Ethiopian Agricultural Authority

8/25/2022

Ethiopian Agricultural Authority (EAA) Strategic Plan (SP)

2023 to 2030

Table of Contents

List of figures

List of tables

Executive Summary

INTRODUCTION

Agricultural Regulatory in Ethiopia and the Ethiopian Agricultural Authority

In Ethiopia, Agricultural regulatory activities had been emphasizing on Plant and Animal Quarantine. Other agricultural regulatory activities got attention in recent couple of decades. Following the 1991 federal administrative arrangements, Ethiopian regulating power of agricultural input, product and services have been cascaded among the Federal and Regional governments in accordance to the Ethiopian Constitution. Thus, certain regional states, with great deal of agricultural activities, have been operating in regulatory areas too by establishing their respective regulatory authorities. Among the 11 regional states, Amhara and SNNPR established their respective regulatory authorities at the beginning of 2014. Though Oromia was the pioneer initiator in identifying the importance of institutionalization of regulatory activities, it was successful to establish regulatory authority a couple of years ago. Sidama is the other recent emerging region to establish its regulatory authority. Certain regional states have a regulatory system specific only to seed which is institutionalized within the Bureau of Agriculture.

The Federal government had been doing its agricultural regulatory activities in a scattered way. Seed and Fertilizer-pesticide were once in their respective agency 20 years ago taking a role of sector development and regulatory activities. These arrangements were in operation not for more than 5 years. They were dissolved and embedded in the Ministry of agriculture /MoA/ under various directorate level arrangements. The animal and plant quarantine activities were running under the MoA. Giving special attention to Animal Feed and Veterinary drug, the Ethiopian government established a regulatory authority that was in place for almost 10 years and dissolved in 2021 following the new structural arrangement of the Federal executive organs declared by proclamation No. 1263/2021. Agricultural regulatory issues like engaging in research, extension and mechanization activities were not subject to any regulatory attention except few initiatives in mechanization standard development.

The Ethiopian agricultural authority (EAA) came to operation following the weaken and scattered regulatory performances. EAA, as a federal Agricultural regulatory authority, was established in 2021 by federal parliament proclamation no. 1263/2021 entitled “a proclamation to provide for the definition of the powers and duties of the executive organs of the federal democratic republic of Ethiopia” under its 45th article. Its Power and role, based of article 11 of the proclamation No. 1263/2021, is delineated by council of Ministers regulation No. 509/2022. EAA regulatory activities focus on major products and services namely, Agricultural technologies, Agricultural inputs, Agricultural Products and Agricultural Services as they are defined under the regulation No. 509/2022. Its regulatory role is to ensure those products and service are standardized, registered and run by a person issued with competency of certificate. To confirm whether agricultural products and services comply with performance/efficacy, quality, health and safety standards, it conducts a series of inspections and takes regulatory measures as needed.

The need for strategic plan

It has been a challenging era for the agricultural regulatory landscape for it had a constrained attention by decision making public authorities or figures and less interest by development partners. Hence agricultural development strategies were giving little focus to regulatory

issues, despite the prevailing regulatory challenges and threats that the country is facing due to poor agricultural input & produces quality, performance/efficacy, health and safety.

As a consolidated agricultural regulatory authority this strategic plan, therefore, is its first kind for EAA designed for years from 2023 to 2030. The strategy gives detail strategic road map of the country`s regulatory landscape narrated under the revised ARD policy. It is also designed in such a way to align to the 10-year strategic plan of the MoA to ensure the 10-year development targets are supported with regulatory equivalents. It identified gaps based on the current performances, strengths, and weakness. Besides, it looks external opportunities and threats that may positively or negatively affect the implementation of the strategic plan. Hence, it designs the direction in such a way to meet those gaps, EAA vision and mission.

EAA organizational arrangement

The EAA head is a Director General (DG) assigned by the Prime Minister of the Federal Government of Ethiopia and reporting to MOA. Though it reports to the MOA, EAA is expected to lead federal regulatory activities autonomously and has a regular parliament hearing session. It also has two Deputy Director Generals (DDG) responsible to lead the Animal and Plant Regulatory Sector. Under Plant regulatory sector there are 4 Chief Executive Officers (CEOs) namely Pesticide and Fertilizer Regulatory, Plant Quarantine & regulatory, Plant Variety & Seed Regulatory and Plant Input & Produce Testing Laboratory. Under the Animal Regulatory DDG, there are 5 CEOs namely, Animal product regulatory, Feed Regulatory, Veterinary drug regulatory, Animal Quarantine regulatory and Animal Input & produce regulatory laboratory.

On top of the two DDGs, the Management CEO, the DG office head, the agricultural service center Coordinator, the Agricultural Research, Extension & Mechanization (REM) CEO, are to report to the DG. Under, the Agricultural Regulatory Service Centers Coordinator, there are four branch centers namely, the Central EAA, East EAA, the North EAA and the Southwest EAA branch Centers led by Center Managers. Under each Center there are EAA control posts/stations. The EAA branch centers and control stations/post are open to increase in number based on emerging regulatory demands. The REM CEO is to lead the Agricultural research regulatory desk, the Agri-Extension regulatory desk and the mechanization regulatory Desk leads.

The Management CEO includes 6 executive officers namely, the Human resource management, Procurement & finance, basic services, strategic issue (includes planning too), institutional reform and ICT executive officers. Under the DG office, there are 5 executive officers namely, public communication, legal affairs, Audit, Ethics and Anti-corruption, Women and social affairs inclusive Executive officers.

In total the existing structure has more than 2000 ratified technical and administrative positions at Head quarter, centers, stations, and laboratories. The structure is already endorsed by civil service commission.

Methodology

The strategic plan is prepared referring the revised ARD policy, the 10-year MoA prospective plan and various legislatives developed and ratified so far. Plan performances of the various regulatory programs that were organized under their AS-IS arrangements were considered.

Necessary regulatory study papers and reports that are compiled in booklet format were also reviewed. Moreover, international agreements and standards, which Ethiopia is signatory, also are referred well. The taskforce, organized by EAA management, took enough off-site discussions and debates with close support of the EAA leaders. Using regulatory performance data and descriptive analysis, it is also tried to identify gaps. SWOT and PESTL tools were also used, and critical issues are identified accordingly. Above all, the strategic plan is designed in such away to meet its power and role given by the parliament proclamation number 1263/2021 and regulation number 509/2022.

The layout of the strategic plan

The strategic plan is written to show the reader the status of the regulatory of agricultural inputs. Situation analysis is clear indicators of the exiting state of activities to put future goals and targets in the upcoming strategic years. It is expressed in terms of performances, SWOT, customer & stakeholder analysis, Situation, and identification of critical issue. Those tools are used for they are important to demarcate where to start when planning to the future.

After narrating the status of the exiting regulatory activities, the 2nd part of the strategic document focuses on the strategic plan. The strategic plan is designed based on the role provisions of EAA indicated on the regulation No. 509/2022. Its framework is organized in such away to show that EAA is aiming to meet its regulatory attention on agricultural technologies, inputs, produces, and services. The main powers given by the parliament proclamation number 1263/2022 to conduct registration, set standards, conduct inspection and taking the necessary measures also are considered. Across all those powers, issues of efficacy, quality, health and safety are strongly addressed. Each strategic plan is narrated by setting goals at technology, input, produce and service level. Under each goal strategic objectives are narrated. Under each objective, rationale, targets, strategies, and Key performance indicators (at output and outcome level) are well included. The result framework, as a table format, for each objective is annexed as narrated on the list of tables.

The 3rd part of the strategic plan is the M& E. The M& E of EAA is narrated in such a way to show readers how EAA is going to check its performances through monitoring in meeting strategic targets and yearly operational plan using output and outcome indicators. Moreover, it puts summarized evaluation and reporting tools.

CHAPTER 1: SITUATION ANALYSIS

1.1. Performance

EAA is new to Ethiopian regulatory landscape. Thus, it has no its own strategy that can be referred as comparison to describe the performance in terms of a certain indicator. Because this strategy is the first strategy that focuses on regulatory and has no a base to analyse the situation based on previous set objectives. Hence, the focus of narrating performance will be on regulatory activities planned by the AS-IS regulatory structure located in MoA, VIDIFACA, IBC, Forest Development. Besides availability and access of data determines the level of narration.

1.1.1. Regulatory activities of Agri-research& extension and mechanization

Market oriented agricultural development requires diverse and plurality of service providers at all levels. Research and Extension were fully under public funding and remined public for more than three decades by policy provision of agricultural & rural development policy.[1] As a result, the private sector was expected to focus on product aggregation. This same document also gave low emphasis to Mechanization and focuses much on wide utilization of manual labor focused agricultural production. Hence, the growth of agricultural machinery utilization was highly controlled by policy and engagement of private sector was too low. This policy direction did not motivate the private sector and others and deprives diversity in service provision and the regulatory environment was absent from the agricultural system. Specifically, in the history of research and extension regulatory activities were nil and the performance was zero.

The public agricultural research & extension system is decentralized among the Federal and regional governments. Specific to research 6 regions have their own research institutes with branch centers and the remaining are supported by the EIAR. The EIAR, including those regions, has 22 branch centers, Oromia has 17, Amhara 7, SNNPR 6 and the remaining regions have 5 centers. Moreover, there are public HLIs which are also engaged in agricultural research. However, they are not yet subject to standards, legislatives, and inspections to conform their day-to-day activities are in line to the COC they are issued with.[2]

Similarly, the extension service is dominantly public with recent developments in engagement of agro-industries, NGOs, public universities, seed enterprises and others are providing extension services to farmers. However, those services are not standardized and regulated. As a result, it is difficult even to rate and centrally document the services that are rendered by various partners except and to some extent the public extension service. The public extension service is strongly decentralized to regions and is given by more than 14,000 FTCs and PTCs. Though the public extension service has been in place for more than five decades, it lacks policy, legislation and standardized system in general so as to rate it and create harmonized system at national level.[3]

It has been a point of discussion that mechanization utilization is still low because of the absence of uniform national standards against which to be referred and in creating responsible body for testing and evaluating agricultural machinery. In cognizant of its importance, the

[1] FDRE Government. 2001. Agriculture & rural Development Policies & strategies. Addis Ababa.
[2] EIAR and RARIs Key informant discussions. August,2022.
[3] MOA- Extension reports and technical guidelines

Ethiopian Agricultural Transformation Agency, the Minister of Agriculture and Livestock Resource /MoALR/, Ethiopian standards Agency (ESA) and other concerned public and private sector stakeholders' participation has developed and made approved about 115 standards for prioritized technologies.[4] The MoA mechanization directorate has developed a profile of service providers. According to the profile there are above 335 mechanization service providers who focuses on one or more of tillage, harrowing, harvesting, threshing or seed cleaning. Unlike the research and extension service providers, Mechanization service providers are all from private and cooperative sector. But those service providers have not yet been registered and issued with competency of certificate due to absence of regulatory service in mechanization.

1.1.2. Regulatory activities of plant variety & seed regulatory system

The seed regulatory system is a cross-cutting component of the seed system. Strong regulation is a critical means to ensure that those seeds meet the minimum standard through all stages of the process, from variety development and registration, to seed production, seed marketing, and distribution. (ATA.2013)[5] The regulatory of plant variety and seeds is a two-decade years history in Ethiopia. It is done being cascaded among the federal and regional governments but with strong mutual support and integration.

Variety testing as a requirement for registration and release as well as for variety protection involves testing for value for cultivation and use (VCU) and testing for distinctness, uniformity, and stability (DUS) of a candidate variety compared to varieties already in cultivation. Since 1998, about 1489 plant varieties were developed and approved by the National variety & seed regulatory system of the country (PVR, 2021). Of those varieties, the commercialized proportion is below 10%. About 34% of the released varieties are cereals, 19 % are pulses, 8% are oil crops, 21 % are tuber, root crops and vegetable, 4% are condiments and medicinal plant, 3 % are fruit Crops, 5% are forage and pasture, 3% are industrial crops and 3% are stimulant crops (PVR, 2021). From 2014-2021 the regulatory body received 1105 candidate plant varieties from different applicants. Only 586 (53%) verities were accepted, and the remaining were rejected. Of the rejected varieties, 82% were from public research and the remaining 18% were from private companies that are dominantly vegetables varieties. It is learned that almost half of the submitted applications are rejected, because the applicant himself did the performance testing of the candidate varieties. Unlike other countries of the world, National Performance Trial (NPT) is done by the breeding institution itself and role of the regulatory institution was facilitation. The lack of such a strong regulatory system in the country is one of the limitations of the low interest of companies to engage in the seed sector in Ethiopia.

Plant variety protection, "plant breeder's right" is a form of intellectual property right granted to the breeder of a new plant variety. In the history the regulatory system there are no varieties that are registered for protection in Ethiopia, though the PBR law was developed in 2006 (No.481/2006) and revised in 2017 (No.1068/2017). Hence, PVP is not yet implemented in the country and needs study to identify the root causes why multi-national companies are not yet interested to participate in Ethiopia PVP system.

[4] MoA, EIAR & ATI.2018. Importance of agricultural machinery testing in Ethiopia: A Desk Review On International Experiences and The Way Forward.

[5] MoA & ATA. 2013. seed system development strategy vision, systemic challenges, and prioritized intervention. Addis Ababa.

The seed certification process gives the seed industry to operate within the boundaries of the country and assures dependable seed supply to end users. The core activities in seed certification include issuance of competency of certificate, seed field inspection, seed quality testing in laboratory, market outlet inspection, grow out tests, storage inspection and left-over seed quality assurance and issuance of seed quality assurance certificate.

From 2015-2022, the seed certification system of the country, dominantly led by regional states, is equipped with seed law, seed regulation, seed certification fee regulation, 7 seed certification related directives. Moreover, there are more than 120 updated national seed quality testing standards and testing methods approved by the Ethiopian Standard Agency of which 62 were for new crops like coffee, forage & horticultural seedlings. New certification options like QDS & GPS assisted inspection were operationalized, certification fee collection started, market outlet inspections, GOT testing, harmonized yield estimation methods and inspection for fruit seedlings are introduced under the support of the Federal regulatory system. Recent data shows, the total number of public, private and cooperative seed firms with competency of certificate are above 200 and their agro dealers are more than 1400.

Currently, the nation-wide field inspection performance reached to 70 thousand ha per annum with 1:8000 vehicle to inspected land ratio and 1:3365 inspector to seed field ratio. The annual testing capacity reached to about 1million q of orthodox seed and about 9 million seedlings. The average certification fee collection is about 3.7 million ETB. Institutionally, there are Federal and three regional level regulatory authorities, The regional and Federal seed certification departments have conducted a National Platform for Seed Quality Control (NaPSQC) for 11 rounds. With those all achievements, still the certification system lacks capacity to provide regulatory services in time.

1.1.3. Regulatory activities of pesticide & fertilizer

Agricultural production needs modern agricultural inputs including agro chemicals (Pesticide and fertilizer). There is recent expansion and intensification of agro-chemical use in Ethiopia which is estimated at many folds in the last two decades, due to intensification and expansion of irrigated agricultural farms. Due to this fact the environmental ,human and animal health risks associated with easy availability of unregistered of highly hazardous pesticides, haphazard handling, and use of pesticides in Ethiopia comes to the point immediate action and a strong regulatory action is required (Negatu et al 2016; Negatu et al., 2019, Teklu et al 2015; Teklu et al., 2016 A and B, Teklu et al., 2021; Gadissa et al., 2022). Moreover, deterioration of quality of agricultural products to the point border rejection and that leads to loss of the most lucrative European export market due to Agro-chemical residue issue needs due consideration (Negatu et al., 2021) (Table 1). In general, agro chemicals are registered after their efficacy, safety and quality is evaluated and met the requirements. Then post–registration inspection and control regulatory tasks (inspection and COC) will be done to make sure registered agro-chemical are allowed into the nation, safely stored, properly used, transported and disposal in accordance with local regulations and conventions in which Ethiopia is a signatory.

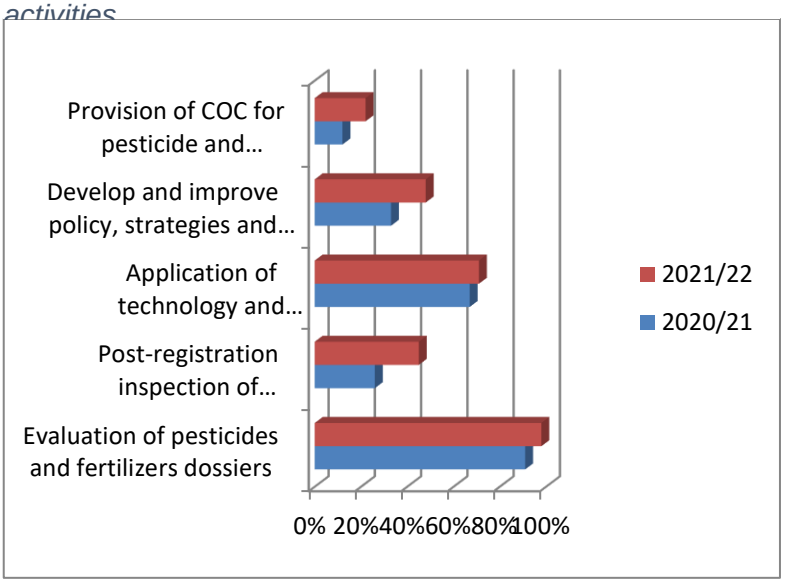
(Source Negatu et al., 2021).

Table 1. Rejection of crop exports due to unacceptable pesticide residue

Crop	Year	Country	Pesticide
Coffee	2008	Japan	Organochloride
Beans	2013	Spain	Malathion and Diazinon
Sesame	2014	Japan	2-4-D
Mung beans	2014	Italy	Malathion
White pea beans	2014	Italy	Malathion
Dried white beans	2014	Italy	Fenthion and Malathion
Kidney beans	2014	Italy	Diazinon
Mung beans	2015	Italy	Malathion
Beans	2015	Italy	Propoxur

A total of 614 and 173 pesticides products were registered by common name and active ingredients respectively. Most of the pesticides are used for plant protection purpose 162(93.6%). The highest proportion of the registered pesticides are herbicides 59(34.1%) followed by insecticide 50(28.9). Pyrethroids 10(5.9 %) are the most frequently identified chemical class followed by organophosphates and carbamates each with a proportion of 9 (5.2%). Around 43 fertilisers are registered temporarily with 128 pesticide and fertilizers institutions have COCs. In general, there is an increasing trend of all aggregate indicators in the past year which is highest in the case of Evaluation of quality, efficacy, safety data and registration of pesticides and fertilizers from 91%-98% but lowest in case of, Provision of COC for pesticide and fertilizers institutes 12%- 22% (Figure 1).

Figure 1. Performance of pesticide and fertilizer regulatory activities



Government of Ethiopia in collaboration with FAO and World Bank have launched obsolete pesticides disposal projects in three phases and have managed to dispose 3050 tons of obsolete pesticides as of June 2013. However, there is continued accumulation of obsolete pesticides in the recent past because of agricultural intensification and increased amount of pesticide usage that have contributed to the increased import of pesticides from different sources across

the world. Current estimates based on preliminary assessments indicated that more than 1,397.730 tones of obsolete pesticides identified in different locations of Ethiopia.

Many efforts are made to automate services provided using online platform. In this regards the Ethiopian Singe Window (ESW) is operational and two services i.e. pre import permit for pesticides and fertilizers and plant and plant products are currently active. Moreover, an already developed system called e-Service in collaboration with the Ministry of Information Technology is pending to be used an online platform for pesticide registration and related services.

In collaboration with the Institute of Ethiopian Standards, test methods and analysis standards, product characteristics and service activities standards for pesticide and fertilizers were revised and prepared. In this regard, in the year 2021 a total of 16 new and 60 revised standards were prepared for pesticides and in the year 2022, 12 and 7 pesticides and fertilizer standards revisions were done respectively. Moreover, in collaboration with SNV and Environmental Authority of Ethiopia a Survey was conducted to see the status of Rotterdam convection Annexed pesticides and overall performance of the pesticide supply chain. A number of training workshops and legal framework preparations sessions were also organized and a total of 6 policy. Proclamation, directive and guideline documents were drafted to support the current legal framework breach in pesticide and fertilizer issues.

1.1.4. Plant quarantine and regulatory activities

Plant quarantine service in Ethiopia started in the early 70s as a result of issuance of plant protection decree. The decree was issued based on establishment of International Plant Protection Convention of 1951. Ethiopia became signatory of the IPPC after depositing its instrument for membership up on submitting adherence on 20 June 1977.

The service has been delivered based on Plant quarantine regulation No. 4/1992 that provides terms to control pest movement with import and export plant commodities. Since the establishment, the service has passed through several restructuring and processes that may include in 70s at the level of division; in 80s at the level of department when improvements have been recorded but decline until today as a result of dismantling of the previously organized laboratory and decentralization of plant quarantine services to the regions.

Although, all the necessary plan quarantine services are not delivered, practical implementation of legislative measures is executed as inspection and certification at different plant quarantine stations distributed throughout the country. Currently, these are: Bole airport, Nazareth, Moyale, Dire Dawa, Metema, Humera, Bahir Dar, Mekele, and Kombolcha, Modjo dry port plant quarantine service stations.

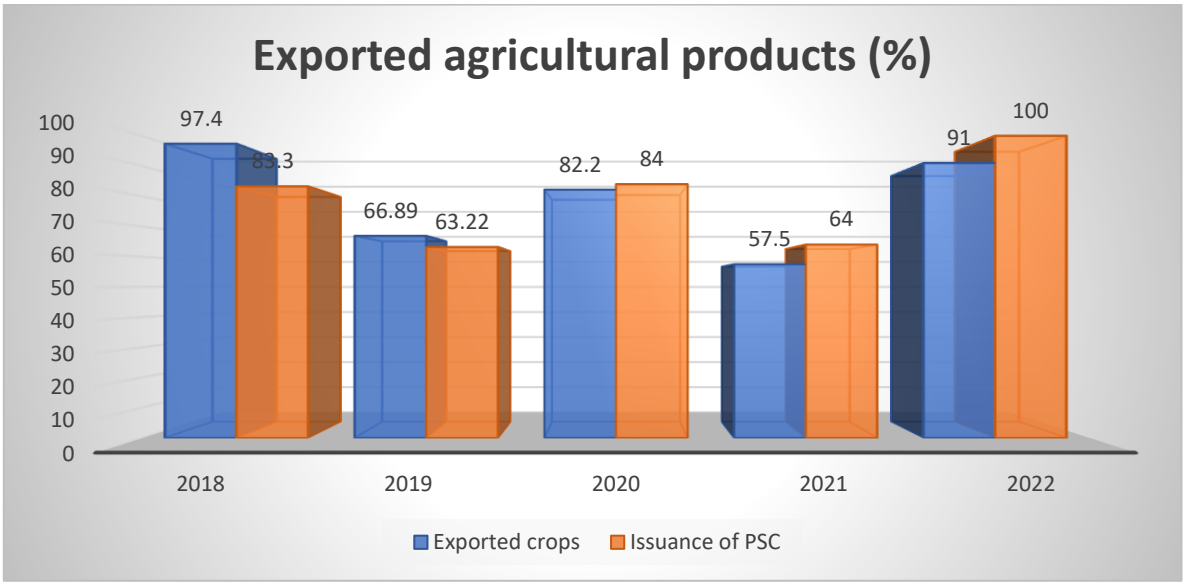
Ensuring adequacy of available legal frameworks and guidelines

In order to operate plant quarantine and food safety services there must be clear policy support and adequate legislation including proclamation, regulation and directives. These demand the establishment of a dedicated unit responsible to identify the gaps and draft the required legal frameworks for government approval. Negotiations and discussions, with regional and international bodies and with various interest groups, occupy much effort in the day-to-day operation of phytosanitary services which justifies the importance of such unit or section. However, policy unit of plant quarantine and food safety services are nonexistent or are often covered by other technical experts. Due to the above reasons, there are one plant protection decree no.56 of 1971 (with no amendment for 51 years), one plant quarantine regulation no. 4 of 1992 (with no amendment for 30 years) which is outdated and needs significant updating such as the checklist of regulated pests, prohibited plants and articles and also the conditions of entry of restricted plants, plant products and other regulated articles, No any legal framework for regulating the food safety of unprocessed agricultural produces.

