market access framework known as "PRIORITISATION OF SANITARY AND PHYTO SANITARY (SPS) INVESTMENTS FOR MARKET ACCESS (P-IMA)", with support from the Standards and Trade Development Facility **(STDF)** housed at the WTO and the Enhanced Integrated Framework **(EIF),** and also in collaboration with the Alliance for a Green Revolution in Africa **(AGRA**). This Initiative aims to support countries identify and prioritize SPS issues that limit their market access and subject them to the P-IMA priority setting framework and facilitate their mainstreaming into national investment frameworks. The COMESA P-IMA initiative was successfully rolled out in 2018 as a three-year project (**2018-2021**) focusing on five COMESA countries namely, **Uganda, Kenya, Rwanda, Malawi and Ethiopia**. Full detailed reports can be found on the STDF website: STDF/EIF funded project

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. The prioritization results of the SPS interventions are progressively informing other COMESA initiatives on Trade Facilitation including, technical regulations, harmonization of regulatory limits for agriculture commodities of regional trade importance, adoption of good practices in food import control and strengthening of laboratory testing requirements, among others. For instance, COMESA is implementing a Mutual Recognition Framework (MRF) with support of FCDO/AGRA. The overall objective of this project is to increase intra-regional regional trade by improving trade policy and regulatory environment through the development of a MRF for smooth implementation and monitoring of SPS measures and technical standards amongst six trading member states of COMESA, namely, Kenya, Malawi, Rwanda, Uganda, Zambia and Zimbabwe.

Ethiopia is the 5th country that rolled out the P-IMA initiative and project implementation was successfully completed. In the case of Ethiopia, the following five (5) value chains have been prioritised under the P-IMA Project: ***Livestock, Horticulture, Coffee, Sesame (Grains) and Honey.*** These value chains are considered to be of great potential in boosting agri-food exports once the key SPS issues associated with their major trade flows are addressed.

Thus, this report is the result of the application of the P-IMA framework in Ethiopia. A total of Seven (7) **SPS Investment Options** were subjected to the P-IMA priority setting framework. The priority setting was based on a structured process of identifying SPS Investment Options that were relevant for market access, prior agreed objectives (called decision criteria), and agreed weights assigned to the decision criteria. In all, it will cost approximately **USD30 Million** to implement all the seven (7) **SPS Investment Options**. In return, these Seven (7) SPS Investment Options could generate additional exports worth **USD1.9 billion** annually. Overall, below are the first top four options that consistently ranked above the others and therefore are desirable as first best choices:

- Traceability System & Quality Management for Coffee Exports
- Disease, Residues, & Hygiene controls & management for live animals and meat exports
- Addressing Salmonella and Pesticide Residue in Sesame Seeds exports
- Addressing SPS constraints in Honey

1.0 Introduction

The Standards and Trade Development Facility (STDF) of the World Trade Organization (WTO) 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. 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, COMESA Secretariat secured funding from the STDF and the Enhanced Integrated Framework (EIF) to implement a regional P-IMA project, which builds on the past application of the framework, to further expand the use of the P-IMA framework in five (5) COMESA Countries namely: **Malawi, Kenya, Rwanda, Uganda and Ethiopia**. 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. The prioritization results of the SPS interventions are progressively informing other COMESA on-going work on Trade Facilitation including, technical regulations and harmonization of regulatory limits for agriculture commodities of regional trade importance, adoption of good practices in food import control and strengthening of laboratory testing requirements, among others. For instance, COMESA is implementing a Mutual Recognition Framework (MRF) with support of FCDO/AGRA. The overall objective of this project is to increase intra-regional trade by improving trade policy and regulatory environment through the development of a MRF for smooth implementation and monitoring of SPS measures and technical standards amongst six (6) trading member states of COMESA, namely, Kenya, Malawi, Rwanda, Uganda, Zambia and Zimbabwe.

The COMESA P-IMA initiative was successfully rolled out in 2018 as a three-year project (2018-2021) focusing on five COMESA countries namely, Uganda, Kenya, Rwanda, Malawi and Ethiopia. Full detailed reports can be found on the STDF website: STDF/EIF funded project Malawi is the 4th country that rolled out the P-IMA initiative and project implementation was successfully completed. Thus, this report provides the outcomes of the application of the P-IMA process in Ethiopia in 2022. In the case of Ethiopia, the following five (5) value chains have been prioritised under the P-IMA Project: ***Livestock, Horticulture, Coffee, Sesame (Grains) and Honey.*** These value chains are considered to be of great potential in boosting agri-food exports once the key SPS issues associated with their major trade flows are addressed.

Previously in 2013, Ethiopia piloted the P-IMA framework, then called MCDA which identified 16 SPS capacity building investment needs, out of which five (5) ranked as the best Investments options. The list of these 18 SPS capacity Building investments options have been listed in Annex 1 of the report against the 2022 identified SPS investments Options (7).

2.0 Overview of SPS Sensitive Trade

Ethiopia's main exported products are agriculture products which accounts for 80% of the total exports. Of these Coffee alone accounts for 31% of the total exports. Other major exports for Ethiopia includes, Sesame seeds, Honey, Vegetables, cut roses, kidney beans, Arrowroots and Goat meat.

Ethiopia's market destinations with the greatest export potential include the following: Asia, EU, Middle East, North America, Eastern Africa and Africa. However, interceptions for Ethiopia's exports are increasing mainly due to harmful organisms. According to the Europhyt,[1] Ethiopia experienced **31 interceptions** between **Jan-Apr 2020**, whilst in 2019 Ethiopia only had **9 interceptions.** On boarder rejections, the EU Rapid Alert for Food and Feed (RASFF) recorded **10 border rejections** for Ethiopia during the same reporting period mostly due to Salmonella and Aflatoxin in Sesame Seeds. Annex 2 of the report outlines border rejections/SPS alerts against Ethiopia by the EU.

As SPS requirements are becoming more stringent even in African markets, there is need to address existing SPS capacity gaps in the case of Ethiopia. The recently concluded UN Food Systems Summit has also made a global call on Food Safety in that **"If it's not safe, it's not 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 consolidate 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 mobilization. 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 compliant with the export market SPS requirements per se, rather, 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.

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[2]. Below, is a relatively brief outline of the stages of the framework, with a particular focus on how they were implemented in Ethiopia.