The NPPO made effort to draft a plant quarantine proclamation and plant quarantine regulation but failed to get it approved for the last five or more years. On the basis of the past efforts made, the Authority re-organized a team that review the draft document of plant quarantine proclamation for revalidation and submission for authentication.

Export inspection and certification: Major agricultural export items include oil and pulse crops, including white pea beans, red kidney beans, chickpeas, Mung bean, sesame, Niger seeds, peanut etc., Spices including black cumin seeds, turmeric, ginger etc., flowers, fresh fruits and vegetables including green beans, tomato, cabbage, lettuce, potato, mango, avocado, strawberry, grape vine etc., gum including gum olibanum, gum myrrh, gum Arabic etc., forest products including eucalyptus pole and Cupressus pole. Records repots of the Plant Health and Product Regulatory Directorate indicate performance evaluation of planned against accomplishment show 92.45%, 66.89%, 82.2%, 57.5%, 91% during the fiscal year of 2018 through 2022 respectively.

Figure 2. Exported agricultural products



Notification of non-compliance regarding agricultural export: When export products fail to comply with the sanitary and phytosanitary requirements of the importing country, interception of notification of non-compliance is issued by the importing country NPPO to the exporting country NPPO which entails prompt response for the clearance of the non-compliance.

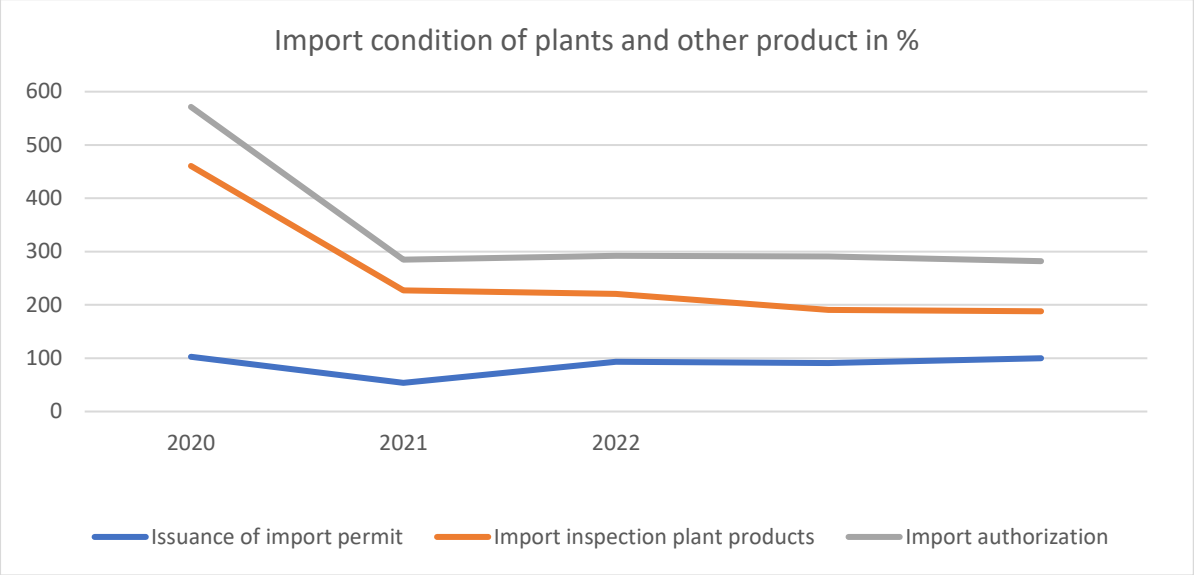
Although the notification of non-compliance is expected to be implemented by all contracting parties, however, in practice, this is exercised by the European countries, the United States, Australia, Canada and New Zealand in respect to planting materials and fresh cut flowers. The rest of the contracting parties inform the non-compliance through emails, letters and other communication mechanisms.

Ethiopia exported flowers, vegetables and fruits to the European market, and according to the information regularly provided by the website of the Commission of the European Union Europhyt report shows 49 interceptions of various pests during the years 2015 to 2019 which resulted in the destruction of exported products or refusal of entry into the importing countries. Similarly, Rapid Alert System for Food and Feed (RASFF) reports food safety issues … These result in loss of trust in the international trade community, contribute to foreign exchange shortages and high national costs.

Import permit issuance and Import authorization: Based on the country's import regulation, all plants to be imported into the country should obtain pre-import permit with the import condition stated in the import permit. Different institutions and individuals are involved in the importation of plant materials without securing the pre importation permit from the Ministry. On the other hand, coordinated inspection and diagnostic activities for regulated pests is not performed on arrival at port and place of production. So, it is required to design strict importation control to safeguard the nation's agriculture from serious exotic pest damage.

In the last five years importation of seeds for consumption and planting, planting material, grains for aid (figure ---) below shows trend of accomplishment from 2018 t0 2022, growing media, biological agents and others has been recorded. It is expected that these imported materials may harbor different pests of phytosanitary concerns, however there is no any record of interception based on laboratory diagnosis except visual inspection results and documentary checks.

Figure 3. Import condition of plants and other product in %



Legend: PIP is pre-Import permit

Pest risk analysis (PRA): Lists of quarantine pests (QP) and regulated non-quarantine pests (RNQP) are prepared by carrying out PRA by an importing country which requires knowledge and specific training and collaboration of the exporting country's NPPO to undertake it. Several trainings and awareness creations have been made to establish this critical part of phytosanitary service. However, up to the end of 2020, the was no any success story recorded. Ethiopian NPPO however, engages itself in collaborating with countries by providing necessary information for the importing countries up on request in an effort to access market. On the other hands efforts have been made to modify the entry condition of different plants that were subjected to import request with limited PRA exercises using Horizon scanning tool. A total of 10 revisions have been recorded in 2022.

Currently, the authority in collaboration with different institutions (CABI, EIAR, MoA) has launched a training program that will result in the establishment of Ethiopian National PRA team. The team members were pulled from EIAR, MoA and EAA having different discipline that a PRA process require.

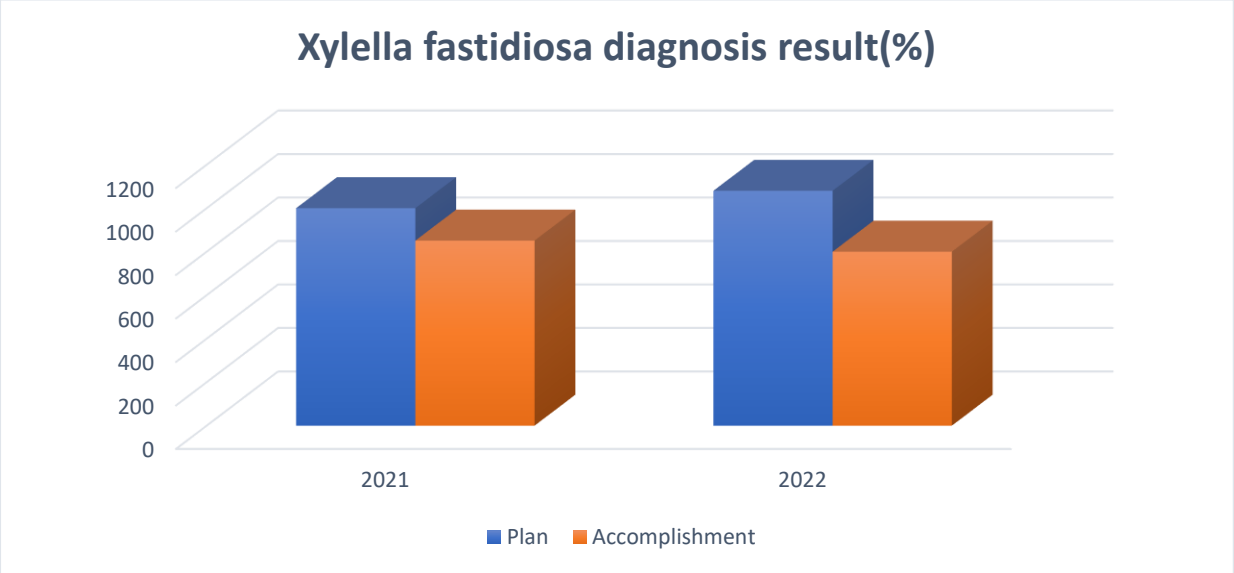
Survey and Surveillance of regulated pests: Each contracting party or country to IPPC has a responsibility to establish plant protection service for the purpose of

conducting survey and surveillance to determine occurrence of new pest or to establish lists of Quarantine Pest and Regulated non-Quarantine Pests. To undertake such activities no any coordinated pest survey and surveillance program is in place.

Post entry quarantine activities: A post entry quarantine service as a place or green house for detention of any imported plant material that must necessarily pass-through serious observation by specific professionals. The materials detained in such a way may be given to the importer as offspring or avoided not to enter in to the country. To undertake such activities, post entry quarantine system is not established or no follow up observation of imported materials at the premises or farms is done. This results in the introduction of new pests into the country. Review has been made if any phytosanitary measure that replace the facility. There are some indications that Holeta Agricultural research center that has isolated field is currently supporting the national phytosanitary service in such a containment activity.

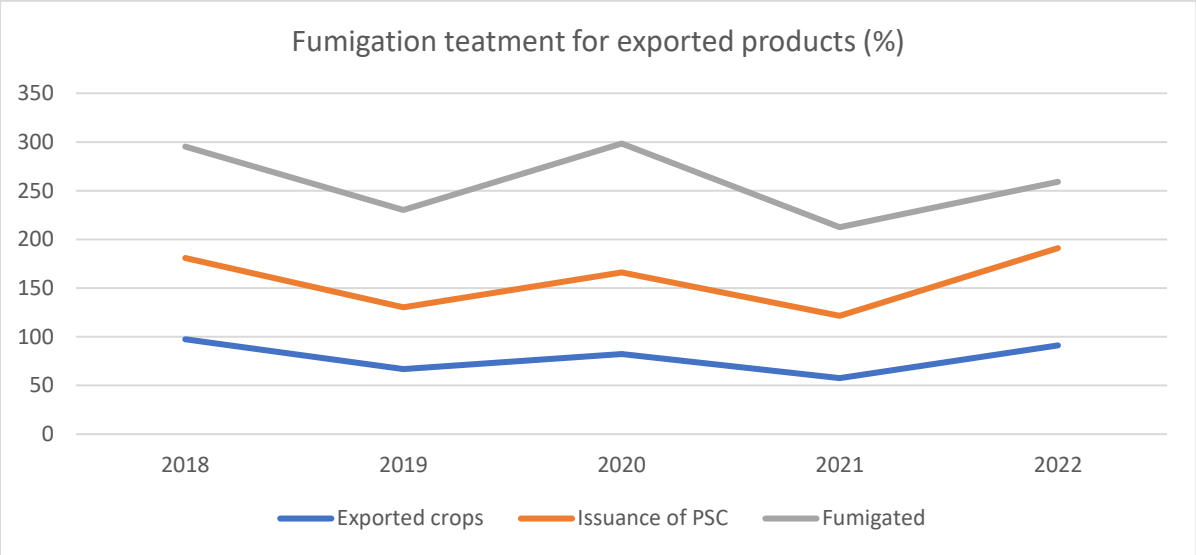
Delivery of regulated pest diagnostic service: National and regional pest management laboratories are not providing sufficient pest identification, diagnostics, pest management services and test results like race analyses and bioassays. Some are nonexistent and others poorly equipped, inadequately staffed and less coordinated. Most of the staffs don't have the required knowledge and expertise to handle pest management related activities as needed. However, during the last two years for the purpose of notification of present or absence of one Xylella fastidiasa to European Commission, area wide survey and diagnosis has been undertaken at Holeta National Agricultural Biotechnology Research Center. During this activity out of the plan of testing of 1000 samples 851 in 2021 and planned 1080 samples 800 samples in 2022 were tested negative. The accomplishment was 85.1% and 74.1% respectively

Figure 4. Xylella fastidiosa diagnosis result(%)



Treatment supervision: Fumigation is the usual Phytosanitary treatment method used for the eradication of storage pest during their occurrence. To be on the safest side, most export agricultural dry seed products are fumigated by Aluminium phosphide before the products will be loaded for transportation to Djibouti.

Figure 5.Fumigation treatment for exported products (%)



Training of phytosanitary service implementers: Phytosanitary inspectors need to have good basic scientific and agricultural qualifications, as well as training in the more specialized aspects of the work, such as the phytosanitary legislation, techniques for inspecting various plants, plant materials and other objects under very varied circumstances, and in the recognition of plant pests. Induction training and continual training in the technical aspects and related fields as well mentoring and monitoring of trained and qualified inspectors should be mandatory requirements. Although there was annual plan during the years under review, due to lack of resources there was training schedule being executed.

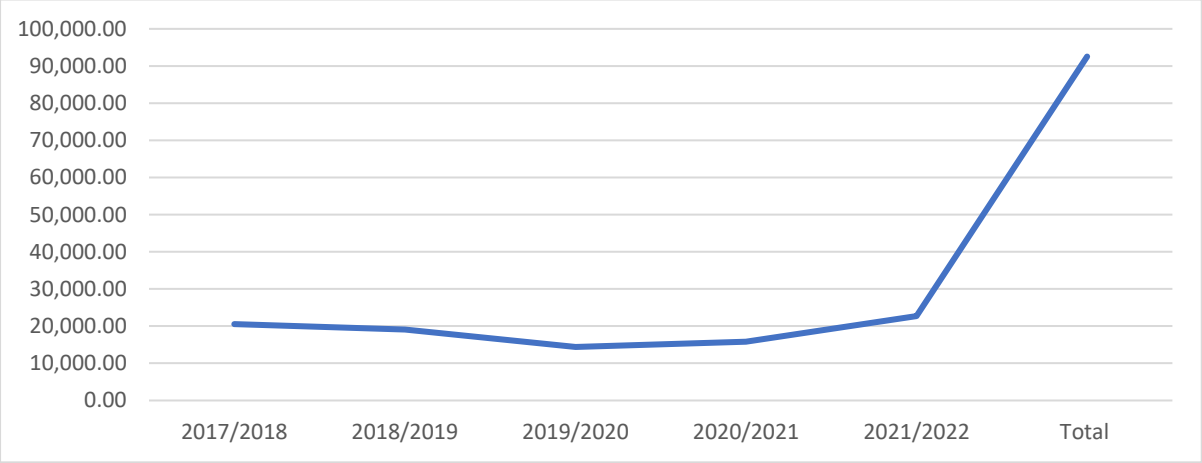
1.1.5. Animal product Regulatory activities

Over the last few decades, Ethiopia has been continuously updating food safety regulations in response to increasingly stringent food quality and safety requirements of international customers and to meet the needs of the fast-growing food retail and whole sale establishments in the country. In this regard, the country has promulgated several proclamations including the meat inspection proclamation No. 274/1970, Animal disease prevention and control proclamation 267/2002, live animal marketing proclamation No. 819/2014, Food and medicine administration Proclamation No. 1112/2019. As part of implementation strategy for these laws, a number of guidelines have also been put in place.

Ethiopian Export five years meet performance showed that there was stagnancy in volume of meat export for at least four years before escalated quantity is exported before 2021/22. The country's red meat export in 2021/22 was only about 22,689 tones which makes 77.5 share from the livestock product and by product export of the same year there is also a growing

interest in offal export which has contributed 17% of meat exports in 2021/22. In conclusion Ethiopian exports an average 92,548-ton meat and meat by products to different parts of the world in the last 5 years and showed an increase trend in recent years as indicated in the graph below.

Figure 6.Certified meat export performance for the last 5 years (2017-2021)



Currently there are about eleven functional MoA registered export abattoirs in Ethiopia. On average, they produce 18 thousand ton of chilled/ frozen meat and offal annually to be exported to Middle East countries specially United Arab Emirates and Kingdom of Saudi Arabia. There are also about 8 export abattoirs under different stage of construction, among them, 3 are almost finished. Since 2012, certified meat export performance remains constant without showing significant growth until 2021/22. Much of the export volume in red meat is from sheep and goat suggesting that beef meat production and export is yet untapped potential to exploit.

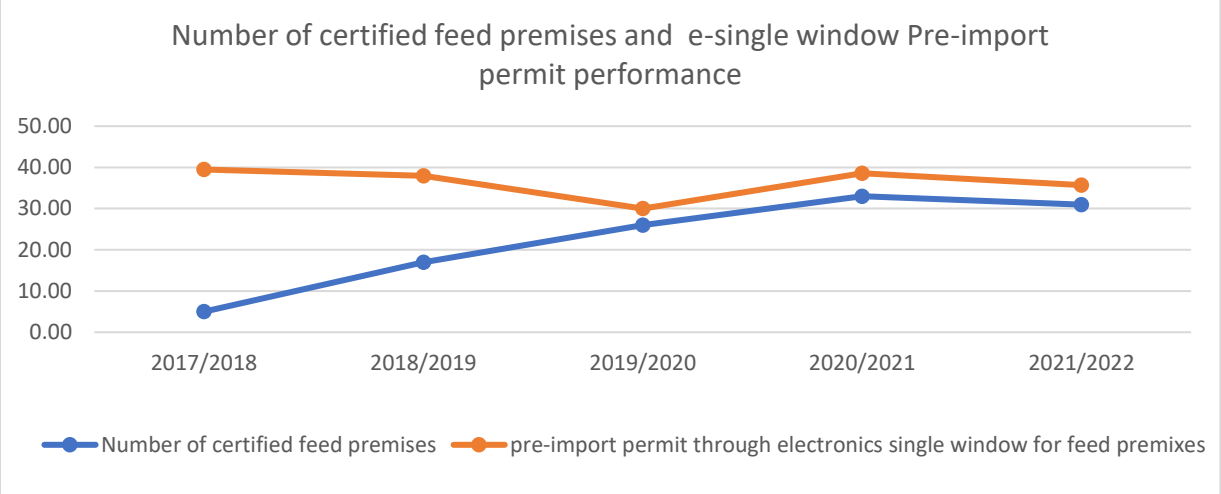
At national level Ethiopia have 300 different local abattoirs which were registered in different part the country. As of 2020, total of 918,564 tonnes of meat was produced and most of the meat product passes under poor quality and safety management. Moreover, our country have also various facilities of milk collection centre honey collection centre, fish collection centre which and egg production centre and which needs serious food safety standards. Ethiopia has produced 4 billion litre, 51,481 tons, 162 million, 43,373 Metric ton of milk, fish, eggs, honey per year respectively. But most of the product is not under safety and quality control. The safety and quality management were poor in the last many years except some product which was used for export and local consumption. This leads into a big public health concern so; controlling safety and quality of animal origin products are a must and mandatory to protect public from hazard.

1.1.6. Regulatory activities of animal feed

It is necessary to protect the livestock and consumer population by ensuring quality & safe commercial feeds and feed ingredients are produced, imported, distributed, exported and retailed by business enterprises. The Authority's feed inspection team inspect the business when the applicant's preparations and application requirements are fulfilled and upon payment

of the applicable fees. Then after, business enterprise shall be issued the Certificate of Competence after assessment and confirmation by the experts of the Authority that it has fulfilled the necessary requirements.

Figure 7.No. of certified feed premises & e-single window Pre-import permit performance



For feed regulatory a directive is issued to determine the registration and requirements of certificate of competence to engage in Trade of commercial Feed and Feed Ingredients. Following this directive, registration of feed or feed ingredient trade firms, issuance of a CoC, implementing the existing and setting new standards, post registration inspections, and Issue pre-import, import and export release permit activities have been underway.

As shown on the graph, compliance of premises dealing with feed trade increase in 2018 to 2022, and hence the total number of certified premises reached to 79. On the other hand, the same performance report shows that issue of pre-import permit through electronics single window for feed premixes shows an overall decline trend. Even though, there are 28 reregistered and certified importers, they are not fully engaged due to hard currency.

The Authority is also developed and approved 32 feed and feed raw material standards by responsible bodies in 2019, to safeguard users from sub-standard products. In addition, for the past five years 345 feed samples are tested for the equality parameters and aflaoxin. Whereas, the test result of the feed reveals the existence of quality defect and afaltoxin problem. On the other hand, one of the most important limitations in assuring quality and safety of feed is that weak inspection system and less enforcement mechanism.

These findings indicate that there was a significant limitation in the number of legal and certified feed business enterprises and assuring of the quality and safety of feed. Regarding feed, feed additives and premix registration not yet registration performed, as there is no registration guide line, national list of feed additives and premixes, no GMP inspection for exporter countries, no approved service fee for feed and feed premix registration, GMP inspection and skill gap or insufficient technical capacity.

1.1.7. Regulatory Activities related to veterinary drugs

The quality, safety and efficacy of veterinary drugs is ensured through registration of products following thorough dossier evaluation, GMP inspection and quality test, certification of

importers and wholesalers, and compliance inspection of the product, premises, professionals and process throughout the market chain.

Table 2. Performance in Application & Evaluation in registration of Dossiers

Activity	2019	2020	2021	2022	Total
No. of new registration application dossiers evaluated	111	104	70	73	358
No. of re-registration application dossiers evaluated	26	41	54	60	181
No. of variation registration application dossiers evaluated	16	14	15	25	70
No of vaccine registration application dossiers evaluated	20	4	3	14	41
Number of traditional medicine registration application dossiers evaluated	0	0	0	0	0
Total number of registration applications evaluated	173	163	142	172	650
Total number of veterinary drugs and vaccines registered (issued market authorization)	166	118	74	105	463

A total of 650 veterinary drugs registration applications (358 new, 181 re-registration, 70 variation application, and 41 vaccines) were evaluated in the last four years. From these evaluated products, 463 of them issued market authorization (registered) and 16 applications are rejected following quality test non-compliance of the products. The dossier application waiting period is minimized from an average of 17 months to 5 months and the evaluation potential is improved from 84 dossier evaluation in 2014 to 172 dossiers in 2022.

Table 3 Performances in Inspection, Certification & enforcement measures

Activities	**2019**	**2020**	**2021**	**2022**	**Total**
Number of certified veterinary institutions	110	150	203	231	---
Number of inspections conducted	139	166	247	269	821
Number of non-compliances registered	10	3	10	77	100
Enforcement measures					
Written warning	7	2	5	63	77
Suspended for 1 to 12 months	1	0	0	6	7
Revoked/ Cancelled CoC	1	0	0	0	1
Product recall and disposed or returned back to country of origin	0	1	5	8	14
Number of samples tested from PMS	68	46	95	37	246
Number of samples found non-compliant	2	---	18	1	21

The number of certified veterinary drug importers and wholesalers is improved from 48 and 44 in 2017 to 125 and 106 in 2022 respectively. The frequency of inspection of veterinary drug institutions is improved from 139 in 2019 to 269 in 2022. From the total of 100 non-compliances registered following the inspections, 85 regulatory measures (77 written warning, 7 suspended certificate of competence and one certificate of competence cancelled) were taken. A total of 246 samples of veterinary drugs were also collected from the market and tested for their quality and 21 of them found below their quality standard and recalled from the market. Fourteen substandard products were also disposed and/or returned back to their country of

origin. However, the numbers of samples from post-marketing surveillance are decreasing due to financial and logistics constraints. Efforts shall be deployed to strengthen the post-marketing surveillance to understand the quality stability of the products throughout their shelf-life.

Table 4. Performance in Consignment inspection

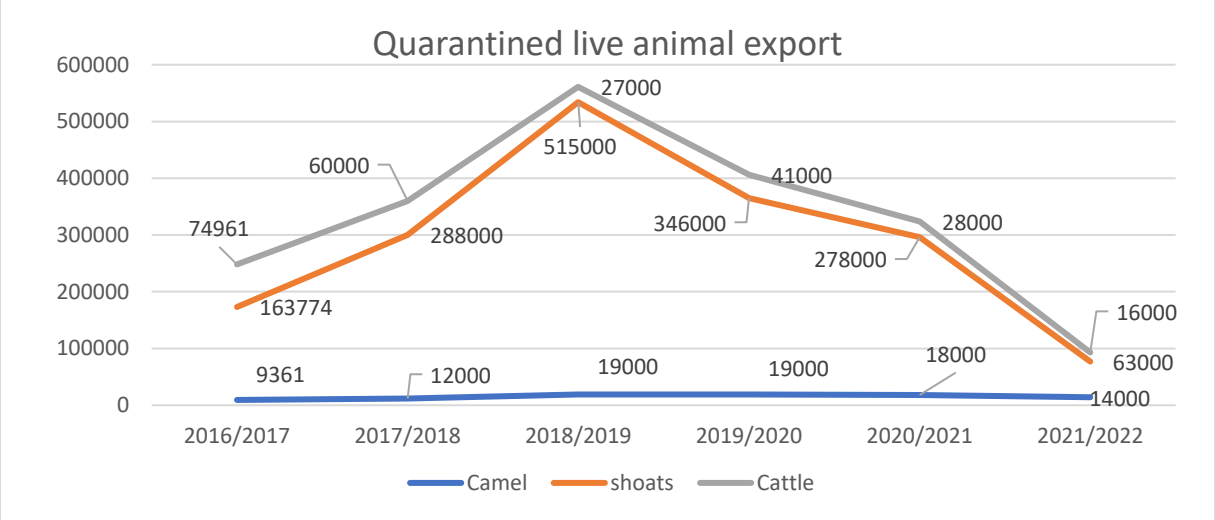
Activities	2019	2020	2021	2022	Total
Number of consignments inspected	201	174	204	235	814
Number of consignments sampled	12	22	95	107	236
Number of non-compliant consignments	---	2	3	8	13

Quality compliance checks are also being conducted at the ports of entry. The physical inspection is supported by quality tests to ensure the release of quality veterinary drugs to the market. The ratio of sampled consignments for quality lab test is improved from 5.9% in 2019 to 46% in 2022. Thirteen (5.5%) of the tested samples of the consignments in the last four years were found non-compliant and returned to their country of origin. It is an enlightening work to start consignment test before release of products to the market. However, the authority still needs to start testing every consignment in addition to physical inspection.

1.1.8. Animal quarantine, import-export inspection and certification

Ethiopia exported high volume of the animals before a certain year compared to any other East Africa countries (Feinstein International Centre Tufts University September 2007).

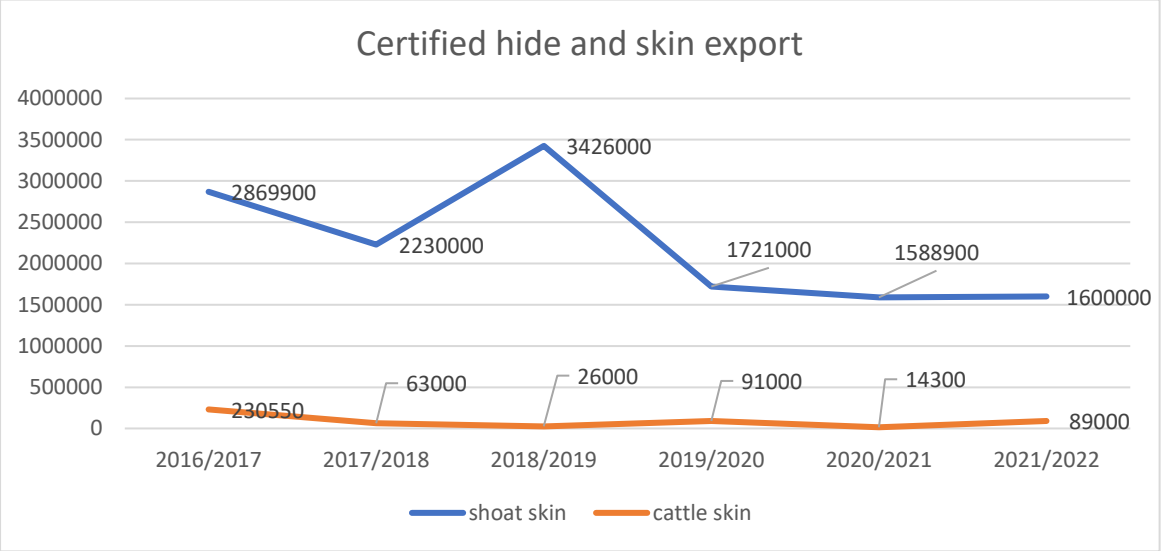
Figure 8. Animal Quarantine & export performance



The cattle, sheep and goat exporting in Ethiopia are decreasing due to various internal and external challenges. Annually, live sheep- goat and cattle export showed a decline trend by 25% to 80% respectively. Also, the export performance of the camel is decreased by 15%.

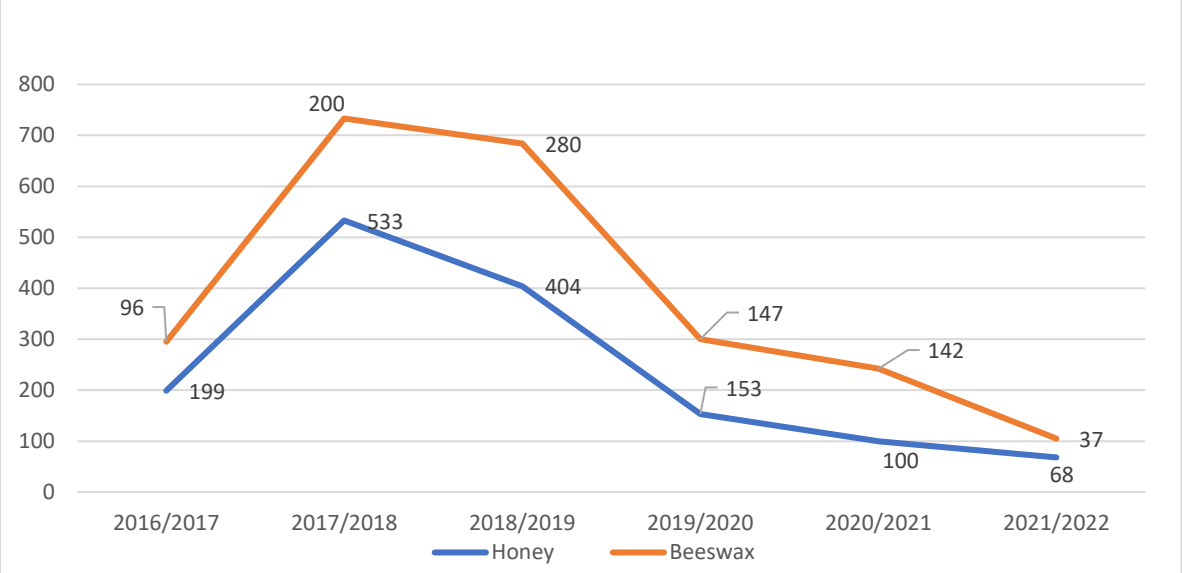
Annually, the export performance of shoat skin is increased by 6% and cattle skin increased by 20%. Without certification, hide is imported from other countries. In Ethiopia, excess hide and skin is producing from Export abattoirs and local abattoirs.

Figure 9. Exported Certified hide & skin



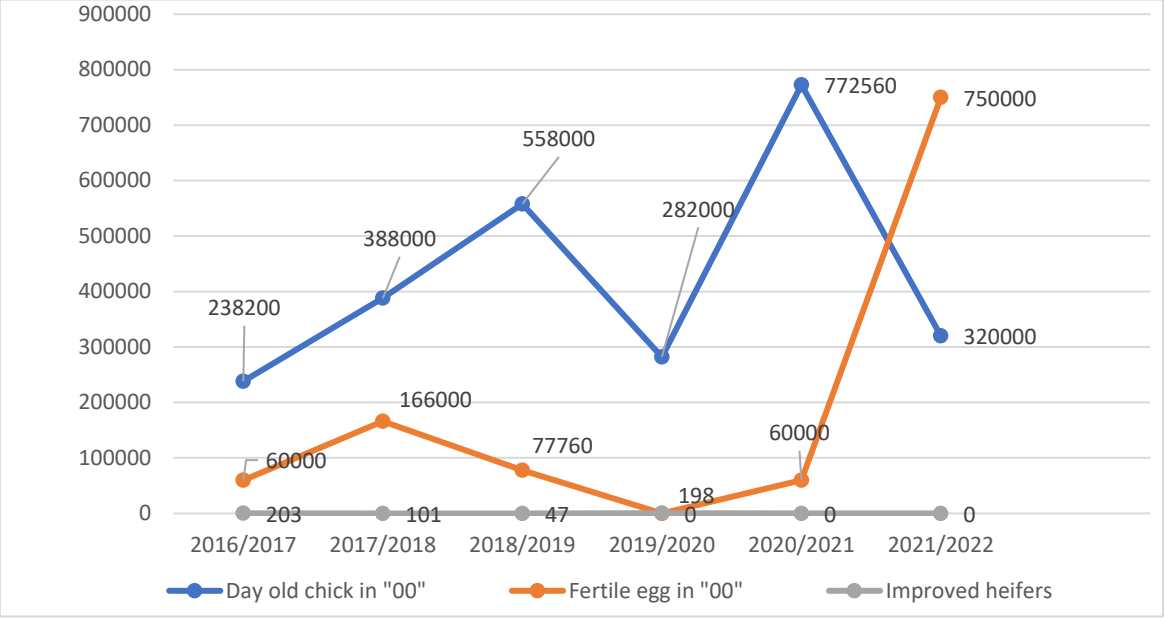
Ethiopia is one of the world's top ten honey and beeswax producers but plays only a minor role in the international honey trade. Unlike large-scale beekeepers using modern techniques found in most leading honey-producing countries, most Ethiopian beekeepers are small-scale producers practicing traditional beekeeping: pesticide and other various challenges, and SPS requirements. The export performance honey and beeswax decreased by on average 50-80% respectively.

Figure 10.Certified Honey & Bee wax export performance



Export of a Day-Old Chicken (DOC) increased annually. However, in 2021/22 the performance decreased by 60% compared to the 2013 E.C. Whereas fertile eggs export showed a 19% increase in 2014 as compared to 2013. Heifers export remains stagnant and in some years it remains zero.

Figure 11.Export performance of day-old chicken fertile egg and improved heifers



Based on the OIE standard, Ethiopia established One International quarantine and outsourced it to Public Private Partnership and it is ready functional and expected to export livestock to various destination countries. In addition to this, Construction of Jigjiga International quarantine is towards completion. Animal resting areas are organized in Djibouti to rest the animals. In the Northern part of the country, construction completion of three quarantine facilities (Metema and Humera). The other great achievement is that the Ministry of Agriculture took the 27,515 karee meters with a holding capacity of 4270 shoat, 1000 camels, and 500 cattle in total 5770 heads inaugurated to rest the Ethiopian animals.

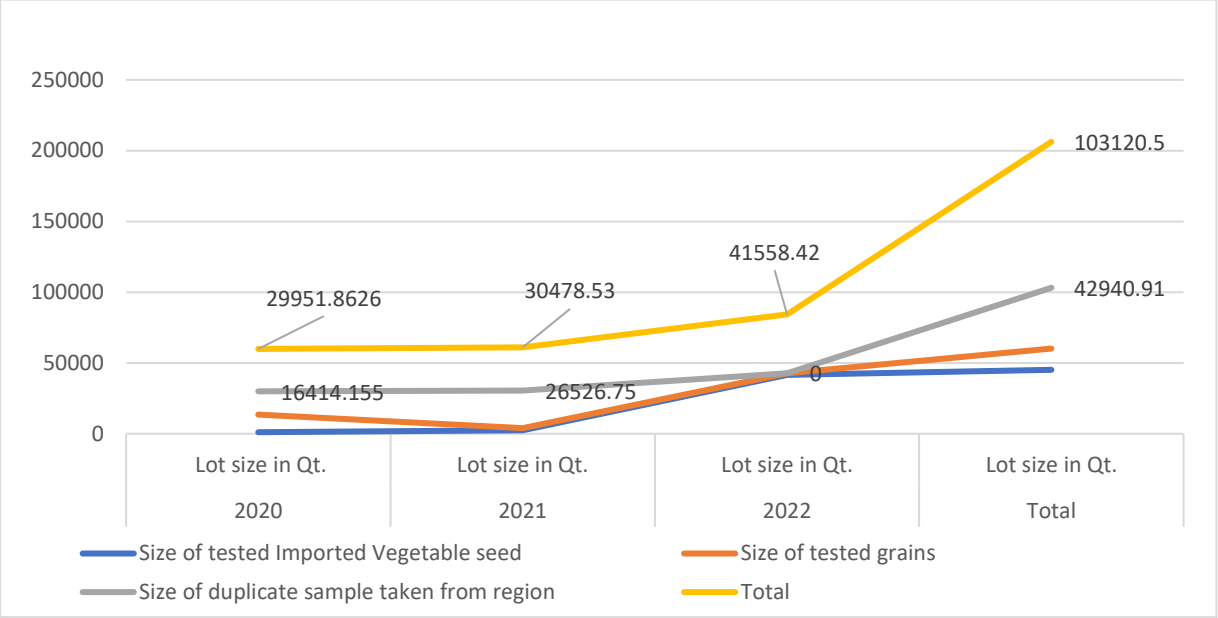
1.1.9. Plant & Animal input & products quality testing

1.1.9.1. Plant input and products quality testing

a/ Seed Quality Testing

In Ethiopia national seed agency was established in 1993. Seed testing provides results that are fundamental importance to enable producers to label seed quality information for the marketplace and Seed buyers assured through consumer protection law and government regulations that they are getting the variety and the quality indicated on the label. There are different world wide organizations dedicated to seed testing on an international scope. ISTA is one of international organization who develops and publishes standardized rules for seed testing. There are different internationally accepted seed quality parameters; however, only two quality parameters germination test and physical purity are testing in our laboratory.

Figure 12.Seed Sample testing performance of National seed lab (2020 to 2022)



In these three years, the total number of seed samples tested in the laboratory is 899 which represents 103,120 Q. Of which, 59% is imported vegetable seed, and the rest are duplicate samples and other cereal seeds. The highest laboratory test of 358 samples was conducted in 2013. In 2014, due to the shortage of dollars many seed importers did not import seeds. For vegetable seeds, germination test is conducted in the laboratory, and for cereal seeds germination test, physical purity analysis and moisture content determination were done, but currently the moisture test is not being done in the current laboratory because, the electric system is weak and cannot operate large machines like oven. Due to lack of infrastructure, the national laboratory is not yet internationally recognized, though it was a member once only in its two-decade year history. Thus, currently Ethiopia is not an ISTA member and lack accredited ISTA (International Seed Testing Association) laboratory unlike many of African countries. This has been one of the reasons for years past for lack of vision & commitment in seed export.

Regional states have their own seed labs. To-date there are a total of 19 seed labs administered under 7 regional states. Of which Oromia has 6, Amhara 5, SNNPR 2, Tigray 2, SW Ethiopia 1, Sidama 1, Benishangul 1 and Gambella 1. Regional States conduct on average a minimum of 4000 samples that represent about 800,000 to 1 million qts of seed. The proportion of the total rejected seed across years is 2 to 6% of the total tested samples across regions.

B/ Agro-chemical testing in laboratory

In pesticide and fertilizer pre and post registration quality testing laboratory plays major role to regulate pesticides and fertilizers. According to pesticide registration and control decree No. 674/2010 no pesticide shall be registered unless efficacy, safety and quality tested under field or laboratory. But without any laboratory tests 982 pesticides have been registered depending on certificate of analysis offered by the registrant.

Regarding pesticide Residue laboratory The Japan International Cooperation Agency (JICA) handed over Project for Strengthening of Agricultural Pesticide Residue Analysis System

(SAPRAS) to Ethiopia. The project, which was handed over on Nov. 03, was implemented following Ethiopia's request to the Government of Japan in 2008. SAPRAS was initiated after Japanese regulatory bodies found out that globally prohibited agricultural pesticides residues in coffee exported from Ethiopian to Japan in 2008.

Project was set to conduct pesticide residue analysis test so as to provide data for Japanese regulators. While the project ran from 2008-2016 it has been expanded for an additional year in order to build the capacity of Ethiopian professionals in residue analysis.

A developed method is created for analysis of 23 pesticides in coffee beans. The laboratory built by the project was capable of analyzing Organo Chlorine Pesticides (OCP) in coffee beans and in the future there is a potential to conduct similar tests on other kinds of agricultural products, she added. Nowadays the residue laboratory was stopped performing laboratory analysis (lack of laboratory rooms and laboratory Analysts turn over problems).

The expected Pesticides and fertilizers quality testing laboratory activities were, re-establishment of agro-chemicals residue and formulation testing laboratory, perform analysis on samples at pre-registration and post registrations and issuance of certificates of analysis, pre and post registration analysis on 982 registered pesticides and perform laboratory analysis on samples collected by inspectors. Residue analysis on coffee and other agricultural products for export purposes done for 23 (OCPs) samples. At present existing pesticide residue testing laboratory is not functional, need to relocate and build another multi-purpose residue and formulation testing laboratory for agro chemicals. There have been no laboratory tests being done during pre and post registrations.

It is also suggested to work on accreditation and method development, to develop methods for pesticides and Mycotoxins residues test on unprocessed agricultural products at nationally and globally set MRL values and issuing laboratory analysis certificate. There are laboratory equipment's (2 HPLC,4 Gas chromatography) and other facilities. SOP were developed on 26 pesticides and three crops. At present the laboratory was found in the ECEA compound and laboratory tasks are not performed for there is no laboratory rooms.

The 3rd area of attention was to run trainings and research activities and create linkage with local and international similar laboratories. The focus was to give trainings on agrochemicals laboratory test methods, GLP (Good Laboratory Practices) Quality Control Management (QCM) for internal and external laboratory experts. Though there are no evidence, few trainings are given in collaboration with local and international organizations, some employees of the former residue laboratory trained at local and international level. At present there is no training and communication laboratory activities.

1.1.9.2. Animal input & products quality testing

The Ethiopian Agriculture Authority (EAA) Livestock Products and Inputs Quality Assessment center (LPI-QAC) provides laboratory testing services to the public, to verify the quality and safety standards of primary livestock products, veterinary medicinal products (VMPs) and

commercial animal feedstuffs. LPI-QAC) was established in June 2006 as entity of EAA (former VDFACA) to ascertain the quality and safety standards of the regulated products through laboratory analytical work that maximizes livestock and public health protections. The laboratory has started rendering laboratory services to the public in 2016.

Veterinary drug quality: Quality assured medicines are critical in preventing and mitigating diseases and preventing the emergency of drug resistance, as well as reducing risks attributed to use of poor-quality medicines. It is well known that administering poor-quality medicines (i.e. substandard and falsified) leads to poor or reduced treatment outcomes, toxicity and occurrence of antimicrobial resistance, in addition to causing an unnecessary economic burden on the health system.

Between 16 November 2016 and 22 June 2021 a total of 959 veterinary medicines samples were collected during routine regulatory activities, i.e., pre-registration, re-registration, consignment checking and post marketing surveillance, in Ethiopia. The sample was tested by LPI-QAC which is the quality control laboratory of the EAA. The findings revealed that 12 (1.3%) of tested products showed defects in physical characteristics, packaging, or labelling information. While, a total of 66 (6.9%) samples of the investigated products failed to comply with the standard specification limit set for assay. Overall, 8.2% of the investigated veterinary medicine samples did not comply with the specification set for the investigated quality attributes and thus were categorized as of poor quality. This indicates the need for continued strengthening of regulatory functions.

Table 5. Visual inspection vs. chemical analyses non-compliance summary results

S/N	Visual inspection and chemical analyses results	Failed(n=959)
1	Samples rejected on visual inspections without undergoing any chemical analyses (identification and assay) due to major physical quality defects	0.6% (6/959)
2	Total samples subjected to both visual inspections and chemical analyses (identification and assay) and found to be out of specifications for assay	6.9% (66/953)
2.1	Samples that had shown quality defects both in visual inspections and assay result specifications	0.6% (6/953)
2.2	Samples that had shown minor quality defects on visual inspections but passed chemical analyses (identification and assay results) and accepted with special corrective measure and preconditions	0.5% (5/953)
2.3	Samples that had no quality defects on visual inspections but failed to comply with assay result specifications	6.3% (60/953)
3	Total samples did not meet visual inspections and assay result specifications	8.2% (78/959)

Animal vaccines: Veterinary vaccines have had, and continue to have, a major role in protecting animal health, reducing animal suffering, enabling efficient production of food animals to feed the growing human population, and greatly reducing the need for antibiotics to treat food and companion animals. For animal vaccines to effectively protect animal they must be regulated. The regulatory process must meet the need for assuring safety and efficacy. Quality of vaccines can be controlled at multiple levels like review and approval of

the registration, quality control testing by the manufacturer and a regulatory authority and GMP inspection on a regular base to verify if the process is compliant with marketing authorization (MA) file. The world organization for animal health (OIE) has recommended various criteria to be met by a specific vaccine type which includes registration, safety, potency, identity and stability. Different vaccine types have been imported to Ethiopia from different country of origins. In the past four years (2018-2021), a total of 24 veterinary vaccines types have been imported. Poultry vaccines were the most frequently imported vaccines which accounts 76 times (87.36%). In addition to the imported veterinary vaccines, there are about 23 different veterinary vaccines manufactured and widely used in Ethiopia. All the imported and domestically produced animal vaccine samples were outsourced and tested at African Union-Pan African Vaccine Control Centre (AU-PANVAC). Out of 36 animal vaccine samples tested at 7 (19.4%) did not meet OIE criteria for regulation which implies further strengthening of the regulatory functions. The authority lacks its own vaccine quality control facilities and hence need further attentions.