Stage 1: Compilation of Information Dossier

[1] Europhyt – an on-line web-based rapid alert system for plant health interceptions in the European Union (EU)

[2] User Guide can be found on STDF website: http://standardsfacility.org/prioritizing-sps-investments-market-access-p-ima

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 Ethiopia 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 investment options and the definition of priorities for related investments. Consequently, the current study built on the previous work done in 2013, received sector specific presentations from the various competent authorities based on their sector specific assessments, and a synthesized SPS-sensitive trade flow study during a High-Level inception meeting that was held on **11th October 2021**.

Stage 2: Definition of Choice Set

In order to identify the SPS Investment Options to be considered in the priority-setting framework, a two-day stakeholder's workshop was held from 12th to 13th October 2021. 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. These two days were also dedicated to the identification of Ethiopia SPS Investment Options and defining the Decision Criteria and Weights. Participants were presented with a series of cards and asked to identify the SPS investment needs that are 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; and 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 investment option. Respondents were free to define as many specific SPS capacity-building needs as they wished.

Figure 5: Definition of SPS capacity-building options

The Investment Options generated from the above workshop was further reviewed and validated in a sector-specific working session from 28 February to 4 March 2022. At this stage, certain SPS Investment Options that did not meet the criteria were excluded. The Investment Options that were included are listed and defined in Table 4 below:

Table 4: SPS Investment Options for Ethiopia

1.	Addressing Salmonella and Pesticide Residue in Sesame Seeds exports
2.	Traceability System & Quality Management for Coffee Exports
3.	Addressing SPS constraints in Honey [Capacity building and awareness creation in HACCP, GMP, GHP, GAP in honey; Establish a traceability system in honey; Regulatory & Lab capacity]
4.	Integrated Pest Management (IPM) and Global GAP certification for Fruits, Veg, & Herbs
5.	Aflatoxin Control in Hot Pepper

6.	Surveillance, Monitoring, & IPM of HO & Pests for Cut Flowers
7.	Disease, Residues, & Hygiene controls & management for live animals and meat exports

Stage 3: Definition of decision criteria and weights

In the second stage of the stakeholder 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 seven decision criteria agreed on. 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 5** below.

Table 5: Decision Criteria and Weights

Objective	Decision Criteria	Weights (Average)
Cost of Investment	Upfront Investment	16.4
Trade impact	Change in absolute value of exports	24.0
Domestic Spillovers	Agriculture Productivity	27.4
	Public Health	14.2
	Poverty Reduction	18.0
Total Weight		**100**

Stage 4: Construction of Information Cards

Having identified the choice set of SPS capacity-building investment 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 Section 4. The metrics to be employed for each of the five decision criteria were then defined, taking account of currently available data and the range of plausible ways in which each of the criteria might be represented. Table 6 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 recognize that the aim of the framework is not to provide a final and definitive prioritization of the capacity-building

investment 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 3.** Each card presents data for the five decision criteria, measured according to the scales outlined in Table 3. 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 prioritization exercise, and in considering how the analysis might be refined in the future.

Table 6: Decision Criteria Measurement Metrics

Decision Criterion	Details	Measurement
Cost		
Up-front investment	Monetary costs of investments to upgrade SPS capacity	Absolute value ($)
Trade Impact		
Change in absolute value of exports	Predicted enhancement of exports or avoided loss of exports five years from implementation of the intervention	Absolute value ($)
Domestic Spillovers & Social Impacts		
Public health	Changes in domestic public health, through food safety, occupational exposure to hazards, etc. and Changes in protection of natural environment	Large negative (-3); Medium Negative (-2); Negative (-1); No Impact (0); Positive (+1); Medium Positive (+2); Large positive (+3).
Poverty Reduction	Change in the incidence of poverty	Yes/No
Agriculture Productivity	Impact on the agriculture production and productivity	Yes/No

Stage 5: Review of Information Cards

Following from stage 4, the information cards were further subjected to further verification by the national team to ensure accuracy and confidence in the data and information in the cards.

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. Two models were estimated using D-sight:

- *Baseline model* using decision weights derived in Stage 3.
- *Equal weights model* in which all of the decision criteria are weighted equally.

The baseline model is considered to provide the main set of priorities, in that it uses the full set of information derived through Stages 1 to 4. The equal weights model was estimated in order to examine the extent to which the derived priorities are sensitive to changes in the decision weights; if the broad ranking of the SPS capacity-building investment options remains generally the same under the 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 stakeholders' validation workshop on **09-10 May 2022** the participants at which are reported in **Annex 4.**

4.0 Brief Description of the Capacity Building Options (CBOs)

4.1 Addressing Salmonella and Pesticide Residue in Sesame Seeds exports

Ethiopia is one of the major producers and exporters of sesame seeds in the world. The crop has about 13% share of total exports. On average, the country exported 294 thousand tons of Sesame with an annual value worth $382 million between 2015 and 2019. In terms of international market destinations, all the top five importers of Ethiopian sesame seeds are in Asia. Israel is the top export destination with a share of 27.7% of all Ethiopian sesame exports, followed by the largest global importer, China (18.0%), UAE (13.1%), Vietnam (8.2%) and Japan (7.4%). However, over the years, the volume of exports has been fluctuating. Demand and supply side constraints hamper the growth of the sesame export sector including diminishing productivity levels, pests and diseases, and poor access to modern technology; and higher domestic prices, market distortions, and contractual non-performance of export sales (USDA, 2020).

Salmonella and pesticide residues are the main SPS constraints to sesame exports. Generally, there is lack of awareness on the good agriculture practices especially among the small-scale producers as well as no proper traceability mechanisms. To address this, the intervention under P-IMA Ethiopia is focus on capacity building on Good Agriculture Practices (GAPs), Good Hygiene Practices (GHPs), Post-harvest handling (PHH), pesticide control and management,

surveillance and biological control approaches to manage Salmonella and pesticide residues in sesame seeds.

4.2 Traceability System & Quality Management for Coffee Exports

Coffee is the largest export commodity for Ethiopia and accounts for 31% of Ethiopia's total exports. Ethiopia's coffee has suffered market access issues due to high presence of pesticide residues and contamination- ochratoxin. The recent changes in the Maximum Residue Limits (MRLs) requirements for pesticides by the European Union market and other market destinations has significantly affected Ethiopia coffee exports due to inability to comply with these stringent requirements. In some instances, noncompliance to these requirements has costed Ethiopia huge revenue loss. For example, an import ban that was imposed by Japan on Ethiopian Coffee due to high presence of pesticide residues costed Ethiopia USD 86 Million revenue loss in coffee exports**.**

The application of the P-IMA Framework in Ethiopia has identified an SPS investment on Traceability System and Quality Management for coffee exports to respond to the existing SPS constraints in the Coffee sector and facilitate trade.