Table 6.Veterinary vaccines quality test results

Year	Sample tested	Compliance			
		Pass	%	Fail	%
2018	6	5	83.3	1	16.7
2019	1	1	100.0	0	0.0
2020	8	8	100.0	0	0.0
2021	21	15	71.4	6	28.6
Total	36	29	80.6	7	19.4

Commercial animal feed: Domestic animals continue to make important contributions to global food supply and, as a result, animal feeds have become an increasingly critical component of the integrated food chain. Feed both in terms of quantity and quality is a major bottleneck for livestock production in Ethiopia. A balanced ration must be nutritionally adequate and be consumed in sufficient amounts to provide for the level of production desired at reasonable cost. Animal feed and feed materials can be contaminated with undesirable substances, which may transfer to the food of animal origin. Contamination of dairy and poultry feed with aflatoxin has been frequently reported, which poses a serious constraint to animal health and productivity, and is also a hazard to human health since some mycotoxins and their metabolites are excreted in milk, (aflatoxin M1). Mycotoxins in Ethiopia have an impact on food security and safety, animal and human health, international trade, and national budgets, leading to reduced self-sustainability and increased reliance on foreign aid. According to EU Rapid Alert System for Food and Feed (RASFF) reports, in 2017– 2019, 18 border rejections were issued on spice products from Ethiopia owing to higher levels of mycotoxins (aflatoxin or ochratoxins) and lack of certified analytical reports.

The previous years (2016- 2021) laboratory reports of EAA shows that commercial feed produced in Ethiopia did not fit for the intended purposes and characterized by poor feed labelling information, low quality and high aflatoxin occurrence. Out of 2489 visually inspected feed samples submitted to the laboratory, 433 (17.4%), 1726 (69.3%), 932 (37.4%), 83.0% and 89.0% did not have the required mandatory leballing information about the target animals for which the feed produced, the batch number, date of manufacture, the expiry date (best before) and guaranteed composition, respectively.

Table 7.Commercial feed samples aflatoxins test results (2016-2021).

Year	Sample tested	Compliance			
		Fit	%	Unfit	%
2016	61	38	62.3	23	37.7
2017	1031	760	73.7	171	26.3
2018	193	123	63.7	70	36.3
2019	136	101	74.3	35	25.7
2020	103	67	65.1	36	34.9
2021	246	161	65.5	85	34.5
Total	1770	1250	70.6	420	29.4

From a total of 1770 feed samples tested for total aflatoxins (TAFs) 420 (29.4%) found above acceptable concentration limits (table 7). High percentage of aflatoxins occurrence was observed in dairy and poultry feeds as well as oil seed cakes and by products. Laboratory reports of the same years indicates 45.1% (665/1473) of crude protein, 30.3% (446/1473) of crude fiber, 22.3% (114/470) of calcium and 37.1% (175/470) of phosphorus contents of the analysed feed samples did not met the required quality standards (table 8).

Table 8. Table 4: Commercial feed proximate test results (past 6 years)

S/N	Test parameters	Sample tested	Compliance			
			Fit	%	Unfit	%
1	Crud protein	1473	808	54.9	665	45.1
2	Crud fat	1473	1333	90.5	140	9.5
3	Crud fiber	1473	1027	69.7	446	30.3
4	Moisture	1473	1203	81.7	270	18.3
5	Calcium	470	356	77.7	114	22.3
6	Phosphorus	470	295	62.9	175	37.1

Honey pesticide residue: Pesticide residues in honey occur when bees visit agricultural crops that have been treated with various agro-chemicals, or due to the use of chemicals to control bee pests or diseases. Various residues levels of pesticides in honey have been reported confirming the need to constantly monitor the presence of pesticide residues in honey. According to the ninth Ethiopian national residue monitoring plan for honey, a successful pesticide residue monitoring for honey as an animal product is the central requirement for exporting the product to the EU countries on the basis of Council Directive 96/23/EC which lays the requirements that must be met in relation to the planning and execution of national residue control plans for live animals and products of animal origin. Honey pesticide EAA laboratory survey reports of the past two years (2020-2021) in Ethiopia shows that out of 200 honey samples tested 39% above the maximum residue limit set by EU Directive 91/414/EC and Regulation EC 396/2005 (table 9). The types of analyzed honey pesticide residues at EAA residue laboratory were as follows; Hexachlorobenzene (HCB), Lindane, Heptachlor, Aldrine, Chlorpyrifos, Endosulfan sum, DDE, DDD, DDT, Cypermeththrine and Deltamethrine.

Table 9. Honey quality and safety laboratory analysis (2020-2021)

S/N	Test parameters	Sample tested	Compliance			
			Fit	%	Unfit	%
1	Moisture content	200	198	98.0	2	2.0
2	Electrical conductivity	200	162	81.0	38	19.0
3	Hydroxymethylfurfural (HMF)	100	66	66.0	34	34.0
4	Pesticide residues	200	119	59.5	81	40.5

Meat and milk drug residue and biological contaminants: chemical residues and biological contaminants occurrences in animal originated foods are arising from a variety of sources such as natural toxins, industrial, environmental, agrochemicals contaminants and poor hygiene and sanitation management practices.

Table 10.Raw milk aflatoxin laboratory assessment results (2019-2021)

Year	Sample tested	Compliance (Codex:0.5µg/kg)			
		Fit	%	Unfit	%
2019	105	80	76.2	25	23.8
2020	105	80	94.6	13	5.5
2021	120	146	2.7	4	2.7
Total	330	306	90.8	42	9.2

The occurrence of veterinary drug residues and biological contaminants in animal source food is a worldwide public health concern, since they may cause different adverse health effects to consumers, such as food borne disease, sensitivity to antibiotics, allergic reactions and disturbance of intestinal microbial balance; potential emergence of antimicrobial resistance bacteria and/or subsequent spread of the resistant microbes.

Table 11.Cow raw milk quality (adulteration) laboratory assessment data (2019-2021)

Test parameters	Acceptance limits	Sample tested (N= 565) & compliance			
		Fit	%	Unfit	%
Fat	≥ 3.5 %	155	27.4	410	72.6
Solid not fat	≥ 8.5 %	221	39.1	344	60.9
Protien	≥ 3.2 %	462	81.8	103	18.2
Lactose	> 4.2 %	357	63.2	208	36.8
Density	1.026 - 1.032 g/ml	174	30.8	391	69.2
Freezing point	-0.550 to -0.525 ℃	52	9.2	513	98.8
Minerals	0.7 - 0.9 %	259	45.8	565	54.2

To reduce the risk of harmful (levels of) Chemical residues entering in to the food chain through Animal Source Food (ASF) and safeguard the public health, requires the enforcement of different administrative and legal measures. Qualitative and quantitative assessment of antimicrobial residues in ASF to determine the MRLs and withdrawal period status are essential. Previous year's EAA laboratory performance assessment data on milk aflatoxins, milk quality (adulteration), meat drug residues and microbiology are depicted below.

Table 12.Meat (beef, chicken and shoat) antibiotic residue analysis

Year	Sample tested	Compliance (Codex MRL)			
		Fit	%	Unfit	%
2019/20	90	90	100	0.00	0.00
2021/22	231	204	88.3	27	11.7
Total	321	294	91.6	27	8.4

Antimicrobial resistance (AMR) and biological contaminants: The antimicrobial resistance (AMR) of major food-borne pathogens has become an increasing public health problem worldwide. Though AMR is attributed to multiple factors, the contribution of the expanding use of antimicrobials in food animals has been considered as the main reason for the worldwide rapid increase of AMR.

The growing worldwide phenomenon of AMR is generally associated with the improper use, overuse, or misuse of antimicrobials in humans and animals and agriculture which could enhance selective pressure for resistant strains. The resistant strains in the gut of animals and humans could horizontally transfer genes to similar or different species (e.g. *Salmonella* to *Escherichia coli*). Thus, humans can get infected by these resistant strains through consumption of contaminated food of animal origin or through direct or indirect contact.

Some reports indicate that major pathogens isolated from animal source food (ASF) and feed are resistant to antimicrobial agents such as quinolones, penicillin, aminoglycosides, macrolides,and tetracyclines but these antibiotics are still being used widely in the livestock sector for various purposes such as growth promotion.

A survey conducted from August 2019 to July 2021 in the potential meat and dairy products, and commercial animal feed supply chain areas of Ethiopia by quality control laboratory of EAA (former VDFACA) demonstrated multidrug resistance against some of the tested antimicrobials having public and veterinary importance. Out of 642 investigated, 185 samples were positive for target bacteria of *Staphylococcus aureus*, *Escherichia coli* and *Salmonella* Species.

Table 13..Prevalence of priority food-borne pathogens (2019/2021)

S/N	Samples	No of sample tested	Priority pathogen bacteria prevalence (%)			
			Staph.aureus	E.coli	Salmonella spp	Total
1	Raw milk	203	48 (23.65%)	24 (11.82%)	2 (0.98%)	74 (36.45%)
2	Meat	265	27(10.19%)	77 (29.05%)	8 (3.02%)	112 (42.26%)
3	Feedstuffs	174	0 (0.00%)	0 (0.00%)	2 (1.15%)	2 (1.15%)
Total		642	75 (11.68%)	101(15.73%)	12 (1.87%)	188(29.28%)

The AST results showed AMR of target bacteria isolates against some of the tested antimicrobials. Of these, 83%, 55% and 92% isolates of *Staphylococcus aureus, Escherichia coli and Salmonella* Species, showed high AMR development levels to Benzylpenicillin, Tetracycline and Cefalexin/Gentamicin respectively.

Antimicrobial susceptibility test (AST): The AST was conducted on most of the identified target bacterial species. The AST result of *S. aureus, E. coli* and *Salmonella* bacteria isolates tested against sixteen (16) , fourteen (14), fifteen (15) AMA, respectively shows high resistance to

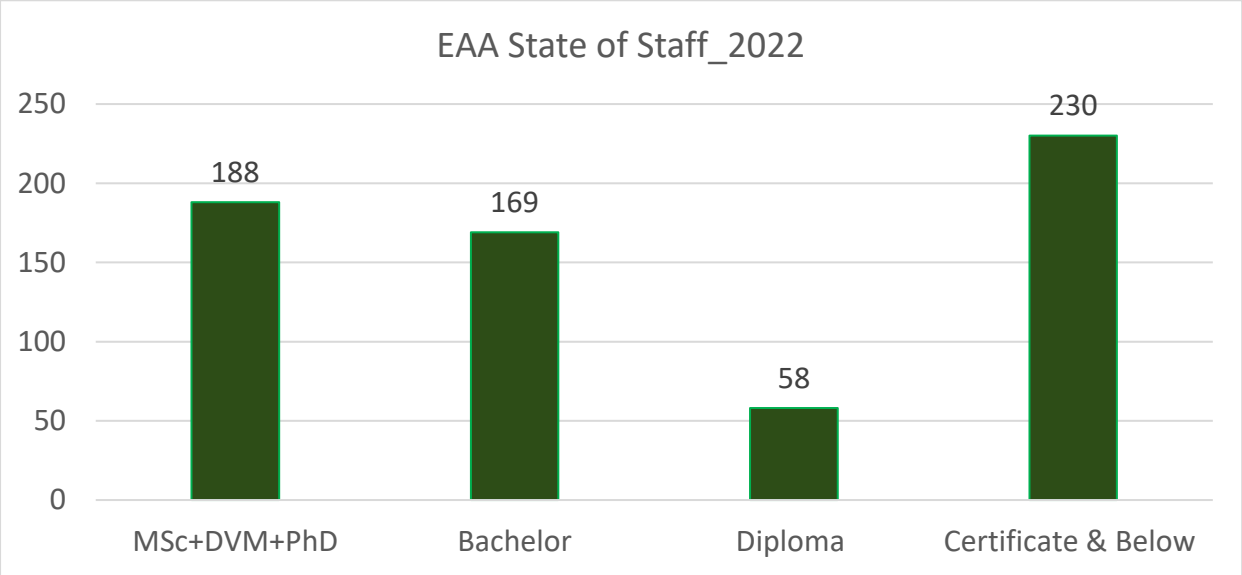
some antibiotics and no resistance (susceptible) to some antibiotics. The AMR development levels of *S. aureus*, *E.coli* and *Salmonella* Spps against the selected antimicrobials are summarized and presented in Figures 13, 14, and 15, respectively (See annex fig 13-15) .

Human Resource Status

Although the Ethiopian Agriculture Authority is a new institution as a regulatory in the Ethiopian agricultural sector, operations were being carried out in 4 governmental offices by a set of experts necessary for each regulatory division. Following the reform by the Ethiopian Parliament proclamation # 1263/2021, the Authority submitted draft Authority Establishment regulation to Council of Ministers and the authority role & authority is determined by Council of Ministers regulation # 509/2022. Following this EAA developed organizational structure to organize the necessary divisions to perform the given mission according to regulation No 509/2022 that defined its powers and duties.

However, due to the job-related occupational hazards, poor incentive packages, poor professional training trend, low salary rate, there has been a nearly high turnover or resignations of regulatory experts. The current manpower of the authority is around 645 and the next graph and table describes the current number of staff by education level.

Table 14.Staffing summary by education level



1.2. Customer & Stakeholder Analysis

Table 15.Customers Analysis of Ethiopian Agriculture Authority

S/N	Customer	EAA's expectation from the customer	Customer Expectation from EAA	Likely reaction and impact, if expectation is not met
1	Farmers, pastoralists and semi-pastoralists	• Use of certified agricultural inputs, product, and technology • Contribute to environmental safety • Increasing agricultural production and productivity. • production of nationally and internationally competitive agricultural input and products • Using extension service providers that have standard and COC • Requesting information being agricultural input or product supplier registered and having COC and preventing illegal activities.	• information regarding, legal frameworks, and standards for competence, quality, efficacy, health and safety of agriculture input, product and technology • Proven agricultural technology and in put • Timely regulatory services • Information and corrective measures • Marketing of Illegal agriculture inputs and products will be expanded	• Agricultural technology, input and product utilization will be decreased • Environmental impact due to use of uncertified inputs • Decreased agriculture production and productivity • Negatively affect the economy and country image • Delaine of agricultural input for time of production
• 2	• Public	• Utilization of quality and safety of agricultural products and inputs • in case of dispute collaborate with the organization • Having knowhow about illegal trade, quality and provide information to the organization.	• Having sufficient information about the quality, safety and efficacy of agricultural products and inpus • Taking due care in the qualification certification process to deploy responsible and qualified agricultural product suppliers. • Efficient, quality and safety agricultural products. • Control over uncertified and licensed agricultural products and inputs trader • Conduct assessments on product satisfaction of public	• Affects the environment • Affects the health of public • Lack trusts on the organization
• 3	• Manufacturers, producers, importers, exporters & wholesalers	• Having certificate of competence, fulfill the criteria set for registration and certification, renewal of annual certificate • Fulfill the regulatory standards, • To be honest and build trust on their products and services. • Be competent on international trade. • Commitment to produce, import and export quality and safety agricultural products, inputs and technologies. • Reporting illegal practices	• Getting competency certificate on time. • Getting quality, safety and efficacy test result of agricultural products and inputs, • Getting international health certificate. • Getting pre-import and release permit on time. • Getting GMP inspection report. • Getting quality certificate of agricultural products and inputs. • Getting up-to-date regulatory information. • Ethical behavior of inspectors. • Training and consultation service. • Digital information's service.	• Increased hazards associated with consumption of regulated products • Increase number of jobless • Decrease market destination and hard currency • Affects the health of livestock, public and environment. • Aggravates illegal trade and impaired national economy • Poor quality, unsafe and inefficacious products produced

S/N	Customer	EAA's expectation from the customer	Customer Expectation from EAA	Likely reaction and impact, if expectation is not met
		• Should not impede and interfere the work of assessors, examiners, inspectors, and analysts • Perform the regular regulatory fee. • Avail on time to get regulatory service.	• Provision of quality and safety agricultural products inputs and technologies • Legislations, standards and guidelines on the regulatory requirements • Fast and quality regulatory services • Regulatory measures on the illegal practices • Impartiality and transparency (good governance)	• Encourages illegal practices • Dominance of illegal products in the market and discouraging legal practices • Corrupted system and encourages release of poor quality and unsafe products

Table 16.Stakeholder Analysis of Ethiopian Agriculture Authority

S/N	Stakeholder	Expectation from them	Expectation from EAA	Potential impacts (if expectation not met)
1	House of peoples Representatives	• Swiftly endorsement of legislations. • Feedbacks and oversight on the quarter and annual reports	• Submit high Quality draft legislations. • Timely delivery of quarter and annual reports.	• Weak poor regulation. • Low public trust and lack of confidence Poor efficiency.
2	Council of Ministers	• Swift Fast endorsement of regulatory regulations, • Constructive support, and follow-up and guidance	• Submit High quality draft regulations, • Reports, tangible results & Feed backs	• Weak Poor regulation tool. • Low quality inputs and outputs. • Risk of public safety and diseases
3	Ministry of Agriculture	• Policy directions, technical, financial and logistics support and attention. • Report feedbacks • Swift approval of new directives • Financial and logistics support	• Strong regulation of agricultural inputs and products. • Ensuring conformity with national and international rules, guidance, standards • Significantly minimized public risks and enhanced safety • Timely reports	• Poor quality, unsafe and inefficacious agricultural inputs and products, • Inefficiency
4	Ministry of Finance	• Fair allocation of resources such as budget and vehicles • Technical support on financial transaction, • Revision of service fee	• Professional financial management, efficient expenditure management and cost reduction, timely reporting. • Finance inspection Audit feedback,	Inefficiency
5	Ethiopian Customs Commission	Good cooperation and Strong coordination in inspection of imports and exports of agricultural inputs and outputs as well as joint effort in controlling of illegal trades	Good cooperation and Strong coordination in inspection of imports and exports of agricultural inputs and outputs as well as joint effort controlling of illegal trades	Expanded illegal trade Weak coordination and controlling
6	Ministry of Justice	Timely approval of regulatory tools (Directives)	High quality draft directive	Poor governance

S/N	Stakeholder	Expectation from them	Expectation from EAA	Potential impacts (if expectation not met)
7	Ministry of Planning and Development	Approved mid-term and short-term plan	Performance and budget utilization report	No additional resources are available to perform work.
8	Ministry of Innovation and Technology	Provide and install digital technology to advance the regulatory services	Identify technology needed to improve regulatory services.	Inefficiency and weak governance
9	Information Network Security Agency	Protecting the security of the Regulatory service provided with the help of information technology	Exchange of up-to-date information about cyber security and data centre.	Weak protection of information, data and network security. As a result of cyber-attacks, data theft, data distortion/ destruction and illegal services are rampant, which puts a negative pressure on the country's economy.
10	Ethiopian Federal Police	Strong coordination and information exchange to control of illegal trade and trafficking of agricultural inputs and outputs trades	Awareness programs on the regulatory legislations	Economic loss and public health crisis due to high trafficking and illegal trade of agricultural inputs and products
11	Ethiopian Conformity Assessment enterprise.	Prepare Support in standards preparation	Communicate the need for standards preparation	• May lead to under-standard performance or substandard regulation unfit to national and international requirements. • As the service delivery is affected, the customer is subjected to harassment and unnecessary waste of resources and time;
12	Ethiopian Standards Institute	Training support in the areas of standard preparation and implementation matters of standards	• Efficient and consistent inspection and certification, · • Understanding of legal frameworks. • Need for data exchange, testing tools and services	• Weak regulation, failure to meet with national and international standards. • Increase in health and safety risk for consumers • Unable to meet global export market safety and quality requirements • Incompetent Institutions establishments to engage in service provision will cause substandard inputs and products to enter the market system and create negative pressure on Agriculture.
13	Ethiopian Accreditation Service	• Provide National accreditation and certification services for agricultural regulatory, • Assessment and qualification of inspectors • Calibration of equipment;	• Notification of selected input and product types that require Qualified inspectors, Laboratory analysts, test engineers, • International standards and accessibility? operators and maintenance technicians. • Technical agreement	• Incompetent delivery of services. As the service delivery is affected, • Dissatisfaction of customers. the customer is subjected to harassment and • Unnecessary waste of resources and time.

S/N	Stakeholder	Expectation from them	Expectation from EAA	Potential impacts (if expectation not met)
14	Environmental Protection Authority	• Efficient decision on agricultural inputs and products to be removed; • Update on existing and new international and regional agreements • Disseminate information related to environmental protection. • Environmental Impact Assessment	Environmental and Biochemical and Agricultural Chemicals Information;	Risks and vulnerability to the country will be vulnerable to animal and plant pests and diseases increase
15	Federal Ethics and Anti-Corruption Commission	Follow and monitor implementation of anti-corruption measures.	• Ensure transparency and accountability at all levels. • Implement emphasis to provide appropriate anti-corruption measures.	• Low public trust. • Incapable to ensure biosecurity. Corruption
16	Public Service Commission	• Approval of new and revised organizational organ gram, • salary scales, job positions, etc • Human resource training	• Reasonable and high quality draft documents (organ gram, job position, salary scale, etc),· • Submission of training requirement	• Inefficient regulation and high employee turnover. • Low capacity and corrupt inefficient human resource
17	Ethiopian Biodiversity Institute	A user agreement for national biodiversity resource information and benefit sharing	Providing regulatory services for biodiversity resources. Submitting a Biodiversity Collection Request	• Inability to protect biodiversity resources. • Weak coordination between biodiversity and EAA. • Regulatory services is not Technological
18	Agricultural Research and Higher Education Institutions	• Research in Agricultural Regulatory Problem Solving. • Research prototypes; Provision of qualified regulatory expertise, • Agricultural technology and input suitability research and advice.	• Effective control and regulation of new seed and animal technologies • Research interest in policy and legal framework	
19	Animal Health Institute,	Information on the use of quality assured resources	• Information exchange on health and safety issues. • Joint research on health-related cases	Regulatory system not developed
20	Agricultural Transformation Institute	• Technical and financial support	• Jointly identify systemic bottlenecks related to regulatory framework and set out solutions • Need submission and MOU. • Submit technical and financial proposal	• Incompetent system. • Weak coordination and responses
21	Ethiopian Livestock Development Institute	Livestock technology quality and efficiency trial		
22	Federal Auditor	Financial and Performance Audit Report;	New Document	• The institution takes slow actions to improve financial and other resources management. • Does not know the status of resource management and use.

S/N	Stakeholder	Expectation from them	Expectation from EAA	Potential impacts (if expectation not met)
23	Ethiopian Revenue Authority	Identifying a supplier for procurement	Cash flow requirement	Weak service delivery..
24	Ethiopian Wildlife Protection Authority	• Wildlife Sites Certification, • A legal framework		• Weak coordination to protect genetic resources. • The country's genetic resources will be looted and contaminated
25	Non-governmental Partners	Technical and financial supports	Project proposals for financial request, efficient project implementation, reports	Weak program alignment and weak capacity to deliver projects and underutilization of resources.
26	Government Procurement and Property Authority	Current national regulatory information	Prepared appropriately different information needs	A waste of resources
27	Construction Authority of Ethiopia	Advice on the design of agricultural regulatory service infrastructure	Design requirement recommendation	Building substandard infrastructure leads to waste
28	National Bank of Ethiopia	Foreign currency for laboratory supplies	Demand for asset supply	
29	Trade and Regional Liaison Authority;	licensing system coordinated with the regulatory system;	Letter of support for license	• Disruption of the trade system at the national and international level, • Lack of interest of recipient countries. • Market competitiveness will suffer;
30	Ethiopian Intellectual Property Protection Authority	Refine the scope of work.		
31	Professional Associations	Technical support and mainstreaming of professional ethics	Engagement of the associations and their members in the regulatory activities	Low quality of regulatory tools and limited regulatory coverage
32	Ethiopian cooperative Commission	Ensure that the associations are properly organized and provide information.		• Associations organized by export and import of input and product will not be effective • Illegality will be difficult to control. • Smuggling will not disappear, so the country will suffer from losing income in currency.
33	Jobs and Skills Authority	licensing system coordinated with the regulatory system;	Letter of support for license	• Disruption of the trade system at the national and international level, • Lack of interest of recipient countries. • Market competitiveness will suffer;
34	Ethiopian Food and Drug Authority	Coordinating laboratory tests;	Sharing Borrowing of laboratory test equipment. Health and Sanitary Certificate. Pesticide registration	Uncoordinated and weak regulation, conflicts of interest.
35	Education and Training Authority	A formal education training curriculum that can be developed for regulatory science		

1.3. Strength, Weakness, Opportunity, and Threats (SWOT)

Table 17. Table of SWOT analysis

Serial	lists	Strength	Weakness
	Institutional set up /Infrastructure, logistics/	• Establishment of EAA as an autonomous institution • Presence of the required organizational structure. • Presence of Animal Input & product quality testing laboratory. • presence of partially operating plant seed testing laboratory. • Presence of partially operating pesticide residue analysis lab • Presence of partially operating Animal and plant branch centers and stations. • Presence of regional regulatory authorities	• Absence of accredited Animal & plant input & product testing Laboratories, standardized infrastructure in the existing testing labs/ buildings, testing facilities, experimental lab animal house, storages, waste disposal/, testing stations and facilities for DUS/NPT, fertilizer and pesticide efficacy trial stations, post entry quarantine facilities, data center, training center, Mechanization testing centers • Limited standardized quarantine stations, ICT assisted regulatory infrastructure, logistics, laboratory supplies including quick testing infrastructure, facilities at check posts, limited range of testing capacities on regulated items.
•	• operational • system and governance	• Presence of nationally endorsed legislations, protocols standards, technical guidelines in certain regulated inputs and products. • Digitalized reporting system. • Single window service for custom clearance, import-export-release permit. • e-service for customer services in place. • Outsourced quarantine services applied. • Certification service fee collection mechanism in place. • Provides testing, inspection and laboratory services for customers with its exiting constraints,	• Weak transparent and accountable system against corruption. • Inadequate evaluation and tracking of the regulatory performances, inspection, and testing efficiency. • Insufficient legal protection for examiners, inspectors, and laboratory analyst. • inadequate legislation and standard in certain regulated agricultural technologies, services, input, and products. • Insufficient testing protocols that are operationalized under the EAA laboratories. • Weak regulatory traceability system. • Insufficient digitalization, advocacy and communication. • Weak awareness level to ratified legislation from customers and enforcing law execution bodies. • Nominal service fee & lack of incentivizing utilization provisions. • Lack of risk based regulatory system. • Mandate demarcation gaps and overlapping in with sectorial regulatory authorities. • Delay in giving regulatory decisions and unable to give emphasis in implementing mandated functions.
	Human Resource development	• Existence of Human Resource plan. • Existence of committed Management • committed & experienced staff	• Inadequate number of skilled regulatory staff • Lack occupational safety and insurance • Inadequate staff mentoring and counseling

Serial	lists	Strength	Weakness
		• Team-work spirit • Presence of Training program • Presence of a library with resources on regulatory affairs • Presence of HR with acquaintance in international regulatory system & practices • Adoption of international conventions in domestic regulatory activities.	• Lack of succession plan • Inadequate remuneration • Inadequate gender mainstreaming • Lack of special incentive schemes • Inadequate training and regulatory experience sharing sessions. • Lack of curriculum for regulatory long term training in domestic higher education system. • insufficient specialized short training in specialized disciplines. • High rate of turnover of trained and skilled man-power. • Unable to control of transboundary animal diseases and emerging plant pests • Limited awareness of the public on the negative impacts of AMR and agro-chemical resistant. • High prevalence Biological, chemical and physical contaminants, exposure & their related risks that needs high investment • Resistant to technology adoption and capacity limitation

	Opportunity	Threats
	• Enabling policy environment • Membership to regional, sub-regional and international conventions platform and organizations. • Increased demand for quality, healthy, safe agricultural inputs and products both internationally and locally. • Enhanced cooperation with stakeholders including Justice and security departments in enforcing of legal measures. • Presence of exemplary social and formal communication values • Government commitment to strengthen the regulatory system. • Interest of private sector to invest in the country as far the regulatory environment is relaxed. • Concerns on uncertified inputs & products around productive & healthy citizens. • Available policy & regulatory environment for women and youth groups. • Start-up activities related to community mobilizations groups. • National agenda on upgrading the digitization system in ease of communication, skill development, customer satisfaction. • Globalization for ease of connection, ease of international trade, e-commerce, technology availability and shopping. • Expansion of Higher learning institutions.	• Stringent international standards and dynamism • Lack of system for identification and traceability. • Conflict of interest between supply and regulatory demands. • to protect their market irrational embargo, restriction or silent rejection of certified products. • Lack of good governance • Climate change & contribution to occurrence of emerging animal diseases and plant pests. • Variability in illegal trade of substandard commodities.

1.4. Critical issues

Based on the situation analysis, various areas were identified as critical for improvement and must be addressed in the plan. They include but not limited to:

Standardized infrastructure and logistics.

1. Testing and diagnostic laboratories and facilities for regulated agriculture products and inputs.
2. Mechanization testing centers
3. testing stations and facilities for DUS/NPT, fertilizer and pesticide efficacy trial stations,
4. training center,
5. ICT assisted regulatory infrastructure storages,
6. waste disposal
7. post entry quarantine facilities,
8. quarantine stations,
9. data center, (digitalization, advocacy, and communication)
10. transportation logistics /cool chain, vehicles,
11. laboratory supplies,
12. quick testing infrastructure facilities at check posts,

Strategic human resource development

13. staff retention mechanism
14. Short term training on identified regulatory issues
15. International experience sharing based on needs
16. Long term training in MSc & PhD
17. Occupational safety and insurance
18. succession plan

Digitalization of the regulatory system

19. evaluation and tracking system the regulatory performances, registration, inspection, testing efficiency, certification through online services .

Cross cutting

20. transparent and accountable system
21. Time bounded online service delivery
22. gender mainstreaming
23. Climate change

Policies & Legal frameworks

24. legislation and standard for regulated agricultural technologies, services, input, and products.
25. legal protection for examiners, inspectors, and laboratory analyst.
26. testing protocols that are operationalized under the EAA laboratories.
27. Legal enforcement.
28. Nominal service fee & lack of incentivizing utilization provisions.
29. The need of law for traceability system.
30. Develop guideline for risk-based animal regulatory system.
31. Develop enforcing legal framework for implementing mandated functions with prescribed timeline.

Stakeholder Coordination platform

32. transboundary animal diseases, emerging plant pests and
33. AMR and agro-chemical management.
34. Biological, chemical, and physical contaminants, exposure & their related risks
35. Stringent international standards and dynamism
36. Conflict of interest between supply and regulatory demands.
37. Variability in illegal trade of substandard commodities/ input and product/

CHAPTER TWO: THE EAA 2021-2030 PLAN

2.1. Mission statement

Ensuring the quality, safety, efficacy, health and efficiency of agricultural technology, inputs, products, and services building reputable regulatory system to improve domestic & global market competitiveness to the best benefit of the country while contributing to safeguarding the environment.

2.2. Vision statement

To be globally reputable agricultural regulatory body.

2.3. Core values

- Loyalty
- Confidentiality
- Commitment
- Rule of the law
- Accountability
- Customer focus
- Impartiality
- Partnership
- Transparency.
- Responsiveness

2.4. Regulate Agricultural Technologies & specific objectives

2.4.1. Improve performance of plant varieties

2.4.1.1. Rational:

The independent plant variety tests, both for DUS and VCU/NPT tests have not been implemented in Ethiopia as per the prescribed in seed proclamation 782/2013 and international accepted technical guidelines by independent body. According to EAA variety registry (2021), a total of 1,489 plant varieties have released so far. However, the performance tests (both the national and regional variety trials) have been entirely managing by applicants (variety testing institutions) themselves, though administered (final evaluation, decision) by MoA- PVRSQC directorate via the national variety release committee. This brings a question of independency and impartiality. Due to the absence of DUS testing in Ethiopia, it is difficult to know whether some of the already released varieties are the same implying there is no clear description for those released varieties, which significantly affect the seed certification process and the adoption rate of the varieties by the farming community. Seven years (2014-21) data show that 586(53%) of the total submitted varieties have released and registered for production, and the remaining 503(47%) not released. This shows huge investment of public resources for less-performing planting materials. Moreover, it is not possible for the country to export seed and able to exploit the existing international seed business including COMESA seed market. If the country sets effective independent variety testing mechanisms, it helps the development of superior plant variety by competent and market-oriented breeding institutes. It also perfectly avoids the release and registration of the same plant variety with multiple names. The system can allow the country to have meaningful stake in the global seed market and more specifically, in long-run to have large share (volume, market), at least, the untouched opportunity of COMESA seed market.

In Ethiopia, the first Plant Breeder's Right (PBR) Proclamation No. 481/2006 was ratified in 2006. However, without any attempt to implement this proclamation, it was revised, and the new PBR Proclamation No. 1068/2017 was endorsed in the late 2017. Even if the proclamation is in place since 2006, PVP has not yet implemented in the country. The absence of PBRs implementation discourages private companies to invest in the country for variety development and seed multiplication. It also doesn't motivate the public breeding institutes (breeders) to develop superior varieties under the context of 'competition'. If PBR in place, it can increase breeding activities (quality, quantity), greater availability of improved varieties, can increase the number of superior and farmers' preferred plant varieties, increases number of new foreign varieties as well as improved access to foreign plant varieties and enhanced domestic breeding programs, and heightened and rising industry competition. Moreover, the owner of the variety can find a way for exclusive or non-exclusive user rights which can improve the seed production, and eventually can increase the availability of the required varieties to the farmers. To have good example from neighboring countries for instance, Kenya is one of the model African country to domesticate the application of PBR in the 1990s. Kenya via its independent seed authority (KEPHIS) has already awarded 415 grants; of these, 301 are active and 114 of them are surrounded grants (KEPHIS annual report, 2012) . In Vietnam as the country started the implementation of the PBR, yields in arable farming have increased i.e. rice by 18%, maize by 30%, and sweet potatoes by 43% (. This really help countries to develop good mechanisms for the licensing of PBR which facilitate access to seed and planting materials to smallholder farmers where food production is mostly for subsistence purposes. The application of PBR in Ethiopia can help smallholder farmers to access seed, improve productivity and ultimately contribute for the livelihood improvement.

2.4.1.2. Strategies:

a. Evaluation of the performance of the candidate varieties
b. Conduct NPT and DUS test
c. Registration of superior and best performing plant varieties
d. Conduct human capacity development

2.4.1.3. Targets:

a. 550 superior and best performing plant varieties registered by 2030
b. Both EAA and Client trial managed trials implemented in the country by 2030.

2.4.1.4. Key performance Indicator

Output indicator (KPI)

a. Number of candidates variety for release and registration evaluated
b. Number of technical committees established for evaluation of the candidates' varieties
c. Number of NPT and DUS trial conducted
d. Number of NVRC meeting conducted
e. Number of testing protocols and guidelines prepared
f. Number of short trainings given for variety examiners
g. Number of the study visit conducted '
h. Number of variety examiners trained with MSc and PhD

Outcome indicator /KPI)

a. Approved and registered varieties
b. Granted plant breeder's right

2.4.2. Establish DUS and NPT stations

2.4.2.1. Rational

According to Ethiopian seed proclamation 782/2013 all plant varieties must pass the National Performance Trial (NPT) and Distinct Uniform and Stable (DUS) tests. These tests are expected to be performed by an independent party that is not engaged in plant variety development to ensure transparency and neutrality in service provision for both private and public firms. However, at present, the NPT is still conducted by EIAR and RARIs and DUS testing was not carried out based on prescribed DUS protocol. As such, the establishment of DUS and NPT stations across the 13 agro-ecologies will help to address the ambiguity to international/ regional rules and the national seed proclamations. Conducting of (DUS) and (NPT) by EAA will increase the number of private companies participating in variety development; currently, privately released varieties are less than 20 % (PVR, 2021) of the total varieties released, from this less share around 98% is vegetable crops. Therefore, to increase private engagement in variety development and also to improve the farmers to get superior plant variety, the EAA should establish and equipped DUS & NPT testing station.

2.4.2.2. Strategies

Establish and equip testing stations (with required facilities)

2.4.2.3. Targets

13 variety testing stations established and equipped by 2030

2.4.2.4. Key performance indicator

Output indicator (KPI)

a. Number of Identified DUS & NPT testing stations
b. Discussion made with at least six regional authorities
c. Number validation workshop conducted
d. Number of established and furnished testing stations
e. Number of Purchased field vehicles

Outcome indicator /KPI)

Secured and properly managed DUS and NPT variety testing stations

2.4.3. Improve seed inspection capacity

2.4.3.1. Rationale

Seed quality control is carried out both in the field and in the laboratory, starting with field preparation. The frequency of inspection in the field varies according to the type of crop, for instant whether it is hybrid or non-hybrid, but it can be done 3 to 4 times. In this regard, 62 thousand to 72 thousand hectares of land per year are inspected by seed quality control inspectors located in different regions. Moreover, there are seed inspection activities related to town seed shops, rural seed shops, storage inspection, seedling nursery inspection. Domestic seed producers at all level in the country reaches over 300. Ethiopian seed enterprise, Oromia, Amhara, South and Somali and Tigray regions have regional seed enterprises, unions and cooperative based seed producers. Almost 75% of the supply are from government seed producers. The number of individuals/organizations who have met the necessary requirements and are importing seeds from abroad is 83 of which those who are actively working are not more than 20 percent due to lack of foreign currency and other reasons.

Inspectors at the federal level have been given the mandate to control import seeds and seed produced mainly for export purpose, The inspection activity with regard to import seed and sampling activities done by EAA inspectors and approval of requirements to issue COC. They also have the mandate to give COC to import seeds, to prepare quality standards & working procedures, adopting international operating systems, to develop legal frameworks, to bring seed similar quality control system at the country level and carry out various trainings in the field.

On the other hand, inspectors at federal level will check whether regional performances are whether they are according to standards sampling 5 to 10 percent of the inspection work done by the regions. Among the major problems that negatively influence seed inspection work are, the lack of vehicles, the competence and commitment of professionals, and the fact that the sector is not supported by technologies.

2.4.3.2. Strategies

a. Evaluate applications for Competency of Certificate (COC).
b. Conduct GPS tagging of seed farms, stores, fruit scion source parental materials…
c. conduct assessment on inspection efficiencies.
d. Design projects to solicit finances
e. Design & implement systems to check inspectors integrity & efficiency
f. Conduct customer satisfaction.

2.4.3.3. Target

a. All CoC requested to EAA are evaluated and issuance decisions are given in years from 2023 to 2030.
b. All seed farms are Geo-tagged by 2030.
c. All inspections requested on annual bases are 100% done by 2030.
d. All sampling requests submitted by applicants are from 2022 to 2030.
e. All inspectors tracking & Competency checking tools are put in place.

2.4.3.4. Key performance Indicators

Output

a. Number of Equipped existing grow-out test stations and established new ones with irrigation access.
b. Number of vehicles purchased
c. Provided number of GPS & drones
d. Number of trainees in technologies meant for easing field inspection
e. Amount of money collected due to revised certification fee
f. # of characterized local varieties
g. # of research papers developed with recommendation on field inspection efficiency
h. #No of inspectors identified and certified
i. # of studies conducted
j. No of proficiency tests conducted
k. MoU signed
l. # of seed inspectors take examination

m. No of application submitted through on line certification and approved
n. # of Inspectors decisions tracked using GPS-GIS-ICT
o. # of test rating tools calibrated
p. # of code of conduct documents developed
q. # of regional regulatory offices built.

Outcome

Percentage of seed field rejected, due to contaminants, is minimized from 5% in 2022 to 1% by 2030.

2.4.4. Initiate and operationalize regulatory of REM.

2.4.4.1. Rationale

As stated under the performance part of the situation analysis, the regulatory system for research and extension services in Ethiopia are not yet started. For mechanization, though there are standards for certain machineries, the regulation according to standards is not yet started. This is due to the absence of authorized regulatory institution that is supported by law. Regulating the research and extension system can create fertile environment for private and cooperative based systems to engage in providing services to the wide small holder farmer/ pastoralist community and to other end users engaged in agricultural production. In the mechanization services, standards alone cannot bring impact alone and need to operationalize regulating accordingly. All the three components, namely, research, extension and mechanization lack legislatives to initialize regulatory activities and for the former two components there are no any standards or specifications to rate quality of services. Thus, they shared common issues and require special focus in initialization and operationalization of their respective regulatory system in the coming strategic years.

2.4.4.2. Strategies

a. Draft and ratify proclamations, regulations, and directives.
b. Design quality standards and specifications.
c. Carryout service provider inventory and registration.
d. Issue competency of certificate.
e. Temporarily outsource competency inspection services.
f. Establish facility calibration, testing & certification centers.
g. Conduct inspections by EAA inspectors.

2.4.4.3. Targets

a. All required proclamation, Regulations & directives ratified by 2030 & put into action.
b. Inventory and registration system of service providers completed by 2030 and inspection operationalized.
c. Testing & certification centers completed and operationalized by 2030.

2.4.4.4. Key performance Indicators /KPIs/

Output

a. Number of service providers identified.
b. Number of Drafted and endorsed proclamations regulations & directives.
c. Number of Service providers identified.
d. Number of service provider registered & issued with COC.
e. Constructed number of mechanization testing centers.

f. Number of inspections conducted.

Out-come

A regulatory service for Agricultural Research, Extension, & Mechanization is put in place and operationalized

2.5. Regulate Agricultural Inputs and related objectives

2.5.1. Ensure quality, safety& efficacy of pesticides & fertilizers e

2.5.1.1. Rationale

Nevertheless, national agro-chemical import values have increased in many folds the have been continuous reports of quality and efficacy associated problems, environmental, health and economic risks (due to export rejection due to pesticide residues) that can affect national economic developments in general and the agricultural production and productivity in particular. The human and environmental damage caused by extreme exposure to agrochemicals from non-good agricultural practices and circulation of substandard inputs among the farmers in Ethiopia is increasing. This also resulted in deteriorating the safety and quality of agricultural products from detection of chemical residues that leads to interception of many agricultural export commodities. Those reported problems and risks are mainly due to absence of relative regulatory tools (policies, strategies, standards, protocols and legal frame works), traditional agro-chemical registration system and post-registration inspection, monitoring and surveillance systems. Interventions focusing on strengthening the registration and post-registration control to increase activities are critical and therefore need to be addressed in order to manage the aforementioned risks.

2.5.1.2. Strategies

a. Ensuring the safety, quality and efficacious of pesticides and fertilizers.
b. Enhancing post-registration regulation of pesticides and fertilizers.
c. Improving the legality, quality and efficiency of regulatory service delivery.

2.5.1.3. Targets

a. Registration of Safe, of high quality and efficacious Agro-chemicals by 2030.
b. Post-registration inspection and monitoring activity of Agro-chemicals insured by 2030.
c. All agro-chemical legislative tools revised and ratified by 2030.
d. Agro-chemical data base systems established by 2030.
e. Agro-chemical stakeholder's capacitating and interlinkage activities done by 2030.

2.5.1.4. Key performance indicators (KPIs)

Out Put

a. Number of pesticide and fertilizers registered
b. Number of Harmonised Registration requirements
c. Number of institutional COCs given
d. Number of pesticide and fertilizer manufacturers inspected for a Good Manufacturing Practices (GMP)
e. Number of post-registration risk assessment and management studies done
f. Number of inspections done
g. Number of release permits given
h. Number of plant product samples taken
i. Number of institutional inspection (registrants, manufacturers) done

j. Number of agro-chemical samples collected
k. Number of cooperative works with branch-offices
l. Number of trial stations established.
m. A pesticide policy ratified
n. A pesticide proclamation revised
o. Number of pesticide regulation drafted
p. Number of pesticide directives drafted
q. Number of pesticide standards drafted
r. Number of pesticide protocols drafted
s. A fertilizer policy drafted
t. A fertilizer proclamation finalised
u. A fertilizer regulation drafted
v. Number of fertilizer directives drafted
w. Number of fertilizer standards drafted
x. Number of fertilizer protocols drafted
y. Number of online services integrated in Ethiopian Single Window (ESW) and e-Service system for agro-chemicals
z. Number of databases retrieved from the ESW and e-Service system
aa. Number of national online data base system created for agro-chemicals management
bb. Number of private pesticide stakeholder's capacity building related activities done.
cc. Number of fertilizers private stakeholder's capacity building related activities done.
dd. Number of fertilizers public stakeholder's capacity building related activities done.
ee. Number of pesticide public stakeholder's capacity building related activities done.

Outcome

a. Post-registration inspection of agro chemicals enhanced.
b. Registered pesticide and fertilisers that are safe, effective and of high quality
c. Lawfulness of agro-chemicals regulation strengthened
d. Online evaluation and tracking system of the regulatory services put in place.
e. National public and private stakeholders' capacity improved.

2.5.2. Strengthen systems for effective &timely registration of veterinary drugs

2.5.2.1. Rationale:

The provision of successful animal health service requires availability of safe, effective and quality veterinary drugs. The regulatory body is responsible to ensure that the manufacture, trade and use of veterinary drugs are effectively regulated, and to protect and promote animal health, animal production and public health at large. Ineffective regulation of veterinary drugs may lead to introduction of drugs of unknown quality and inadequate labeling that may affect animal health and productivity through direct harm or treatment failure, result in unhealthy business competition, and also aggravate the emergency and spread of antimicrobial drug resistance. Registration of the products following exhaustive evaluation of their quality, safety and efficacy is among the regulatory function of regulatory authorities to ensure the availability of quality, safe and efficacious veterinary drugs in the market. On average, 162 application dossiers have been submitted annually to the Authority to enter to the market in the last four years (2019-2022). Therefore, the authority needs to strengthen the registration system and improve its efficiency to ensure the timely evaluation of applications and issue market authorization to proven quality of veterinary drugs.

2.5.2.2. Strategies:

a. Registration of veterinary drugs for use in Ethiopian market
b. Inspection of manufacturing premises for cGMP compliance

2.5.2.3. Targets:

a. Veterinary drugs registered in 2030
b. Decrease the veterinary drugs registration dossier evaluation lead time from 5 months (2022) to 2 months (2030).
c. Increase the percentage of veterinary drugs registration dossiers evaluated in the time frame to 100% in 2030.
d. GMP inspection and certification process completed within six months.
e. Decrease the pre-import permit application processing time to 4 hours by 2030.