4.3 Integrated Pest Management (IPM) and Global GAP Certification for Fruits, Vegetables, & Herbs

The horticulture sub-sector (Fruits, Vegetables and Herbs) consists of small-scale farmers, Cooperative Unions and Commercial farms. Among the selected commodities Strawberries are produced by commercial farms whereas Avocado, Banana, Mango and Tomato are produced by both small-scale farmers and commercial farms. There are more than 59 farms engaged in the production and export of fruits, vegetables, and herbs. The key SPS constraints affecting the sub-sector include the presence of quarantine pests and pesticide residues.

The capacity building options for small-scale farmers will be delivered by the Cooperative Unions through ToT. This will help to deliver the capacity building option to thousands of farmers engaged in the production of the selected commodities. The capacity building option includes harvesting and post-harvest handling, IPM and Global GAP training and certification. The capacity building will be expected to enable the farmers to be able to produce with minimum food safety standards and supply their produce to the high value export market through their Cooperative Unions.

The other investment options for the small-scale farmers include the construction of infrastructure facilities to enhance and meet the minimum food safety standards of the high value EU market destination. These include the construction of storage and cold room facilities and purchase of cold truck vehicles.

In terms of the trade impact, the estimation is made using the FDRE Ministry of Agriculture 10-year Agriculture Production and Market Plan. Based on this 10-year plan, the production of the selected fruits and vegetables, meeting the minimum food safety standards, will be increased by 56 % on average in 2022/23 production year from where it was in 2019/20 production year. This P-IMA investment intervention is supposed to increase the value of export to the high value export market by 45.9%. This intervention is also expected to create jobs for 273,920 youths in the rural and urban areas through the value chain.

4.4 Aflatoxin Control in Hot Pepper

Hot pepper is produced in many parts of Ethiopia mainly for local consumption. A substantial amount of hot pepper is exported by traders who collect the fresh product from small-scale farmers. The main destination markets of Hot Pepper are US, EU, Canada, UK and Djibouti. The key SPS constraint affecting the product is aflatoxin which is mainly caused by harvesting and post-harvest handling problems. Aflatoxins have been the main subject of export of hot pepper into the European market especially the UK.

For these reasons, the capacity building option includes training on hygiene, harvesting, post-harvest handling and storing. In the current production year 472.34 ton or 2.7 million USD worth of hot pepper is exported so far. It is estimated that this capacity building option is expected to increase the existing export of hot pepper by 63 % in the 2022/23 production year.

4.5 Surveillance, Monitoring, & IPM of HO & Pests for Cut Flowers

Ethiopia is known in the production and export of cut flowers. The industry has grown doubled in the last five years. In 2020, Ethiopia became the 2nd largest exporter of Cut flowers in Africa and 5th in the world. At the same year, cut flowers was the 6th most exported product in Ethiopia. The main destination of Cut flowers exports from Ethiopia are: Netherlands, Saudi Arabia, Norway, United States, United Arab Emirates, Japan, Italy, Canada and Germany.

There are more than 67 commercial farms owned by foreign investment (FDI and Joint ventures) and local investors. A substantial amount of cut flowers have been diverted to the local market due to harvesting and post-harvest handling problems. Some amount has also been rejected at the EU market due to the presence of harmful organism, quarantine pest, and pesticide residues which are key SPS issues that need to be addressed. As the products are mostly exported to the high value export market of EU, US, Japan and the Middle East, it is mandatory to meet the SPS standards of the market destination. For these reasons, the capacity building option will target on implementing integrated pest management and global GAP. The capacity building option also includes successive training of farm experts on harvesting and post-harvest handling. It also considers the capacity building of laboratory technicians to strengthen the existing laboratories for testing the presence of harmful organisms and quarantine pests. It is estimated that the intervention would increase the amount of the existing cut flower export by 10% in the 2023/24 production year.

4.6 Disease, Residues, & Hygiene controls & management for live animals and meat exports

The livestock sector in Ethiopia contributes 17% of Ethiopia's total GDP and 45% of the agriculture GDP. The livestock sector mainly supports about 70% of the rural households in Ethiopia. In terms of livestock exports, the key market destinations and other potential markets for livestock and livestock products includes the following: United Arab Emirates mainly Dubai, kingdom of Saudi Arabia, mainly Jeddah and Riyadh, Kuwait, Qatar, Bahrain and Oman. Middle East and Northern African Countries (MENA) (for live animals) and Middle East, far east countries like Vietnam and Hong Kong. The next potential markets for Ethiopia's livestock and livestock products are China and Malaysia and North Africa.

Despite Ethiopia being the largest livestock producer in Africa and one of the largest exporters in the world, Ethiopia has experienced a decline in the meat exports over the past years. Ethiopia

has experienced a decline in the meat export over the past six years from **19,000 MT** in 2014/15 to **14,000MT** in 2019/20, signifying a sharp decline in meat export value from **USD93 Millio**n to **USD69 Million** in the same reporting period.

Ethiopia's livestock industry is hampered by SPS constraints which have constrained the product's market access. These SPS constraints include: the prevalence of trade sensitive and Trans –boundary Animal diseases such as Foot and Mouth Disease (FMD), *Peste des petits ruminants (PPR),* heavy metals and drug residues on meat and meat product, inadequate mechanism to ensure traceability and adequate food hygiene and control system, absence of a Residual Monitoring Plan as most markets require the exporting country to demonstrate residue safety through a residual monitoring mechanism for veterinary drugs which currently, Ethiopia does not have one in place. Ethiopia is also facing an SPS challenge on poor infrastructure qualities such as quarantine stations and slaughterhouses and insufficient disease management systems (surveillance, detection and response) as well as limited regulatory frameworks (laws).,

Ethiopia has experienced repeated export bans and shipment returns from potential markets mainly due to trade sensitive diseases and wrecked cold supply chains. - recently, there was a meat export rejection to the United Arab Emirates. Currently, there is also complete live animal ban to Saudi Arabia due to RVF outbreak in neighbouring countries.

This notwithstanding, the SPS certification system for Ethiopia is technically feasible, meets existing international standards and complies with existing market requirements. All the 15 export abattoirs in Ethiopia are certified in the following: HACCP and ISO 22 000: 2018 on food safety management system, 1S0 9001 on Quality Management System, ISO 14000 on Environment management system by third-party international certifying bodies, HALALA for the Middle East market.