2.5.2.4. Key Performance Indicators

Output

a. Number of dossiers of new veterinary drugs (medicine, vaccine and instruments) registration applications evaluated compared to the submitted applications
b. Number of renewal and variation registration application dossiers evaluated
c. Number of samples sent to laboratory for quality control test
d. Number of market authorization approvals issued (number of registration certificates issued)
e. Number of manufacturing facilities inspected for cGMP compliance
f. Number of cGMP certificates issued
g. Number of veterinary drugs registration applications rejected due to non-compliance of dossier evaluation and/or quality test
h. Number of purchase orders approved/rejected
i. Number of clinical trial applications evaluated and approved

Outcome

a. High quality, safe and efficacious veterinary drugs authorized to enter the market
b. Improved efficiency and quality of drug registration process
c. Improved access of essential veterinary drugs

2.5.3. Provide effective & timely certification process for vet. drug institutions

2.5.3.1. Rationale:

The establishments where veterinary drugs are manufactured, stored and distributed play an important role in determining the efficacy, potency and safety of veterinary drugs. The licensing of such establishments is thus as critical an issue as the registration of veterinary medicinal products. Therefore, the regulatory authority should certify all premises and practices used to manufacture, store, distribute and dispense veterinary products in compliance with the available directives and the principles of Good Distribution Practice (GDP) and Good Storage Practice (GSP).

2.5.3.2. Strategies:

a. Certification of veterinary drug institutions
b. Licensing of veterinary drug professionals working in the veterinary drug institutions

2.5.3.3. Targets:

a. Reduce the CoC and professional license applications processing lead time from 10 days to 3 days by 2030.
b. Improve the percentage of CoC applications processed in the stated time frame to 100% in 2030.
c. Improve the percentage of veterinary drugs professional license applications processed in the stated time frame to 100% in 2030.

2.5.3.4. Key Performance Indicators

Output

a. Number of applications for certificate of competence processed
b. Number of pre-certification inspections conducted on the applicant premises
c. Number of certificates of competence issued
d. Number of applications for professional license processed
e. Number of professional licenses issued
f. Number of CoC renewal applications processed
g. Number of CoC renewed
h. Number of professional license renewal applications processed
i. Number of professional licenses renewed
j. Number of replacement of CoC and change of professionals, names and warehouse applications processed
k. Number of approved CoC replacements and changes of professionals, names and warehouses

Outcome

- Competent institutions certified to import and distribute veterinary drugs
- Improved customer satisfaction

2.5.4. Strengthen inspection & market surveillance of veterinary drugs

2.5.4.1. Rationale:

Sustainable compliance of the registered drugs and certifies institutions should also be ensured by continuous inspection and surveillance. This can be done through strong inspection of consignments at the ports of entry, planned routine and sudden inspections of import and wholesale premises, and collecting of suspected product samples from consignments, premises and lower market and testing their quality. The market should also be surveyed to assess the availability of illegally entered veterinary drugs to avoid the resulting harms and bad market competition. In 2022, 24.5% of the veterinary drug institutions were found non-compliant, eight products are blocked from entering the market through ports due to their quality defect, and 2.7% of the products collected from market were found substandard and recalled and disposed. Therefore, strong inspection is required to improve the compliance level of the institutions and all substandard and falsified products should not be allowed to enter or collected from the market and send back to their country of origin or safely disposed under the inspection of the authority.

2.5.4.2. Strategies

- Routine and sudden inspection of the veterinary drug institutions
- Strengthen the inspection of consignments at the ports of entry
- Post-marketing quality surveillance of veterinary drugs

2.5.4.3. Targets

- Improve the percentage of compliant veterinary drug institutions from 74.5% in 2022 to 95% by 2030.
- Decrease the import release permit application processing time to 6 hours by 2030.
- Improve the percentage of sampled consignments from 19.5% (2022) to 60% by 2030.
- Increase the number of samples collected and tested from the market from 247 in 2022 to 807 by 2030.
- Decrease the percentage of illegal veterinary drugs in the market from 15.1% in 2021 to 5% in 2030.

2.5.4.4. Key Performance Indicators

Outputs

a. Number of inspections conducted on veterinary drug institutions
b. Number institutions compliant to the standards
c. Number of regulatory measures taken
d. Number of import permit applications processed
e. Number physical inspections conducted on consignments
f. Quantity of noncompliant consignment blocked from entering to the country
g. Number of drugs collected from the market and tested (PMS)
h. Number of adverse event reports evaluated
i. Number and quantity of non-compliant products recalled from the market
j. Quantity of illegal veterinary drugs found from market surveillance
k. Quantity of returned and disposed unfit for use veterinary drugs
l. Number of good disposal certificates issued

Outcomes

a. Improved compliance level of veterinary drugs and veterinary drug institutions
b. Decreased number of illegal veterinary drugs in the market

2.5.5. Improve public awareness on the regulation and proper use of vet. drugs

2.5.5.1. Rationale:

Regulatory information is essential to inform stakeholders and the larger public on the regulatory services and measures. Frequently updated lists of registered drugs and certified manufacturers, importers and distributors, any withdrawn products from the market, illicit practices and canceled institutions should be disseminated through an easily accessible medium. Nowadays, improper use of antimicrobials is aggravating the development of antimicrobial resistance. Globally, antimicrobial resistance causes an estimated 700 000 deaths every year. Failing to tackle antimicrobial resistance could, by 2050, cause an estimated 10 million deaths a year and cost up to $100 trillion. The impact of AMR in developing countries like our country is very high. Minimizing the development of AMR is only possible through the prudent use of antimicrobials if all parties involved are well informed. Awareness campaigns on AMR therefore play an important role, and need to be regularly repeated and updated.

2.5.5.2. Strategies

a. Compilation and dissemination of regulatory information
b. Training of animal health professionals on prudent use of veterinary drugs
c. Community mobilization towards controlling illegal veterinary drugs

d. Development of regulatory legal tools and making them accessible

2.5.5.3. Targets

a. Increase accessibility of regulatory information to users to 50% by 2030.
b. Increase the percentage of trained animal health professionals and paraprofessionals on rational use of veterinary drugs to 85% by 2030.
c. Increase the percent of population informed about the veterinary drugs regulatory legislations, control of illegal trade and the proper use of drugs to 30% in 2022.

2.5.5.4. Key Performance Indicators

Outputs

a. Number of regulatory information compiled
b. Frequency of dissemination of the compiled information
c. Number of animal health professionals trained on rational use of veterinary drugs
d. Number of disseminated IEC/BCC materials on AMR
e. Number of surveys conducted on antimicrobials use and AMR
f. Number of community awareness and mobilization sessions conducted
g. Number of developed and revised regulatory legislations and manuals

Outcome

a. Transparent and participatory regulatory system
b. Improved prudent use of antimicrobials and decreasing AMR development

2.5.6. Essure quality and safety of feed and feed ingredients

2.5.6.1. Rationale

Feed suppliers have a key role in ensuring food safety. Safe feed is the basis of safe meat, safe milk and safe eggs, in short safe food of animal origin. Feed suppliers are aware that the safety of feed products both raw materials and finished products must be guaranteed. To ensure the food safety of feed, stakeholders work together in secure feed on proactive monitoring of feed products and services to be purchased.

As 'Todays Feed is Tomorrow's Food' feed regulatory stands for guaranteeing the food safety of animal feed. Ethiopian Agricultural Authority stands for the assurance of food safety of feed. Increasing the safety level within the feed sector can only be realized if all links in the chain make the necessary efforts. This also applies to the suppliers of feed to their participants. They have a key role in assuring food safety and are partly form the basis of safe food of animal origin. Every link in the chain must take measures to minimize risks in the process.

Key drivers for Feed Regulations could be; feed as basic Necessity, next to O_2 & H_2O, Feed as agricultural product vulnerable to spoilage, contaminations, feed as commercial & trade commodity and feed as public and environmental health scare. The two basic aspects that are regulated in the feed includes; Safety elements, which is the feed is free from Chemical, Biological and Physical hazard risks and Quality elements, which is the feed fulfilled the necessary nutrient requirements (Energy, Protein, Minerals and Vitamins) which are adequate for maintenance, production and reproduction.

In Africa, mycotoxin contamination of commodities and animal feeds poses significant risk to the health and productivity of livestock consuming affected feed. Additionally, it poses a risk to

humans that consume affected grain and animal source foods (i.e., meat, milk, and eggs) produced from animals fed mycotoxin-contaminated feed. In order to protect consumers against the harmful effects of aflatoxins, our country specified limit values. Feed exceeding these maximum permitted levels shall not be placed on the market. To ensure that the produced feed does not exceed this limit value, regular analyses are necessary.

In view of the above facts, Ethiopian agricultural Authority will streamline the regulation of agricultural products and inputs to safe guard the health of public and environment

2.5.6.2. Strategies

a. Certification of feed trade premises and Licensing of feed professionals working in feed trade premises.
b. Registration of feed trade premises and feed additives and premixes.
c. Inspection of feed additives & premixes manufacturing premises for GMP compliance.
d. Risk based assessment, laboratory test and regulation approach need to be implemented.
e. Strengthen inspection of consignments at the post entry and Post market surveillance of animal feed.
f. Develop and produce National Feed additives and premixes list for national import.
g. Develop and apply national Aflatoxin mitigation strategy.

2.5.6.3. Targets

a. Annual renewal of feed trade premises, feed professionals and issuance of replacement and name change.
b. Annually increased number of registered and certified feed trade premises.
c. Increased number of licensed feed professionals.
d. Increased number of compliant feed trade premises for quality and safety of feed.
e. Performing of consignment samples for laboratory test.
f. Feed samples are collected and tested from manufacturing and market for quality and safety compliance.
g. Registration of Feed against standards and feed additives and premixes;
h. Issuance of Pre-import and release permit through Electronics Single Window;

2.5.6.4. Key Performance Indicator

Output

a. Number of feed trade firms renewed
b. Number of feed professional’s renewed competency certificate.
c. Percentage of replacement of competency certificate of feed trade firms
d. Percentage of change of warehouse
e. Percentage of professional replacement
f. Number of registered and certified new feed trade premises
g. Number of feed professionals registered and certified annually
h. Number of feed samples collected from feed manufacturers for quality and safety test
i. Percentage of feed comply quality and safety test for feed registration
j. Number of registered feed additives and premixes.
k. Percentage of feed standards implemented by feed manufacturers.
l. Number of identified new feed standards for setting
m. Number of stake holders identified

n. Number of participants attends the workshop organized on aflatoxin
o. Number of feed additives & premixes identified and approved for national import (national list)
p. Number of dossiers evaluated for registration and market authorization of feed additives and premixes.
q. Number of samples of feed additives & premixes collected and send to laboratory
r. Number of feed trade premises inspected and percent of compliance
s. Number of registered feed additives & premixes.
t. Number of registration guideline prepared for registration of feed additives and premixes
u. Number of revised guidelines for registration and certification of feed trade premises
v. Number of regulation prepared for collecting service fee.
w. Number of pre-import permit approved
x. Number of release permit approved
y. Percent of advertisement permitted for feed& feed trade premises.
z. Number of inspections conducted on feed trade premises
aa. Number of feed samples collected and tested for quality and safety
bb. Percent of monthly developed information
cc. Number of inspected feed professionals working in feed trade premises
dd. Percentage of application of GMP, HACCP, GSP and GHP in feed manufacturers
ee. Number and quantity of consignments inspected
ff. Number of consignment sample collected for laboratory testing

Outcome KPI indicator

a. Annual renewal of feed trade premises, feed professionals and issuance of replacement and name change
b. Increased number of certified feed manufacturers, importers, whole sellers, and licensed feed professionals.
c. Increased number of compliant feed trade premises for quality and safety of feed
d. Develop and apply national Aflatoxin mitigation strategy document
e. Develop and produce National Feed additives and premixes list for registration
f. Issuance of Pre-import and release permit through Electronics Single Window
g. Strengthened feed and feed Trade premises inspection system

2.6. Regulate Agricultural Products & related objectives

2.6.1. Reduce entry, establishment & spread of regulated pests

2.6.1.1. Rationale:

Pests enter into new areas through different pathways; get established and spread within the country or within a specific place. In this connection it is crucial to design a mechanism that aids to minimize or reduce such scenario. However, not all pests are of the same concern to every country as pests may pose higher risk in some areas than in others and hence pests that are of phytosanitary concern are identified using pest risk analysis and are designated as regulated pests.

2.6.1.2. Strategies:

a. Undertaking pest risk analysis

b. Preparing lists of regulated pests and prohibited articles lists and setting conditions of entry
c. Issuing import permit and import authorization and non-compliance notification
d. Carrying out pest surveillance and coordinate surveillance programs performed by other institutions
e. Undertaking diagnosis and record new pest occurrence
f. Eradication of new pest establishment

2.6.1.3. Targets:

a. Pest risk analysis in 2030
b. New pest occurrence recorded in 2030
c. Non-compliance due to pest interception in 2030

2.6.1.4. Key Performance Indicators

Output

a. Number of PRA undertaken
b. One prepared document of regulated pest and other prohibited articles
c. One prepared document stating conditions of entry
d. Number of authorized importations
e. Number of non-compliance communicated
f. Number of new pests diagnosed and recorded
g. Number of planting materials ordered to pass through post entry quarantine
h. Number of planting materials declared freedom from pests and released
i. Number of regulated pests introduced and resulted in official control

Outcome

Protected plant resources from damages of regulated pests

2.6.2. Enhance phytosanitary export inspection and certification

2.6.2.1. Rationale:

Importing countries have established import requirements based on international standards or an equivalent of such standards of their own. The export standards for import inspection and certification are covered in the International Standards for Phytosanitary Measures (ISPM) 21 and 12 respectively. The NPPO inspects commodities destined for export and issues Phytosanitary certificates, however, is unable to fully apply the standards and consequently faces non-compliances in the export consignment. Therefore, the NPPO needs to enhance its Phytosanitary export inspection and certification.

2.6.2.2. Strategies:

a. Identification of the importing country's requirements
b. Carrying out export inspection and issuance of phytosanitary certificate
c. Managing non-compliance notification received
d. Establishing pest free area

2.6.2.3. Targets:

a. Phytosanitary inspection carried out and phytosanitary certificate issued in 2030

b. Non-compliance received and cases identified in 2030
c. Pest free area established in 2030

2.6.2.4. Key Performance Indicators

Output

a. Number of phytosanitary certificated issued that fulfill the requirements of importing country
b. Number of non-compliance received and notified
c. Number of additional markets accessed due to pest free area

Outcome

Reduced number of export commodity rejection and non-compliance notifications

2.6.3. Develop & establish mechanisms for emerging pests management

2.6.3.1. Rationale:

Pests emerge accidentally as new pests due to several reasons such as climate change, mutation and may become more devastating than are known to be or they may be introduced into a country as new pests. Contingency or emergency preparedness plan need to be prepared to manage the damage of the emerging pest. For an effective and rapid response establishment of technical working groups are critical. Moreover, a platform to coordinate the different teams and working groups drawn from the stakeholders participating in in the official control or eradication program is essential. The official control may also require the backing by legislative measures.

2.6.3.2. Strategies:

a. Establishing National Emergency Technical Working Group (NETWG)
b. Establishing Incident Operation Centre (IOC)
c. Establishing Rapid Response Teams (RRT)

2.6.3.3. Targets:

a. Technical Working group established in 2030
b. Incident Operation center established in 2030
c. Rapid Response team established in 2030

2.6.3.4. Key Performance Indicators

Output

Established National Emergency Response Management Committee (NERMC)

Outcome

Operationalized national emerging pest management platform

2.6.4. Enhance plant produces quality approval system

2.6.4.1. Rationale:

The EAA is mandated to ensure the quality of agricultural produces, where quality is expressed in terms of a given standard. The standards could be private or voluntary or are made mandatory by law. In any case in order to assure the quality of agricultural products primarily prioritization

of the crops is done and quality attributes identified. Actors in the value chain are certified for their competence based on approved criteria.

2.6.4.2. Strategies:

a. Preparing criteria for assurance of competence
b. Reviewing, evaluation and issuing COC
c. Identifying crops that require regulation and preparation of standards

2.6.4.3. Targets:

a. Competence criteria prepared by 2030
b. Quality standards prepared by 2030

2.6.4.4. Key Performance Indicators

Output

a. Issued Certificate of Competence
b. Type of crops identified.
c. Quality standards prepared.
d. endorsed standards

Outcome

Improved quality assurance system

2.6.5. Improve regulatory capacity to ensure access & benefit sharing from genetic resources

2.6.5.1. Rationale:

Ethiopia is signatory to “Convention on Biological Diversity” which aims at conserving, sustainably utilizing and accessing and benefit sharing of genetic resources. The regulatory part of this convention is transferred to the EAA. In this connection there is direct need to address the issues together with the relevant stakeholders and in collaboration with the Ethiopian Biodiversity Institute.

2.6.5.2. Strategies:

a. Identifying components of genetic resources requiring regulation.
b. Developing standard for genetic resource regulatory activities.
c. Implementing resource regulatory activities

2.6.5.3. Targets:

a. Identified genetic resources that need regulation by 2030
b. Resource regulatory standards prepared by 2030

2.6.5.4. Key Performance Indicators

Output

a. Types of genetic resource components identified and regulated
b. Types of resources regulated

Outcome

Enhanced benefit from genetic resources secured

2.6.6. Complete the required regulatory legal framework

2.6.6.1. Rationale:

Any regulatory body can best operate if its legal frameworks are comprehensively inclusive and clear to serve the purpose. Prior to the establishment of the EAA, there were two pieces of legislation and currently also are enforce. These are the Plant Protection Decree No. 56 of 1971 and the Plant Quarantine Regulation No.4 of 1992. These have become obsolete and could not sufficiently serve the purpose hence new proclamation and regulation have been drafted and are expected to be approved by the appropriate government bodies. On top of this a regulation to deal with the service fees, a directive on biological pesticide registration, and other two directives to implement the Plant quarantine proclamation need to be prepared and implemented.

2.6.6.2. Strategies:

a. Follow up of the endorsement of the drafted plant quarantine proclamation and regulation
b. Preparation of phytosanitary service fee determination regulation, follow-up of endorsement
c. Preparation of plant quarantine directives

2.6.6.3. Targets:

a. Prepared and endorsed plant quarantine legislations by 2030
b. Plant quarantine directives prepared by 2030

2.6.6.4. Key Performance Indicators

Output

a. One regulation developed
b. Three directives prepared and endorsed

Outcome

Enhanced phytosanitary services

2.6.7. Carry out phytosanitary capacity evaluation (PCE)

2.6.7.1. Rationale:

IPPC has prepared a tool to evaluate the performance of the phytosanitary services of the contracting parties. Ethiopia has not carried out its capabilities in terms of Phytosanitary control and is uncertain which parts of the convention are not implemented. This has long been a drawback to attract technical assistance from IPPC and other partners. By carrying out the PCE, it will clearly indicate the challenges in a prioritized manner and helps to strategize the solutions in a sustainable way.

2.6.7.2. Strategies:

a. Preparation of proposal to carry out PCE
b. Request IPPC to initiate the PCE process
c. Conduct the PCE

2.6.7.3. Targets:

Conducted PCE by 2030

2.6.7.4. Key Performance Indicators

Output

a. One proposal document prepared
b. One PCE finding document prepared

Outcome

Capability of the Plant regulatory services identified

2.6.8. Deliver regulatory performance training

2.6.8.1. Rationale:

One of the components of capacity development is human resource development through trainings. The regulatory system requires specialized training and skill which in most cases is not acquired through regular trainings. Therefore customized on the job training in specialized training institutions in the areas of Pest Risk Analysis, Pest Diagnostics, Surveillance etc…are important intervention areas in improving the performance of phytosanitary system.

2.6.8.2. Strategies:

a. Conducting training need assessment
b. Undertaking on the job training in specific area of service
c. Evaluating and record performance of the trained personnel

2.6.8.3. Targets:

Trained personnel by 2030

2.6.8.4. Key Performance Indicators

Output

a. One training need assessment document developed
b. Number of trained and evaluated staff

Outcome

Improved effectiveness and efficiency of phytosanitary service providers

2.6.9. Establish & strengthen stations & post entry plant quarantine & facility

2.6.9.1. Rationale:

Ethiopia has a long land bordering the Sudan, South Sudan, Eritrea, Djibouti, Somalia and Kenya which are largely porous to the movement of plants, plant products, and other articles without sufficient border controls. Currently about 21 stations and inland posts are poorly operational. Planting materials including seeds, seedlings and tissue cultures may require PEQ but could not be implemented due to the absence of PEQ facilities. This is the rational for the intervention in this area.

2.6.9.2. Strategies:

a. Conduct study to identify required place for PEQ and plant quarantine stations establishment
b. Strengthen and establish plant quarantine station

c. Establish the PEQ

2.6.9.3. Targets:

a. Established Plant quarantine station by 2030
b. Established PEQ by 2030

2.6.9.4. Key Performance Indicators

Output

a. Number of established and strengthened plant quarantine stations
b. Number of established PEQ

Outcome

Enhanced Import authorization export certification.

2.6.10. Improve animal product safety, quality, & approval system

2.6.10.1. Rationale

Food quality and safety system is essential to protect public health, satisfy consumer expectations &confidence, provide a sound regulatory foundation for domestic and international trade in food. However, food hazards and quality loss may occur at a variety of points across the food value chain from production to consumption. For instance, the overall prevalence of Salmonella (irrespective of serotypes) in samples of raw meat of any kind) that are collected from most of municipal abattoirs and markets was 5.6% and 11.7% respectively. Brucellosis sero-prevalence in Ethiopia ranges from 1.5% to 22.6% in livestock. A similar retrospective data analysis showed 35.2% of cattle, 11.8% of sheep, 4.9% of goats, and 16.8% of camels slaughtered in 21 different abattoirs (export and municipal) were observed to harbour hydrated cysts. The pooled prevalence of bovine cysticercoids (C. bovis) in Ethiopia is 7% (0-20%). Although anthrax is endemic in most species of domestic animals and also cases have been commonly reported in humans in Ethiopia, very few studies are officially confirmed.

An efficient meat quality and safety control mechanism along all stages of food chain from production to consumption is possible through the application of good practices such as Good Hygienic Practices (GHP) and Good Manufacturing Practices (GMP) which are pre-requisites for the implementation of HACCP system. Though we have 11 functional export abattoirs, which are certified for HACCP are internationally accredited to implement GMPs and GHPs, we need to work more to improve quality& safety of animal products & by-products to maximize export potentials more than what is stated under the performance section of this strategy. In addition, regulatory attention also is required to improve quality & safety of animal products & by-products supplied to local consumption to ensure consumers health.

2.6.10.2. Strategies

a. Protect public from hazard by following GLP, GHP and GMP
b. Identify the importing country's requirements and Issue sanitary certificate
c. Notify the exporter if notification received and No. of noncompliance reviewed, and reason identified.

2.6.10.3. Targets

a. Increase the amount of meat and by meat exported in to 70,000 tones

b. Increase the number of animal product producer and processor companies
c. Improve safety and quality of animal product in both export and domestic consumption.