In order to address SPS issues affecting Ethiopia's livestock and meat exports, there is need to enhance surveillance system (passive and active), implement disease prevention and control strategies especially for trade sensitive diseases. In addition, there is also need to improve traceability system and integrate regulatory and developmental support, enforcement mechanisms and follow up. Ethiopia also needs a residual monitoring plan for meat exports in order to effectively demonstrate residue safety for veterinary drugs. The application of the P-IMA Framework in Ethiopia has identified an SPS investment on Disease, Residues, & Hygiene controls & management for live animals and meat exports to respond to the existing SPS constraints in the Livestock and Livestock Products Sector. Specifically, the proposed CBO will address the following: prevention of Trans boundary animal diseases, strengthening of the traceability system and improved quality infrastructure in terms of quarantine stations and export slaughterhouses.

4.7 Addressing SPS constraints in Honey

Ethiopia is the second largest honey producer in the world, yet in terms of exports, it is the 11th major world exporter of the product. Ethiopia's honey has performed exceptionally well except in the recent years where a decline in the exports has been recorded. The key market destinations for Ethiopian honey are the European Union and middle east. Despite Ethiopia obtaining a third-party certification for honey exports into the EU market, the market access requirements for the product remain quite stringent. For Instance, in reference to **the EU Commission Decision**

number 653 which came into effect on **20th April 2021** on the approval plans for honey exports, submitted by third countries, Ethiopia has qualified as one of the African countries[3] yet, it has to develop a comprehensive Residual Monitoring Plan for the 13th time if its preferential market access is to be maintained. EU regulations mainly affecting market access for honey are on, Residual Limits, Sampling and Method of Tests for honey exports.

Typically, the honey sector is bedeviled by adulteration, residues (pesticide & heavy metals), hygiene issues lack of traceability and limited capacity to implement honey quality testing.

Due to large investments required to meet these market access requirements, the honey exports is becoming less competitive fetching an average world price that is half the domestic market price. The following are some areas for improvement and consideration for the honey value chain in Ethiopia: awareness on quality and safety (harvesting and handling mechanisms, packaging and transportation system including processing methods); improved traceability system; integrated regulatory and developmental support, enforcement mechanisms and follow up and analytical capacity in terms of conformity requirements (Testing and Certification Costs). In addition, building capacities on HACCP, GMP, GHP, GAP, lab capacity as well as regulatory improvements would be needed.

The P-IMA process for Ethiopia has proposed an SPS investment Option that will address the key SPS challenges for Ethiopia honey in terms of: sustaining the market access for the honey onto the EU Market, establishing a national residual testing capacity and strengthening of Quality proficiency testing.

5.0 Results

Overall, an estimated total cost of approximately **USD30 million** is needed to implement all the seven (7) SPS Investments options, which are estimated to generate about **USD1.9 billion** worth of additional exports annually. **Table 7** below gives a breakdown of the required costs of SPS investments per value chain and the potential trade likely to be generated.

Table 7: Sectoral Breakdown of Costs of SPS Investments and Potential Trade

Investment Option	Cost of Investment (USD)	Absolute Change in the value of Exports (USD
Addressing Salmonella and Pesticide Residue in Sesame Exports	250,000	448,000,000
Traceability System &Quality Management in Coffee Exports	1,066,900	233,600,000
IPM and Global Gap for Fruits, Vegetables &Herbs	1,022,728	189,350,000
Aflatoxin Control in Hot Pepper	710,000	3,250,000
Surveillance, Monitoring & IPM of Harmful Organisms &Pests for cut flowers	344,500	74,000,000
Disease, Residues &Hygiene controls &management for live animals and meat exports	9,370,000	1,000,000,000
Addressing SPS issues in Honey Exports	285,000	1,500,000
Total	**30,116,268**	**1,949,700,000**

[3] Only **10 African countries** have acquired a third-party certification for honey exports into the EU and these are: **Benin, Burkina Faso, Cameron, Ethiopia, Ghana, Mauritius, Tanzania, Rwanda, Uganda and Zambia**.

Figures 6-9 presents the results of the prioritization framework using outranking in the D-Sight software package based on the decision criteria and weights agreed by stakeholders. Figure 6 shows the main result of the analysis. The analysis shows that below are the rankings, in order of priority (high-low), of the 7 SPS Investment options:

Ranking	SPS Investment Option
1st	Traceability System & Quality Management for Coffee Exports
2nd	Disease, Residues, & Hygiene controls & management for live animals and meat exports
3rd	Addressing Salmonella and Pesticide Residue in Sesame Seeds exports
4th	Addressing SPS constraints in Honey
5th	Integrated Pest Management (IPM) and Global GAP for Fruits, Vegetables & Herbs
6th	Surveillance, Monitoring, & IPM of Harmful Organisms & Pests for Cut Flowers
7th	Aflatoxin Control in Hot Pepper

This means that the top ranked options (i.e. options for coffee exports, live animals and meat, and sesame exports) would bring the best value for money across the trade, productivity, and social impacts than the lower ranked ones such as hot pepper, cut flowers, and fruits, vegetables and herbs exports. 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 option is not the best option to be implemented now given limited resources.

Figure 6: Ranking of the SPS Investments Options Using Baseline Model

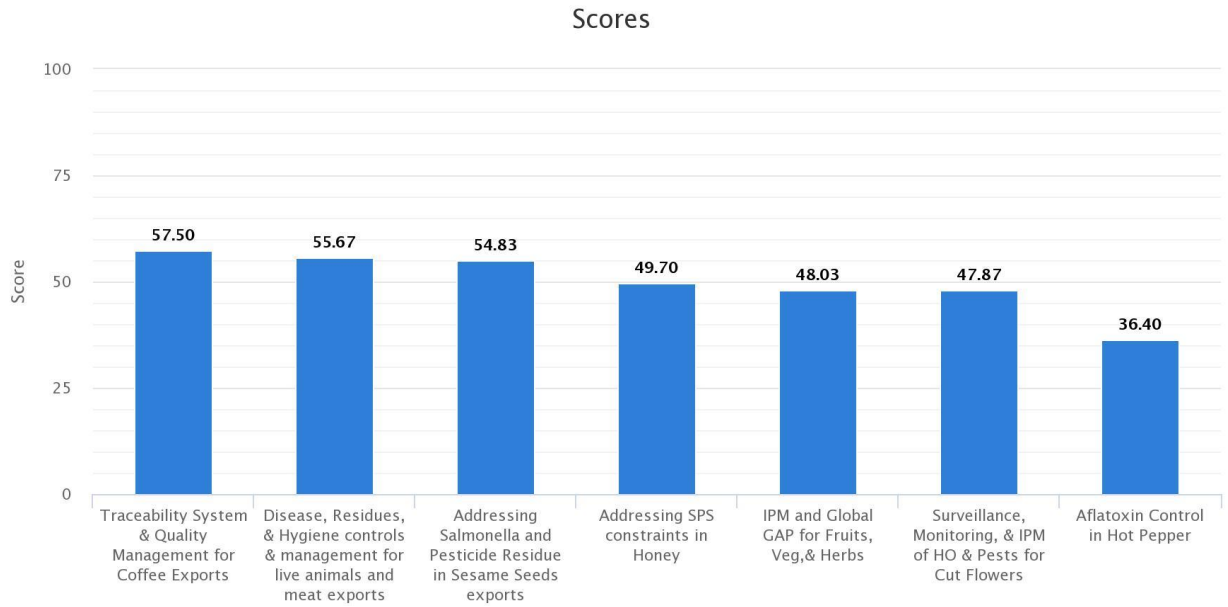
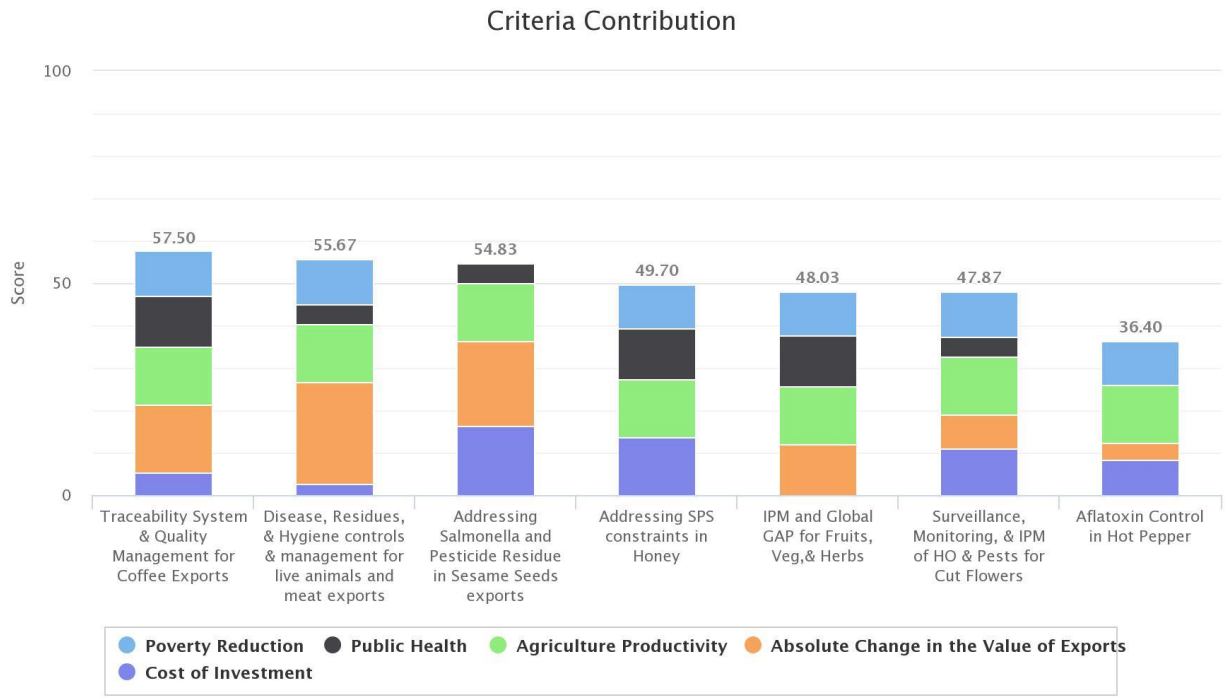


Figure 7 explains the contribution of each decision criteria towards the overall performance of a capacity building investment option. In effect, it is noticeable that the top ranked options had more contributions from almost all decision criteria than the lower ranked options. For instance, the top two options perform well on the decision criteria absolute change in the value of exports and agriculture productivity while less on cost of investments since they are among the top-three most expensive options, estimated at US$1 million and US$9.3 million, respectively. Similarly, you would notice that the option on Integrated Pest Management (IPM) and Global GAP for Fruits, Vegetables & Herbs had no/limited contribution from the cost of investment since it is the most expensive investment option valued at over $18 million. Also, the lowest ranked option, Aflatoxin Control in Hot Pepper, had no/limited contribution from change public health and change in absolute value of exports. It should be noted that although the investment option on live animals and meat exports is very expensive but ranks well, it is because this option is estimated to generate the most return on investment from trade, estimated at an annual value of exports worth US$1 billion, if the investment option is fully implemented, with all other circumstances remaining constant.

Figure 7: Criteria Contribution for Baseline Model



Ranking of the SPS Investments Options Using Equal Weights Model

To test the robustness of the above result, a sensitive analysis was performed by setting the weights equal. Note that from table 5 above, the decision criteria were weighted differently base on stakeholders assigned weights, with more weights on Agriculture productivity (27.4%) and Change in absolute value of exports (24%). However, in this sensitivity analysis, we placed equal weights on all decision criteria (at 20% each), which means no decision criteria is considered more important than the other. The results are shown in Figure 8 below. In the equal weights scenario, observably, the top first and the bottom last options from the baseline model, i.e. coffee and hot pepper exports remained the same. Similarly, the option on sesame exports also

remained in its original 3rd position as in the baseline model. However, there is a direct swap in the 2nd and 4th positions between live animals and meat exports and honey exports. Honey exports which was in 4th position in the baseline model now climbed up to 2nd position in the equal weights model, displacing the investment option on live animals and meat exports to 4th place. This implies that without assigning importance to certain decision criteria, honey would yield more net benefits for investment than live animals and meat exports. Also, cut flowers exports and fruits, vegetables, and herbs have also swapped place at the bottom 5th and 6th places.

Again, figure 9 shows the criteria contribution of the equal weights model. Despite the shifts, since the top four and the bottom three remained in their segments, it is safe to say that the result is fairly robust.