2.6.10.4. Key Performance Indicators

Output

a. No. of non-compliance communicated
b. No. of sanitary certificated issued that fulfill the requirements of importing country
c. No. of non-compliance received and notified

Outcome

a. Reduced number of export commodity rejection and non-compliance notifications
b. Protected human and animal from hazard
c. Enhanced sanitary service

2.6.11. Develop/update animal product quality and safety laws

2.6.11.1. Rationale

Full implementation of federal laws and regulations governing the livestock and meat value chain at local levels is a pre-requisite to ensuring sustainable supply of quality and safe products to national and international markets. Technical issues such as livestock disease prevention and control, formalization of markets, implementation of disease outbreak reporting and the LITS and standardization of veterinary diagnostic laboratories need to be harmonized between federal and regional entities if the WOAH and SPS recommendations and importing country's requirements are to be met. Hence, policies and laws should allow uniform implementation of such positive technical interventions irrespective of regional boundaries. Legislative frameworks and formal binding agreements should govern effective coordination between regional and federal bodies.

As stated on situation analysis of this strategy, Ethiopia has ratified and implemented many laws and regulations that are guiding and regulating the livestock value chain. There are also other laws that protect the health and wellbeing of the general public. As livestock and livestock products are among the major export commodities, existing laws also intend to ensure export of safe and wholesome livestock products. However, the quality and safety requirements of the international market is dynamic, getting more and more stringent as a result of new emerging diseases and intense competition from other exporting countries. Therefore, there is an urgent need to amend some of the existing laws or ratify those already on the table to best address the changing global requirements regarding food safety, livestock traceability and welfare.

2.6.11.2. Strategies

a. Prepare new and update the existing one proclamation and regulation for animal product and by product safety and quality,
b. -prepare Directives on animal product and by product safety and quality
c. -Prepare Guideline for milk, honey, fish, poultry and pork meat and egg quality and safety

2.6.11.3. Target

a. Increase the number of functional export abattoirs in to 20 by 2030
b. Increase the number of animal product producer and processor Company

2.6.11.4. Key Performance Indicators

Output

a. Number of proclamations prepare
b. Number Regulation prepared
c. Number of directives prepared
d. Number guidelines prepared

Outcome

a. Preparing new and update existing one proclamation, Regulation, directives and guidelines
b. Enhanced sanitary services

2.6.12. Improve animal products quality & safety testing infrastructure & facilities

2.6.12.1. Rationale

Where the right infrastructure is available, markets impart confidence in sellers and buyers as transactions can take place in a much more orderly manner. In this regard, gaps in market infrastructure, live animal transport, feedlot expansion (cattle, sheep, goat), quarantine facilities, abattoir facilities (laboratories, cold chain transport etc), regional animal disease diagnostic and residue testing laboratories, meat and meat by product processing and waste treatment capacity need to be improved to go in conformity with the desired standards. The launching of LITS in livestock sector is a fundamental step in the improvement of the livestock identification and traceability of meat and meat by product along the meat supply value chain of Ethiopia. However, identification and traceability require infrastructural capacity building at all check points and need to be supported by information technology system. As implementation of animal identification and traceability require additional cost, such system is preferred to be implemented along selected livestock market corridors and depending on the choice of DFZ options. Harmonization and effective implementation of livestock disease surveillance and reporting systems at all levels is a crucial step towards prevention and control of diseases of economic and public health importance. In this context, the following table outlines major intervention areas and action plan.

Biosecurity is a strategic and integrated approach to analysing and managing relevant risks to human, animal and plant life and health and associated risks for the environment. It is based on recognition of the critical linkages between sectors and the potential for hazards to move within and between sectors, with system-wide consequences. The goal of biosecurity is to prevent, control and/or manage risks . In this regard, most of the laws and regulations already ratified have many provisions that enable the country to reasonably ensure biosecurity in meat production from farm to fork.

Improving the standards of biosecurity in all livestock production systems including feedlots is necessary to increase competitiveness of live animals and meat export to international markets.

2.6.12.2. Strategies

a. Establish meat by-product processing plants for export and domestic purposes
b. Conduct study to identify strategic areas for registration of animal product, producer and processor stations.
c. Revise the existing standard for establishment of the new premise

2.6.12.3. Target

a. Increase the number of functional export abattoirs to 20 by 2030
b. Increase the number of animal product producer and Processor Company

2.6.12.4. Key Performance Indicators

Output

a. Number of export abattoir and domestic animal product producer and processor registered
b. Number of manufacturing facilities for Export and
c. Number of registered and COC given animal product producer and processor stations.
d. Number of strengthened animal product producer and processor stations.

Outcome

Enhanced authorization export and domestic certification

2.6.13. Strengthen regulatory in import &export of livestock, livestock product& by-products

2.6.13.1. Rationale

The livestock product & bi product import and export certification system is targeted to solve concerns of global trade issues by minimizing the risk of the live livestock, livestock products and by-product export. International trade in livestock, livestock products and by-products continues to be seriously hindered by presence of trans-boundary animal diseases as these diseases are transmitted rapidly and have substantial socioeconomic impacts and human health implications in recipient countries. To ensure safe livestock and livestock products trade and meet international standards, animal health regulatory measures must be applied along the different stages of the feedlot and quarantine operations. Hence, importers and exporters should understand and be committed to comply with the regulatory requirements set for the purpose of minimizing hazards and promoting the livestock export trade. Feedlot or quarantine, appropriate animal health measures including vaccination, testing, treatment and transporting to the port of exit by dedicated transport trucks are key issue to safeguard the quality and safety and public health of importing countries. As a result, international sanitary and phytosanitary standards have been set to minimize disease transmission risks while facilitating livestock and livestock products trade. International livestock trade is therefore based on bilateral, trilateral and unilateral agreements reached between importing and exporting countries by emphasizing on the principles of international animal health standards and guidelines.

2.6.13.2. Strategies:

a. Registration of livestock and livestock product
b. Inspection of quarantine services

2.6.13.3. Targets:

a. Increased import export of livestock and livestock products by three-fold in 2030
b. Increase export of quality and safe product by 2030

2.6.13.4. Key Performance Indicators

Output

a. number of registered applications
b. number of approved applications

c. No. of sanitary certificate issued that fulfil the requirements of importing country
d. Number of trainings conducted
e. number of advocacies conducted
f. National committee established

Outcome

a. Enhanced quality and safe livestock and livestock products authorized to export and import
b. Reduced number of export commodity rejection and non-compliance notifications

2.6.14. Strengthen quarantine stations and check post facilities

2.6.14.1. Rationale

As part of the national measures taken to meet livestock, livestock products and by-products trade requirements; the Ethiopian government has established five quarantine stations namely, Mille, Jigjiga, Metema, Humera and Almehal. The Mille quarantine station has got recognition from Gulf countries who are importing live animals from Ethiopia. Its strategic location made it suitable for accommodating livestock destined for both live animal export and those for export abattoirs. It has 87 pens; 11 being for small ruminants and 76 for larger stock, including 44 for cattle and 30 for camels. The EAA reported that the Mille station is recently transferred to a private entrepreneur. This is expected to greatly improve the quality and efficiency of the quarantine service. Currently, the Mille quarantine station is supported by the National Animal Health Diagnosis and Investigation Center for all laboratory services as part of its Certification process. While the Metema (in North Gondar) and Humora (in West Tigray) are made functional. The Jiggiga quarantine center is on the way to be transferred to a private entrepreneur. At National level check post namely, Bole, togo wuchale, Moyale, Galafi, lefeysa and Aysa Dewole, were operating to control illegal movement of animals and animal products. While this is commendable with respect to ensuring the safety and welfare of exported livestock and livestock products, the quarantine practices on imported animals need serious attention. As country, there is no post-entry facility for animals imported in to Ethiopia. To facilitate the live animals export, the Ethiopian government has implemented an export quarantine and certification system, where by various animal health measures are exercised to exclude diseased animals against entering in to live animals export trade chain.

2.6.14.2. Strategies:

a. Certification of quarantine and check posts

2.6.14.3. Targets:

a. Increased the number of quarantine and check post by 2030
b. Increased number competent professional competency by 2030
c. Increased number of live animal export by 2030

2.6.14.4. Key Performance Indicators

Output

a. No. of established animal quarantine stations
b. No. of strengthened animal quarantine stations
c. No of experts gained technical training and awareness creation

Outcome

a. Improved import and export authorization
b. Improved implementation of animal regulatory system

2.6.15. Strengthen livestock identification and traceability system

2.6.15.1. Rationale

Livestock Identification and Traceability System (LITS) is pilot program which is directly applied to export of live animal by addressing necessary requirements. Traceability is the base for food safety, quality, and epidemiological surveillance for animal diseases. For this reason, there is a growing demand for identification of livestock and their products from the point of origin to the point of consumption. It is also a key tool for animal disease mitigation and control through effective and frequent animal health surveillance so as to enhance international livestock and livestock products trade. Since the Ethiopia Livestock Identification and Traceability Systems (ETLITS) has been initiated to be piloted on the selected production systems (crop-livestock and pastoralist) of the country, specifically Borena areas of Oromia region. It has been supported by different development partners; mostly European HEARD project and livestock and fishery resource sector (LFSDP).

To successfully contain or respond to an outbreak of an infectious animal disease, a system for identifying and tracking animals is one of the prerequisites. LITS requires basic components such as premise identification or registration and tracking system along the value chain. It is only when these components are all put together that a LITS becomes functional and reliable. The LITS intervention introduced at least three nodes in the risk pathway, namely, pre-market, post market and holding ground inspections which is supposed to increase the number of check points and improve inspection standards to prevent the trans boundary and zoonotic diseases. Regional offices lack capacity to implement and administer the system suggesting that massive capacity building efforts should be made in selected corridors. According to the Directorate for LITS and animal welfare, animals get ear tags only at feedlots although they were supposed to be tagged at marketplaces at the time of purchasing. This helps to trace back animals to their markets of origin (primary or secondary, feedlot and quarantine)..

2.6.15.2. Strategies

Improve and strengthen the Established livestock Traceability and identification system

2.6.15.3. Targets:

a. Increased export of livestock three-fold in 2030
b. Increase a number ear tag application by fold in 2030
c. Increase the number traceable product by fold. 2030

2.6.15.4. Key performance indicator

Output

a. Number of live animals exported
b. Number of ear tag for identification
c. Number traceable product exported

Outcome

Improve traceability animal and animal products exports.

2.7. Improve agricultural regulatory provision service centres & Objectives

2.7.1. To register fertilizer & pesticides & control quality

2.7.1.1. Rationale:

Pesticide and fertilizers use definitely helps to improve crop productivity and quality if the right type is used at the right time with the correct dose. Thus The EAA is mandated to regulate the quality, safety and efficacy of pesticides and fertilizers according to regulation 509/2022. To control qualities of pesticides and fertilizers laboratory tests plays a great role in addressing whether pesticides and fertilizers fits pre-set standards. To check physico-chemical properties of pesticides at pre-registration and post-registration stages laboratory plays irreplaceable role.

2.7.1.2. Strategies:

a. Analysis of pre and post registration pesticide samples
b. Analysis of pre and post registration fertilizer samples

2.7.1.3. Targets:

a. Analysis of pesticides samples by 2030
b. Analysis of pesticides samples by 2030

2.7.1.4. Key Performance Indicators

Output

a. Number of testing methods validated
b. Number of SOP prepared
c. Number of Pesticides and Fertilizers pre-registration and post market sample received
d. Proportion of Pesticides and fertilizers Samples at check post received and analysed

Outcomes

Ensured quality pesticides and fertilizers in the Market

2.7.2. Ensuring quality of plant unprocessed or semi-processed outputs

2.7.2.1. Rationale:

According to pesticides registration and control proclamation number 674/2010 Similar to pesticides quality testing for pesticides residue analysis is among the responsibility of EAA. Residues of pesticides may contaminate all the environmental compartments including soil, air and surface or ground water and plant products. Thus analysis should have to be performed by setting MRL (Maximum residue limit) to keep the societies form adverse effect of pesticide from contamination of pesticides residues. Additionally the plant products must be analysed for pesticides residues depending on the pre-set MRL values of the exporting countries.

2.7.2.2. Strategies

a. Analysis of pesticides residues for unprocessed and semi-processed plant products
b. By setting maximum residue limits for each pesticides and plant products

2.7.2.3. Target

a. Plant products analysed for pesticides residues by 2030
b. Plant products analysed for mycotoxins residues by 2030

2.7.2.4. Key performance indicators

Output

a. Number of testing methods validated for pesticides residues
b. Proportion of Unprocessed and semi processed plant products received and analysed

Outcomes

Carried out laboratory testing to ensure safety standards for plant products meet for Importing countries requirements and domestic uses.

2.7.3. Improve laboratory services

2.7.3.1. Rationale

Seed testing laboratory was established under national seed agency in 1993. The Laboratory is mandated to ensure the quality of seed by testing with different parameters. Annually 250 - 300 imported seed samples that represent 20,060 quintal mainly vegetable seeds and from regional laboratories up to 90 to 100 duplicate samples sent and tested. Even though the laboratory seems functional there are gaps which directly influence the results. Lack of skilled man power and facilities are the critical problems. The Ethiopian Agricultural Authority expected to build standard laboratory and equip with infrastructures. To satisfy its customers through increasing the quality and timely deliver services the EAA should recruit well trained human power in each discipline in the way international accreditation can also be mate.

On the other hand, all locally produced seeds are tested in the regional laboratories. There are 20 laboratories at national level, 1 at federal and 19 at regions. This demands to go to more than 200 seed multiplication woredas that cover an area ranging from 62 to 76 thousand ha and estimated seed production of 1.6 to 1.9 million q, to ensure that seed is produced according to prescribed standards. Oromia, SNNPR and Tigray conduct investment activities to upgrade their labs and equip them. In Amhara, there were partial investments at laboratory level. However, other regions like Sidama, Benshangul gumuz, Gambela and South West regions are at infant stage in seed lab activities. All existing and emerging regions require additional investments in laboratory, office and testing stations. This is due to additional new lab demand, expansion that aroused following seed supply demands, sub-standard labs, modernizing testing facilities, introducing additional testing protocols like seed health test and accreditation of regional seed labs to align with international standards.

2.7.3.2. Strategies

a. Employ competent and skilled laboratory staff
b. Fulfil facilities
c. Include and conduct important seed quality testing parameter

2.7.3.3. Targets

Ensure quality of seed by conduct important internationally accepted seed quality testing parameter in 2030.

2.7.3.4. Key performance Indicator

Output Indicators

a. No. of Imported seed samples tested
b. No. of Duplicate seed samples tested
c. No. of new testing methods included in seed quality testing parameters
d. No. of laboratory technicians trained

e. No. of experts participated on experience sharing and training abroad

Outcome Indicators

a. Conducted laboratory tests at prescribed standards
b. Trained experts

2.7.4. Improve plant Inputs & produces quality testing infrastructure & facility

2.7.4.1. Rationale

Availability of infrastructure, working facilities and systems are important pillars for effective and efficient implementation of regulatory services. Furthermore, EAA has to put in place more strategies to engage in seed export and generate foreign currency. This calls for enhanced capacity building of the seed testing laboratories by increasing number of human resources, laboratory equipment, extending and upgrading infrastructures and services. Additionally, the pesticide registration process in Ethiopia is not supported by the independent laboratory test (experimental details) because EAA has no facilities to determine and control pesticide quality. Most importantly, the primary challenge for the implementation of laboratory is lack of adequate resources both in terms of funds, motivated and well-trained human resources as well as a lack of well-equipped laboratory for pesticide quality analysis. By same reason, testing product samples for chemical residues & toxicity levels is not possible. This has been leading to narrow market destination of the country that once were export market outlets. This is because product qualities are not assured and pesticides with similar active ingredients may vary in efficacy and toxicity owing to differences in the inert ingredients used. Similar to pesticides quality testing there is no active, resourceful and available laboratory for pesticides and mycotoxins residue analysis.

Absences of laboratories under EAA will lead to low quality pesticides distribution that will negatively affect the environment, human & animal health & safety due to pesticides residues in food and pesticides on top of affecting export markets. Hence, EAA must give due attention to re-initiate agro-chemical quality testing before using them in the production system. Moreover, EAA should have targets to ensure well equipped and operationalized seed quality testing system to standardize regional labs and breakthrough global seed market.

2.7.4.2. Strategies

a. Provide quality and competent service
b. Designing laboratory infrastructures
c. Building laboratory rooms
d. Furnishing equipping laboratories
e. Fulfilling laboratory logistics

2.7.4.3. Targets

a. Ensure accreditation and ISTA membership by 2030
b. Laboratory rooms built by 2023-26
c. Furnished and equipped laboratories by 2023/2026

2.7.4.4. Key performance indicators

Output

a. Constructed & Operationalized standard National seed Laboratory.
b. Constructed new regionals seed labs
c. Seed laboratories expansion within the exiting seed labs.

d. Percentage of fulfilled laboratory equipment
e. Percentage of progress for accreditation and membership
f. completion of Laboratory designed and built
g. Proportion of laboratory Logistics and facilities fulfilled
h. Number of capacitated Professionals
i. Proportion Empowered laboratory centres

Outcome indicators

a. Newly built plant produces & seed labs operationalized & started testing
b. Well-equipped exiting plant laboratories.
c. Internationally (ISTA, IPPO…) & nationally accredited plant quality testing laboratories

2.7.5. Improve Livestock Products & Inputs Laboratory Infrastructures

2.7.5.1. Rationale

Veterinary pharmaceutical supply chains are vulnerable to the introduction and spread of substandard and falsified medicines and medical products. Effective laboratory testing facility is the cornerstone of assuring the efficacy, quality, and safety of veterinary medicines on the market. Laboratory animal-based tests are needed to ensure the animal vaccine is consistently safe, pure, potent that leads to determine effective vaccine protection levels. Besides, a challenge test demands target animal species for live and inactivated veterinary vaccines safety testing. Therefore, proper laboratory animal management facility establishment are essential to monitor the quality of vaccine testing regulatory programs as well.

Presence of national and regional residue testing laboratory ensures that the quality of livestock products meets both domestic and international market access and safety standards. The main functions of veterinary drug and pesticide residue testing laboratory is to ensure that the maximum residue limit (MRLs) on or in livestock products do not exceed amounts that are deemed harmful to the consumers. Besides, determining the chemical identity of the residue can help to identify methods for preventing their formation, eliminating the contamination, and preventing recurrence. Suitable laboratory waste accumulation and disposal facilities are needed to minimize the impact posed by chemical, biological, physical and combination of all hazardous laboratory wastes. Improper waste disposal from laboratories can harm the laboratory itself, the environment, and the health of the public.

Temperature-sensitive products rely on cold chain management for product efficacy, product safety and adherence to relevant regulatory requirements. Products requiring cold chain solutions include pharmaceuticals, vaccines, biologics, laboratory samples, diagnostic materials, chemicals and food items. Any disruption or failure of sensitive laboratory materials cold chain management practice during storage and process may result in product spoilage and financial losses. Establishment of proper laboratory chemical storage facility and maintaining temperature sensitive laboratory supplies and testing samples in appropriate cold chain rooms and environment is a critical success factors for quality control regulatory laboratories.

Dedicated laboratory equipment maintenance and calibration workshops, separate rooms where parts and tools are kept are prerequisite criteria for quality assurance system. Periodical calibration of equipment is critical to ensure accuracy of measurements and testing. Likewise, the repair and maintenance of laboratory equipment are an integral part of quality assurance in

the testing laboratories. Well calibrated and maintained laboratory equipment ensures that data is consistent and reliable, which in turn impacts the productivity and integrity of the work produced.

Currently, numbers and types of agricultural products and inputs quality control laboratory infrastructures and facilities are very scanty and therefore establishment of standard laboratory infrastructures, auxiliary facilities and furnishing them with adequate working materials to improve the regulatory functions of EAA is indispensable.

2.7.5.2. Strategies

a. Upgrade existing livestock products and inputs testing laboratory facilities
b. Establish new livestock products and input testing laboratories
c. Establish new livestock products and inputs testing laboratory auxiliary facilities
d. Establish laboratory data management center
e. Furnish livestock products and inputs testing laboratories with adequate materials
f. Employ experienced and skilled workforce for laboratory infrastructures

2.7.5.3. Targets

a. Advancement percentage completion level of old laboratory facility by 2030;
b. Number of testing laboratories established by 2030;
c. Number of testing laboratory auxiliary facilities established by 2030; and
d. Number of testing laboratories/facilities furnished with adequate materials by 2030;
e. Number of data management center established by 2030; and
f. Number of employed experienced and skilled laboratory personnel by 2030.

2.7.5.4. Key Performance Indicators (KPI)

Outcome:

a. Improved old testing laboratory facilities.
b. Standard testing laboratory new infrastructures in place.
c. Testing laboratory new auxiliary facilities in place.
d. Laboratory data management center in place
e. Well-equipped functional laboratory infrastructures/facilities placement.

Output:

a. Construction level of laboratory infrastructures
b. Construction level of laboratory chemical storage cold chain facility
c. Construction level of medical device testing facility
d. Construction level of laboratory equipment maintenance and calibration facility
e. Construction level of laboratory animals' houses/facility
f. Construction level of laboratory waste disposal facility
g. Construction level of data management center
h. Percentage of computerized networking services
i. Number of project proposals developed
j. Percentage of financial resources collected
k. Implementation level of the procurement plan
l. Percentage of laboratory supplies purchased

m. Percentage of required logistics fulfilled
n. Number of workforce hired/recruited
o. Percentage of planned activities accomplished
p. Number of inaugurated projects and starts rendering services

2.7.6. Improve Laboratory Service Delivery Capacity

2.7.6.1. Rationales

Livestock Products and Inputs Quality Assessment Center (LPI-QAC) is a science based legal entity of Ethiopian Agriculture Authority (EAA). It is mandated among other functions to perform analysis of all veterinary medicinal products (VMPs), animal vaccines and medical devices, commercial animal feed and feed supplements in order to facilitate efficient regulatory functions and decisions. The LPI-QAC also responsible to accomplish chemical residues and biological contaminants surveillance and monitoring activities on primary livestock products (meat, milk and honey) destined for domestic and international markets. Its objective is to ensure conformity of the regulated products through laboratory analytical work that maximizes livestock and public health protections.

Despite LPI-QAC's recent year establishment (2014), numerous laboratory testing activities had been conducted to guarantee the quality and safety of the regulated products. Previous year's (2016/2017-2021) performance report shows promising laboratory work achievements and regulatory functions. Laboratory verified quality defective and unsafe veterinary medicinal products, commercial animal feed and primary animal products were prohibited from getting access to market to safeguard the health of livestock and consumers. Similarly, important AMR surveillance data were also gathered and disseminated to support the ongoing one health approach national AMR prevention and containment strategy.

However, laboratory (LPI-QAC) performance did not meet the regulatory and customer expectations. Situational analysis indicates that the testing capacity of the laboratory varies from year to year and from product to products due to the existence of challenges. Technical personnel skill gaps and scarce supply of laboratory materials were the most encountered bottlenecks. As the result, ranges and scopes of laboratory testing capacity of all the regulated products were limited and laboratory capability of releasing results for tested samples within turnaround time did not met. This implies the need for continuous improvement and capacity development of all testing laboratories.