Figure 8: Ranking of the SPS Investments Options Using Equal Weights Model

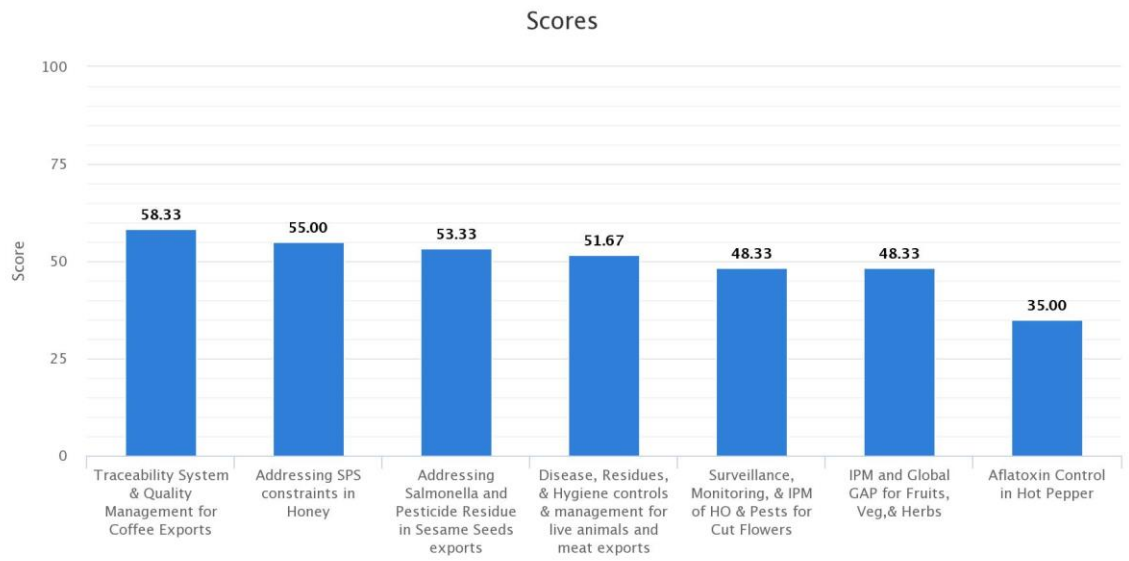
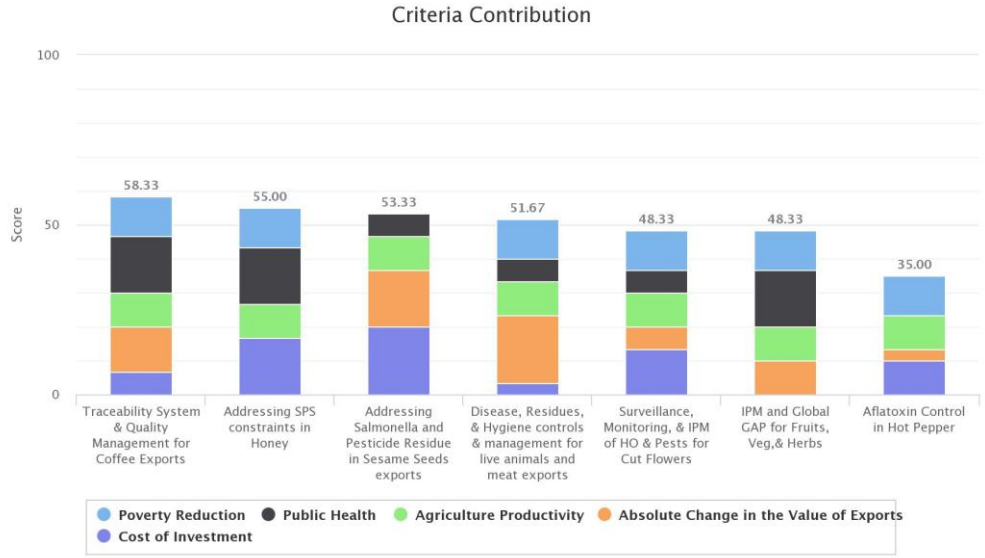


Figure 9: Criteria Contribution for Equal Weights Model



6.0 Conclusion

This report presents the outcomes of seven (7) SPS investment options that were ranked based on a structured process of identifying the SPS investment 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) and powered by the D-Sight software package. In all, a total of approximately USD30 million is required to implement all the 7 SPS Investment Options whose estimated trade impact could be USD1.9 billion annually. The following are, however, the first top four options that consistently ranked above the others and therefore are desirable as first best choices:

- Traceability System & Quality Management for Coffee Exports
- Disease, Residues, & Hygiene controls & management for live animals and meat exports
- Addressing Salmonella and Pesticide Residue in Sesame Seeds exports
- Addressing SPS constraints in Honey

While the following consistently ranked low, although they should still be considered for implementation once resources are available:

- Integrated Pest Management (IPM) and Global GAP for Fruits, Vegetables & Herbs
- Surveillance, Monitoring, & IPM of Harmful Organisms & Pests for Cut Flowers
- Aflatoxin Control in Hot Pepper

Again, it must be noted that the ranking of certain investment options as low does not presuppose that they are not important. Rather, it simply means that, based on agreed objectives and limited resources, they do not come as first priorities. With time and availability of resources, all these investment 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 new data and/or a better data becomes available, and/or new SPS issues emerged or some of these have been implemented and are no more relevant.

Furthermore, the results from this framework are based on the availability and quality of data. As such, the results must be revised in an on-going basis once better data becomes available. In this regard, as part of the COMESA P-IMA project, some officers were trained as P-IMA National Experts to assist in subsequent revision/re-application of the framework in Ethiopia.

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Annexes

Annex 1: 2013 Versus 2022 Ethiopia's SPS investment Options

2013 SPS Investments Options	2022 SPS Investments Options
Dairy exports to region (COMESA standards)	Addressing Salmonella and Pesticide Residue in Sesame Seeds exports
Oilseed, cooking oil and cereals good agricultural practices	Traceability System & Quality Management for Coffee Exports
Vegetable exports traceability	Addressing SPS constraints in Honey [Capacity building and awareness creation in HACCP, GMP, GHP, GAP in honey; Establish a traceability system in honey; Regulatory & Lab capacity]
Flower exports: surveillance and certification	Integrated Pest Management (IPM) and Global GAP certification for Fruits, Veg, & Herbs
GAP's and traceability in coffee	Aflatoxin Control in Hot Pepper
Livestock management for FMD, and other diseases	Surveillance, Monitoring, & IPM of HO & Pests for Cut Flowers
Veterinary drug and residue testing	Disease, Residues, & Hygiene controls & management for live animals and meat exports
Animal livestock traceability	
Meat exports - cold chain	
Development of thermostable PPR vaccine production	
Investment in blue leather production	
Creation of a FMD free compartment for meat/animal exports	
PRA for strawberry exports to Republic of South Africa (RSA)	
Post entry plant quarantine facilities	
Pesticide residue testing	
Mycotoxin testing	

Annex 2: Border Rejections/SPS Alerts Against Ethiopia by EU

Date	Category	SPS Issue	Notifying Country	Classification	Risk Decision
07/10/2021 13:07	nuts, nut products and seeds	Salmonella enterica ser. Cerro in organic sesame seeds from Ethiopia	Germany	border rejection notification	serious
28/09/2021 8:20	nuts, nut products and seeds	S. Adelaide in sesame seeds from Ethiopia	Germany	border rejection notification	serious
20/01/2021 9:59	nuts, nut products and seeds	Salmonella in Ethiopian sesame seeds	Netherlands	border rejection notification	serious
02/12/2020 15:38	nuts, nut products and seeds	Salmonella spp. in Bio-Sesamsamen aus Ã„thiopien /// Salmonella spp. in organic sesame seeds from Ethiopia	Germany	border rejection notification	serious
02/12/2020 15:22	nuts, nut products and seeds	Salmonella Pretoria in Bio-Sesamsamen aus Ã„thiopien /// Salmonella Pretoria in organic sesame seeds from Ethiopia	Germany	border rejection notification	serious
07/10/2020 17:39	herbs and spices	Aflatoxins in chili mix powder from Ethiopia	Switzerland	alert notification	serious
27/07/2020 9:43	nuts, nut products and seeds	Salmonella in Ethiopian sesameseed	Netherlands	border rejection notification	serious
18/05/2020 8:12	nuts, nut products and seeds	Salmonella in Ethiopian sesameseed	Netherlands	border rejection notification	serious
23/04/2020 8:02	nuts, nut products and seeds	Salmonella in organic sesame seeds from Ethiopia	Netherlands	border rejection notification	serious
20/03/2020 9:05	nuts, nut products and seeds	Salmonella in Ethiopian sesameseed	Netherlands	border rejection notification	serious

Source: The Rapid Alert System for Food and Feed (RASFF)

Export Country	Commodity (Product type)	Plant Species	Harmful organism	Total
2021	INTENDED_FOR_PLANTING_CUTTINGS	Mandevilla	Phyto. cert./ plant passport: additional declaration inadequate or invalid	1
	OTHER_LIVING_PLANTS_CUT_FLOWERS_AND_BRANCHES_WITH_FOLIAGE	Mixed plants	Phyto. cert./ plant passport: absent	1
			Phyto. cert./ plant passport: false information	1
	INTENDED_FOR_PLANTING_CUTTINGS	Artemisia	Phyto. cert./ plant passport: additional declaration missing	1
		Euryops	Phyto. cert./ plant passport: additional declaration missing	1
		Hebe x andersonii	Phyto. cert./ plant passport: additional declaration missing	1
		Helichrysum petiolare	Phyto. cert./ plant passport: additional declaration missing	1
		Impatiens	Other reasons: incorrect identity declared on documents	1
		Lavandula	Other reasons: incorrect identity declared on documents	1
			Phyto. cert./ plant passport: additional declaration missing	1
		Mertensia	Other reasons: incorrect identity declared on documents	1
		Osteospermum	Phyto. cert./ plant passport: additional declaration missing	1
		Pelargonium	Phyto. cert./ plant passport: additional declaration missing	2
		Santolina	Phyto. cert./ plant passport: additional declaration missing	1
	OTHER_LIVING_PLANTS_CUT_BRANCHES_WITHOUT_FOLIAGE	Gypsophila	Phyto. cert./ plant passport: additional declaration missing	1
		Rosa	Other reasons: incorrect identity declared on documents	1
		Solidago	Phyto. cert./ plant passport: additional declaration missing	1

	OTHER_LIVING_PLANTS_CUT_FLOWERS_AND_BRANCHES_WITH_FOLIAGE	Gypsophila	Phyto. cert./ plant passport: incomplete	1
		Hypericum	Other reasons: incorrect identity declared on documents	1
		Mixed plants	Phyto. cert./ plant passport: incomplete	1
	OTHER_LIVING_PLANTS_CUT_FLOWERS_AND_BRANCHES_WITH_FOLIAGE	Rosa	Thaumatotibia leucotreta	10
	OTHER_LIVING_PLANTS_CUT_FLOWERS_AND_BRANCHES_WITH_FOLIAGE	Gypsophila paniculata	Liriomyza sativae	1
	INTENDED_FOR_PLANTING_SEEDS	Solanum lycopersicum	Tomato brown rugose fruit virus	1
	OTHER_LIVING_PLANTS_CUT_BRANCHES_WITHOUT_FOLIAGE	Hypericum	Bemisia tabaci	1
	OTHER_LIVING_PLANTS_CUT_FLOWERS_AND_BRANCHES_WITH_FOLIAGE	Eryngium	Spodoptera frugiperda	1
		Hypericum	Bemisia tabaci	1
		Rosa	Thaumatotibia leucotreta	1
			Sum:	37

Export Country	Commodity (Product type)	Plant Species	Harmful organism	Total
2020	OTHER LIVING PLANTS : CUT FLOWERS AND BRANCHES WITH FOLIAGE	Dianthus	Helicoverpa	1
		Gypsophila	Liriomyza	1
		Gypsophila	Thysanoptera	1
		Gypsophila sp.	Liriomyza trifolii	1
		Solidago	Liriomyza	2
	OTHER LIVING PLANTS : CUT FLOWERS AND BRANCHES WITH FOLIAGE	Solidago sp.	Liriomyza trifolii	1
		Veronica sp.	Bemisia tabaci	1
	OTHER LIVING PLANTS : FRUIT & VEGETABLES	Ocimum basilicum	Liriomyza	1
			Sum*:	**9**
2019	INTENDED FOR PLANTING : CUTTINGS	Chrysanthemum	Helicoverpa armigera	1
	OTHER LIVING PLANTS : CUT FLOWERS AND BRANCHES WITH FOLIAGE	Rosa	Thaumatotibia leucotreta	1
	OTHER LIVING PLANTS : FRUIT & VEGETABLES	Ocimum	Liriomyza	5
		Ocimum basilicum	Liriomyza	3
		Ocimum basilicum	Liriomyza sativae	1
		Ocimum basilicum	Liriomyza trifolii	2
			Sum*:	**13**

Source: EUROPHYT

Annex 3: SPS Investments Options

Annex 2.1: Addressing Salmonella and Pesticide Residue in Sesame Seed Exports

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Up-front investment	**US$**	250,000	Training on sesame seed Harvest and post harvest processes for farmers, producer , processors and exporter; Training on Pesticides usage and application of sesame seed for farmers, producer, processor and exporter	**M**
Trade impacts				
Change in absolute value of exports	**US$**	448,000,000	ITC export potential for sesame seeds show untapped export potential of $448m	**M**
Domestic agri-food impacts				
Agricultural/fisheries productivity	**Yes/No**	Yes	Training on GAP, GHP & PHH will increase productivity per unit area and will reduce Post-harvest losses	**H**
Domestic public health	**+-1-3**	+2	Consumption of more safe sesame seeds. Overall 5% of sesame seeds are consumed domestically	**H**
Social impacts				
Poverty impact	**+-1-3**	+2	Majority of farmers are poor SHF and with this IO, their income will increase	**H**

Annex 2.2: Traceability Systems & Quality Management for Coffee Exports

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Up-front investment	**US$**	1,066,900	Training on coffee traceability for coffee farmers, producer and processer, purchase of equipment; M&E	**M**
Trade impacts				
Change in absolute value of exports	**US$**	233,600,000	ITC export potential for coffee show untapped export potential of $233.6m	**M**
Domestic agri-food impacts				
Agricultural/fisheries productivity	**Yes/No**	Yes	Market value of final product I ncreases	**H**
Domestic public health	**+-1-3**	+3	50% of coffee produced is consumed locally	**H**
Social impacts				
Poverty impact	**+-1-3**	+3	Increase in income through high grade coffee exports	**H**

Annex 2.3: Horticulture- Integrated Pest Management (IPM) and Global GAP certification for Fruits, Vegetables, & Herbs

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Cost of Investment	US$	1,022,728.63	Training on IPM and Global Gap, training on harvesting and post-harvest handling, Global GAP Certification,	M
Trade impacts				
Change in absolute value of exports	US$	189,350,000	Government Officials estimated $55.7m, and ITC export potential for the selected fruits, veg & herbs show untapped export potential of $323m. We assume a mid-estimate of these two estimates.	M
Domestic agri-food impacts				
Agricultural/fisheries productivity	Yes/No	Yes	Quality & value increases and reduction in PHH lost	H
Domestic public health	+-1-3	+3	Reduction in pesticide residue and contaminated water bodies	H
Social impacts				
Poverty impact	+-1-3	+3	Increased income	H

Annex 2.4: Hot Pepper- Aflatoxin Control in Hot Pepper

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Cost of Investment	US$	710,000.00	Training on Lab testing, GAPs, PHH, Biological Control	M
Trade impacts				
Change in absolute value of exports	US$	3,250,000	Government Officials estimated a trade impact of $1.7m and ITC export potential shows untapped export potential of $4.8m. We assume a mid-estimate of these two estimates.	H
Domestic agri-food impacts				
Agricultural/fisheries productivity	Yes/No	Yes	Quality & value increases and reduction in PHH lost	H
Domestic public health	+-1-3	+1	Increased consumption of aflatoxin-free hot pepper but for very minor section of the population	H
Social impacts				
Poverty impact	+-1-3	+3	Increased income	H

Annex 2.5: Cut Flowers- Surveillance, Monitoring, & IPM of HO & Pests for Cut Flowers

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Cost of Investment	US$	344,500.00	Training on IPM and Global Gap, training on harvesting and post-harvest handling, training on Lab testing for Xylella Fastidiosa in cut flowers	M
Trade impacts				
Change in absolute value of exports	US$	74,000,000	Government Officials projected estimates shows a potential trade impact of $60m while ITC untapped export potential estimates show $88m. We assume a mid-estimate of these two estimates.	M
Domestic agri-food impacts				
Agricultural/fisheries productivity	Yes/No	Yes	Quality & value increases and reduction in PHH lost	H
Domestic public health	+-1-3	+2	Reduction in pesticide residue and contaminated water bodies	H
Social impacts				
Poverty impact	+-1-3	+3	15,000 poor are employed, therefore Increased income	M

Annex 2.6: Livestock and Livestock products- Disease, Residues, & Hygiene controls & management for live animals and meat exports

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Cost of Investment	US$	9,370,000	Transboundary disease control and management ($8.25) and antibiotic residues surveillance and monitoring ($1.12)	H
Trade impacts				
Change in absolute value of exports	US$	1,000,000,000	Ethiopia meat producers and exporters association and live animal exporters association estimates of additional export of live and meat products	H
Domestic agri-food impacts				
Agricultural productivity	Yes/No	Yes	Reduction in mortality and performance of animal production	H
Domestic public health	+-1-3	+2	Healthy animal for healthy population	M
Social impacts				
Poverty impact	+-1-3	+3	Increase in income as a result of increased value	H

Annex 2.7 Addressing SPS constraints in Honey [Capacity building and awareness creation in HACCP, GMP, GHP, GAP in honey; Establish a traceability system in honey; Regulatory & Lab capacity]

Decision Criterion	Measure	Value	Details	Confidence
Cost				
Cost of Investment	**US$**	285,000	Training and awareness creation in HACCP, GMP, GHP, GAP in honey; traceability system; Capacity building in Honey Residue testing	**M**
Trade impacts				
Change in absolute value of exports	**US$**	1,500,000	According to Ethiopian honey exporters association export performance data, natural honey and bee wax exports in 2018 is US$2.44 million, 2019 US$2.52 million, 2020 is US$2.28 million, and in 2021 US$1.06 million. Based on this drop in export and holding all other factors constant, we estimate that an additional export of $1.5 million can be realized annually.	**M**
Domestic agri-food impacts				
Agricultural productivity	Yes/No	Yes	Increase in the value of the honey	**H**
Domestic public health	+-1-3	+3	90% of honey production is sold in the domestic market. There increased SPS control will improve public health	**H**
Social impacts				
Poverty impact	**+-1-3**	+3	About 2 million households involved in honey production. Therefore increased value will result in increased income and hence poverty reduction	**H**

Annex 4: Workshops Participants' List
P-IMA VALIDATION MEETING – ADDIS ABABA; ETHIOPIA - 9-10 MAY 2022

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