2.7.6.2. Strategies

a. Upgrade and expand laboratory service coverage to regional states.
b. Ensure adequate laboratory supplies;
c. Deploy competent and skilled laboratory personnel
d. Expand the scope of laboratory testing capabilities

2.7.6.3. Targets:

a. Samples of veterinary drugs tested by 2030;
b. Samples of animal vaccines tested by 2030;
c. Samples of commercial animal feeds tested by 2030;
d. Samples of raw meat samples tested by 2030;
e. Samples of honey samples tested by 2030;
f. Samples of milk samples tested by 2030;
g. Number of survey and monitoring tasks conducted by 2030; and

h. Number of competent laboratory personnel deployed by 2030

2.7.6.4. Key Performance Indicators (KPI)

Outcome:

a. Number of regulated product samples tested
b. Number of test certificates issued
c. Percentage of laboratory results released within the turnaround time as per laboratory citizen charter
d. Level of customers satisfaction achieved in relation to laboratory services
e. Increased number of new scopes of testing capabilities
f. Number of planned monitoring activities conducted, and results disseminated
g. Number of planned survey or research conducted, and results disseminated

Output:

a. Number of received and tested veterinary drug samples for registration
b. Number of received and tested veterinary drug samples for consignment release
c. Number of received and tested post markets surveillance veterinary drug samples
d. Number of received and tested samples of animal vaccines for registration
e. Number of received and tested samples of medical devices for suitability checks
f. Number of received and tested commercial animal feedstuffs samples
g. Number of received and tested animal feed supplements/additives samples
h. Number of received and tested feed raw materials samples
i. Number of raw milk samples collected and tested
j. Number of raw meat samples collected and tested
k. Number of honey samples collected and tested
l. Number of pathogen microorganisms identified and tested for AMR
m. Number of tested non-regulatory samples obtained from external customers
n. Number of planned problem-solving monitoring conducted
o. Number of planned problem-solving surveys conducted
p. Number of laboratories performing screening schemes
q. Number of drug samples screened for quality testing
r. Number of honey samples screened for pesticide residue
s. Number of raw meat samples screened for drug residue testing
t. Number of raw milk samples screened for aflatoxins (AFM1) testing
u. Number of raw milk samples screened for drug residue testing
v. Number of feed samples screened for aflatoxins testing
w. Number of expanded/added new test parameters for regulated products
x. Percentage of improved supply of laboratory materials and screening kits

2.7.7. Strengthening Laboratory Quality Management System

2.7.7.1. Rationale

A quality management system (QMS) in a testing laboratory is a way of showing that the quality of the final test results can be relied upon. The presence of quality assurance, through the use of appropriate procedures and management methods, guarantees clients and consumers that

errors in test results are minimized. The QMS provides the laboratory with measurement traceability, the opportunity of error prevention by the use of preventive actions and the possibility of initiating corrective action when errors are detected.

Laboratory accreditation, achieved through the implementation of the ISO/IEC 17025 standard is the process which determines the competence of laboratories in delivering accurate results. Using accurate and reliable data emanating from internationally recognized accredited laboratories eliminates the need for retesting, thus, reducing costs and minimising technical barriers to international trade. It also facilitates cooperation between laboratories and other regulatory bodies by generating wider acceptance of results between countries. Test reports and certificates can be accepted from one country to another without the need for further testing, which in turn improves also national, regional and global products and service transaction at large.

At present, laboratory QMS establishment and implementation is an ongoing process at livestock products and inputs testing laboratory of EAA. Nevertheless, all laboratories are not accredited to ISO/IEC 17025 yet. Lack of standardized test procedures, difficulty to obtain or get access to the latest versions of internationally acceptable standard manuals and guidelines (pharmacopeias, CAC, AOAC and ISO), certified reference materials (CRMs), Proficiency Testing samples, advanced analytical equipment spare parts, maintenance and calibration services, pure culture microorganisms, laboratory QMS standard operating procedures (SOPs), inability to ensure measurement traceability and determination of measurement uncertainty, laboratory workforce skill and knowledge limitations on how to operate and use a wide ranges of the state of art analytical equipment are some major problems the laboratory facing.

Therefore, strengthening of laboratory QMS implementation is very essential to ensure ISO/IEC 17025 requirements compliance and hence meet accreditation attainment objectives.

2.7.7.2. Strategies

a. Implement ISO/IEC 17025 laboratory quality management system
b. Ensure adequate standard operating produces, manuals and guidelines
c. Validate and verify analytical laboratory test procedures
d. Ensure calibration and maintenance of advanced laboratory equipment
e. Continuous staff capacity development on laboratory QMS

2.7.7.3. Targets

a. Number of test methods accredited by 2030.
b. Number of procedures and guidelines developed by 2030.
c. Number of test method validated and verified by 2030.
d. Number of advanced lab equipment calibrated/maintained by 2030; and
e. Percentage of staff trained on QMS by 2030.

2.7.7.4. Key Performance Indicators (KPI)

Output:

a. Established quality management system
b. Established laboratory information management system
c. Number of customer request reviewed
d. Number of test methods accredited

e. Number of approved general standard operating procedures (SOPs)
f. Number of approved test procedures
g. Number of approved guidelines and manuals
h. Number of approved record management formats
i. Number of approved data management electronic worksheets
j. Number of planned test procedures reviewed
k. Number of planned general SOPs reviewed
l. Number of guidelines and manuals reviewed
m. Number of test methods validated/verified
n. Number of laboratory equipment calibrated
o. Number of laboratory equipment maintained
p. Number of Proficiency Testing (PT) samples provider communicated
q. Number of successful Proficiency Testing (PT) schemes outcomes
r. Number of planned internal audits conducted
s. Number of planned laboratories QMS external audits conducted accreditation bodies
t. Number of planned quality management system review meetings conducted
u. Percentage of lab QMS non con conformance identified and root cause analysis conducted
v. Number of planned corrective and preventive (CAPA) plans formulated, and problems fixed
w. Number of received customer complaints investigated and feedback communicated
x. Percentage of risk identified as very high, very high, medium and low
y. Percentage of staff sensitized on risk management
z. Number of planned training program instituted
aa. Number of competent and skilled laboratory personnel deployed

Outcome:

a. Demonstrated laboratories competency
b. Number of ISO/IEC 17025 accreditations obtained
c. Increased customer and public trust/faith
d. Decreased customer complaints and dissatisfactions
e. Ensured laboratory information management system

2.8. Strategic plan on Cross cutting issues and Objectives

2.8.1. Establish and enhance Good Governance practices.

2.8.1.1. Rationale

One of the crucial elements to achieving the overall objectives in regulatory is establishing good governance frameworks. Decisions made in good governance are free from corruption. They reflect the characteristics of good governance: accountability, responsiveness, effectiveness, and efficiency, participatory, equitable and inclusive, and following the rule of law. This assures that the views of minorities are considered, and corruption is minimized. EAA performs its mandate and responsibilities by aligning with accountability since accountability is an important instrument of Good Governance together with transparency and the rule of law. It also serves as a tool to excel citizen confidence and community engagement to avoid unforeseen and systematic corruption.

Accountability enables the state of clear direction through responsiveness and enforcement as well as acting openly, with citizens' knowledge of the decisions making, availability of information on government policies and actions. By applying all sound governance principles, the best way is to apply the rule of law, consistently and reasonably. This results in competent staff that can

provide an appeal, and the Possibility to develop corruption-hating staff. EAA follows all principles and tools of good governance.

2.8.1.2. Strategies:

a. Good governance plan
b. Citizen charter development
c. Awareness creation
d. Engagement with customers
e. Routine follow up and evaluation

2.8.1.3. Targets:

a. Customer satisfaction will increase by 90 % by 2030
b. Employee satisfaction level will increase to 90% by 2030

2.8.1.4. Key performance indicators

Output

a. Increase customers satisfaction yearly by 10 %
b. Reduce percentage of service delivery complaints yearly by 5%
c. Increase Percentage of regulatory services provided as per the citizen charter yearly by 5%
d. No records of corruption.

Outcomes:

a. Increase regulatory Effectiveness
b. Full implementation of Rule of Law.

2.8.2. Improved human resource development and management

2.8.2.1. Rationale

Human Resources Management plays an important strategic role in shaping organizational culture and core values in accordance with organizational goals. This objective focuses to improve EAA's individual, team, and organizational performance, and achieve the overall objectives of the regulatory strategy through managing and developing a competent, high-performing regulatory workforce and building an acceptable and high level of professionalism in Regulatory. Currently, EAA has 645 employees. Before the reform that took place in the Federal civil service institutions (proclamation 1263/2021), the workforces of EAA were scattered in the Ministry of Agriculture and Veterinary drugs and feed administration and control Authority. EAA has made an organizational structure based on its mandate and responsibility. According to the regulatory organizational structure approved by the federal civil service agency, the human resource is more than 2000. The focus of EAA in the next strategic years will be employment and upgrading the soft skill of employees. Other performance management, and motivation and improving the individual, team, and organizational performance will be the main concerns of the regulatory Authority. On the other hand ensuring safety and healthful workplace with adequate protection against hazards and promoting women in leadership positions and capacity development will be the main concerns of EAA. The ultimate objectives of all these are to achieve regulatory goals in the strategy area,

2.8.2.2. Strategies:

a. Employment

b. Training
c. Development of rewarding system.
d. Performance appraisal
e. Implement and improve work place safety and operational hazards.

2.8.2.3. Targets:

a. All positions will be filled by skilled and competent employees in 2030.
b. Employee satisfaction level will increase to 90%

2.8.2.4. Key Performance Indicators

Outputs

a. Percentage of filled open (newly approved and vacant) positions with workforce
b. Number of trained employees.
c. Number of Incentives awarded.
d. Percentage of Safety and workplace protection implemented.

Outcomes

a. Adequate, competent, motivated and committed workforces
b. Effective leadership
c. Ethical workforce
d. Satisfied employees

2.8.3. Establish and strengthen regulatory ICT Infrastructures.

2.8.3.1. Rationale

EAA has no adequate infrastructure in its main office as well as its branches since it is a newly organized regulatory institution. It is important to have its own office and establish all up-to-date ICT infrastructures. Therefore, it is valuable to incorporate the facility's needs identified by the regulatory sections to meet the concern of this objective.

The main focus of this objective is to set a target that modernizes the agricultural regulatory institution's ICT system, by developing ICT infrastructure, continuing the already started online services, ICT equipment supply, and maintenance works that allow the achievement of the goal of the regulatory.

The ICT infrastructure needs of the regulatory in agricultural input, production, technology, and service have been identified by the departments. However, the objective is to continue the ICT works that have been started and to work on ICT infrastructure capacity building since the agricultural regulatory institution is incapable of providing up-to-date services at the technology level of the time, therefore, the ICT infrastructure and equipment needs and plans identified by the departments will be summarized in this objective.

2.8.3.2. Strategies

a. Software Development upgrades.
b. Software for handling & retrieval of the documentation system.
c. Application of software in all aspects of regulatory and Administrative tasks.

2.8.3.3. Targets

85% of tasks in the regulatory workforce and system use possible sorts of ICT effectively by 2030

2.8.3.4. Key performance indicators

Output

Software maintenance and application.

Outcome:

Efficient, responsive, and modern regulatory institution.

2.8.4. Establish and enhance partnership and collaboration

2.8.4.1. Rationale:-

Even though EAA has been established recently after the reform, it has properly identified its stakeholders, partners and customers, so it needs to create strategic partnerships and realize the planned objectives and goals.

Establishing and enhancing partnership and collaboration with the stakeholders is very crucial to achieving the overall objective and advancing the mission of the authority through creating synergy. This strategic direction also aims to improve the engagement of the key stakeholders in planning, implementation, monitoring, and evaluation of the regulatory activities to advance awareness and ownership. If there is a partnership and collaboration with partners and stakeholders the regulatory system in many ways: it could improve the awareness and ownership of the different stakeholders about the regulatory; it could also allow building mutual reliance and leveraging resources through joint work-planning, shared data, and targeted risk-informed joint inspections in order to improve the efficiency of the regulatory system.

2.8.4.2. Strategy

a. Stakeholder identification
b. Communication
c. Introduce plan
d. Aware of their commonly shared objectives.
e. Share them their stakes
f. Following up and reviewing results in the schedule.

2.8.4.3. Target

a. All partners and stakeholders will achieve common best practices by 2030.
b. Strong alignment and contribution to shared objectives by 2030.
c. The ownership in protecting illegal things together will increase by 85 % by 2030

2.8.4.4. Key performance indicators

Output

a. Percentage of stakeholders that participated in the planning, monitoring and evaluation of the regulatory activities.
b. Number of signed with international, federal, and local organizations for partnership and collaboration
c. Number of strategic partnership and collaboration established with international, federal, and local organizations
d. Number of joint activities of regulatory function conducted with different stakeholders

Outcome:

Continuous and aligned strategic partnership.

2.8.5. Improved Efficiency & Effectiveness in resource utilization

2.8.5.1. Rationale

The main focus of this objective is to set a target that modernizes the agricultural regulatory institution's ICT system, by developing ICT infrastructure, continuing the already started online services, ICT equipment supply, and maintenance works that allow the achievement of the goal of the regulatory.

The ICT infrastructure needs of the regulatory in agricultural input, production, technology, and service have been identified by the departments. However, the objective is to continue the ICT works that have been started and to work on ICT infrastructure capacity building since the agricultural regulatory institution is incapable of providing up-to-date services at the technology level of the time, therefore, the ICT infrastructure and equipment needs and plans identified by the departments will be summarized in this objective.

EAA has no adequate infra-structure in its main office as well as its branches since it is a newly organizing regulatory institution. It is important to have own office and establish all up-to-date ICT infrastructures.

The concern for this strategic direction is assuring effective and efficient resource mobilization & utilization. Resources include cash or in kind, assets & properties, human power, and any other resources necessary to implement EAA mandates. The ‘‘efficiency & effectiveness of strategic direction’’ is crucial for the implementation of the overall strategic objectives of EAA. EAA has opportunities for resource mobilization from the government (treasury), non-governmental organizations (donors) and self-financing sources to be collected from regulatory services rendered to customers. Putting a self-financing system ensures sustainability in EAA`s financial access. Financial sustainability can also be achieved through management's focus on doing effective & result-oriented activities in an efficient, cost-saving, and to standards. Among others, confirming an impactful financial resource performance management system requires proper planning, management, and execution of procurement activities, aligning them with an allocated budget to achieve strategic goals towards high impact & prioritized outcomes and avoiding resource wastage. EAA will use the program budget and proper cash flow and provides timely financial reports for administrative decisions on top of conducting periodic auditing activities.

EAA will comply with a fully-fledged contract management system for large project execution. It will also put in place an effective review, monitoring & evaluation mechanism that will be periodically run by EAA top management. Therefore, EAA will adhere to the principle of proving efficiency & effectiveness in resource mobilization through a functional, and structured HR & financial management system that ensures work plans, projects, and initiatives are accomplished in accordance with the specified standards, quality, cost & time so that corrective measures are taken in appropriate time.

2.8.5.2. Strategy :-

a. Program Budget planning,
b. Budget implementation by prioritizing the most important activities in cash flows .
c. Providing financial report to treasury and funding organizations.
d. Contract management.
e. Auditing and feedback.
f. Upgrading service fee in all regulatory sections.

g. Dealing with utilizing self income from service fee.

2.8.5.3. Targets

a. 100% of annual budget utilization by 2030
b. To Minimized Audit findings by 85% by 2030
c. Sustainable self-Financing up to 40% from Regulatory Service fee.

2.8.5.4. Key Performance indicators

Output

a. Reduced wastage and proper managemet of resource and budget
b. Increased resource and revenue mobilization.
c. Successful accessibility of regulatory services

Outcomes

Increased the Agricultural regulatory financial self-reliance

2.8.6. Establish and maintain regulatory communication strategies.

2.8.6.1. Rationale

Communication is a vital management component for regulatory institutions. Whether the purpose is to update employees on new policies, to prepare for a weather disaster, to ensure safety throughout the organization, or to listen to the attitudes of employees, effective communication is an integral issue in effective management. To be successful, organizations should have comprehensive policies and strategies for communicating with their constituencies, employees, and stakeholders as well as with the community at large. An effective and efficient communication system requires managerial proficiency in delivering and receiving messages.

EAA uses all means of communication to forward messages to external audiences and the public uses the message. It also proves those messages are within the scope of a formal and comprehensive internal and external communication strategy, EAA ensures that internal and external communication is consistent, and ensures if the delivery messages from the public are congruent or not with the agricultural regulatory mission, vision, and institutional culture. EAA also has the possibility of using all mass media and social media alternatives In order to reach out to the community and the public who seek information from regulatory.

EAA will use all possible communication tools and technologies to disseminate messages internally to employees and externally to the public, customers, and stakeholders. EAA will use television program broadcasts to forward and present messages and events to the public. Moreover, it will apply cellular and other wireless communications, social medias (Telegram, Face book, tweeter, and others), printed media newsletter, brochures, leaflets, and posters to announce regulations, and urgent messages.

2.8.6.2. Strategies: -

a. Use technology to facilitate communications.
b. Create an open environment
c. Provide opportunities for feedback
d. Celebrate achievements and milestones
e. Open multiple lines of communication.
f. Connect across departments. Selection of proper method to upward, downward and horizontal communication.
g. Use verbal, non verbal, visual and written communication methods.

h. Use of all printing media, (Preparing routine print of leaflets, brochures, and internal newsletter.
i. Use of all broadcasting methods (radio and television) to disseminate message and inform the public.
j. Use of social media tolls efficiently.
k. Develop and improve website packages.

2.8.6.3. Target

100% Informative and transparent organization by 2030.

2.8.6.4. Key Performance indicators

Outputs

a. Improved relationships among employee and the public.
b. Improved direction flows.
c. . Increased information flow and innovation
d. Strengthened teamwork.
e. Improved client relation.

Outcomes

a. Healthy workplace culture.
b. Modern, loyal, and impressive regulatory.

CHAPTER 3. MONITORING AND EVALUATION PLAN

EAA Conducts periodic monitoring and evaluation to track those activities lead to accomplishment of objectives and strategic directions targeted for the coming Ten years agricultural regulatory plan. Recognizing the status of implementation of the planned activities and their achievements from continuous collection and analyses of data that also indicate the trend, timely reinforcing support or corrective measures will be taken. The monitoring and evaluation system includes techniques and processes that continuously collect, analyse and interpret data for knowing the appropriateness of the activities under process and provide up to date information for responsible body necessary for taking corrective actions that help to reach the planned outcomes and objectives.

3.1. Key performance Indicators

Since Agricultural regulatory interventions were being done in scattered manner some of the indicators are those that have been used in VDFACA and MOA are accepted as it was, some are modified, and new indicators are also included. The indicators are selected based on thematic area and critical issues regulatory interventions and requirements. The period for data collection and analysis varies for each indicator, ranging from a monthly basis up to 10 years. Some indicators are analyzed on a monthly basis, others on a quarterly, annual, 2-5 years and 10 years' time period.

3.2. Data cycle and Utilization

The process of data cycle describes translation of data into information and information into action. The Authority identified evidence-based decision-making as one of the strategic directions to use of information in decision making in the sector, including the M&E system. The cycle includes how data is gathered, analysed, interpreted, reported, shared and used in decision-making. This section will describe the components of a data cycle. It highlights the current situation and indicates improvements to be made in the coming years.

3.2.1. Data Source, Quality, Reporting and Utilization

3.2.1.1. Data sources

Multiple data sources will be used in the M&E of Regulatory system. Common data sources used to measure and inform the Authority are Routine information sources and non-routine regulatory information sources.

Routine Regulatory information sources: -This is data collected routinely to mainly measure progress on input, process, output and outcome related indicators regularly. Some of the data sources include electronic regulatory information system, Human resource information system, integrated financial management information system and administrative reports.

Non-Routine Regulatory information sources: As a non-routine data source, based assessments and surveys will be used to monitor and evaluate the performance of Regulatory System. Data sources include: Community satisfaction Indicator Survey, customer satisfaction survey, etc.

3.2.1.2. Data quality

Data quality determines reporting quality as measured by completeness (both content and representative), timeliness, reliability and validity will be enhanced through the continuous application of techniques such as visual scanning, consistency check via Lot quality assurance sampling techniques It also includes regular report review and feedback, desk review of data quality status, and routine data quality assessment. Moreover, planning experts and directors will be trained on data quality monitoring and improvement activities. The undergoing electronic regulatory data collection tools and reporting mechanism will play massive role in the endeavor to improving quality of data.

3.2.1.3. Data reporting

Information flow of the existing regulatory information system follows the “one report” principle of “one plan-one budget-one report” harmonization, meaning that all institutions and stakeholders report according to the standard reporting format based on the common set of indicators and within the same reporting calendar.

3.2.1.4. Use of information for action

Available information needs to be disseminated in a timely manner and used for strategic decision making to all levels of the regulatory. Focus will be given on strengthening information culture, knowledge management and capacity to use information for action at all levels. Improving data demand, information culture, knowledge management, learning and capacity to change data in to meaningful information and use of it for action will be priority at all levels. Findings and making insight for policy and strategy revision/formulation in a coordinated manner will be conducted. To systematically undertake follow-up on the decisions/action items from performance review meetings, reports and studies, a decision tracking matrix will be used. The data analysis, summarization, visualization and progress tracking will be augmented through the use of electronic tools.

Data use will predominantly be led by the performance monitoring team which will additionally guide and oversee other data use platforms such as directorate level data reviews, Regulatory sector planning and periodic review meetings will continue to serve as main data use forums for decision. The major principles in information use culture among others will be engaging every worker, shifting from emotional to evidence-based decision.

3.3. Performance review

Regular and participatory performance review meetings will be undertaken quarterly, biannual and annual at all levels. In these meetings, stakeholders are brought together with organizations' staff to review performance and to determine actions needed to ensure achievement of the annual plan. The regulatory sector officials involved represent the implementing organizations for each level: managers and Planning experts in the biannual and annual Review Meeting. During these meetings, strengths and challenges will be reviewed and future plans will be agreed upon.

3.4. Evaluation

Evaluation of the EAA will be undertaken at mid-term (2023/24) and end-term (2030) to assess attainment of set objectives and targets. The mid-term evaluation will assess progress towards achievement of results and generate lessons learned, while the end-term will inform of the subsequent strategic plan.

3.5. Dissemination and communication

Available information needs to be disseminated in a timely manner and used for strategic decision making at all levels of the regulatory sector. M&E findings will be disseminated to stakeholders using different channels. Monthly, quarterly, and annual reports will be produced. Quarterly, bi-annual and annual performance reports will be submitted to the relevant government bodies. M&E digests; regulatory bulletins will be produced as per established schedules. EAA will strengthen electronic outlets, such as the web site and social media, for dissemination of results. Furthermore, documentation of best practices and dissemination of results will also is promoted at the national and international level through conferences and publication peer.

Table 18. Result framework for variety testing

Goal/thematic area/	Objective	Outcome/KPI	Output_KPI	Activities/KPI
Regulate agricultural technology	Ensure the performance, Distinctness, Uniformity and Stability of plant varieties	Approved and registered varieties	No of applications received	Receive & evaluate application
			# of technical committee established	Establish technical committee
			Number of candidate varieties evaluated	Evaluate the performance of the candidate variety
			Number of meetings conducted	Conduct NVRC meeting
			# of conducted DUS & NPT trial	Conduct DUS & NPT
			# NPT conducted	Conduct NPT
		Granted plant breeder's right	No of PBR applications received	Receive & evaluate PBR application
			# of DUS report	Request DUS report
			Number of DUS report	Evaluate the DUS report
			Number of granted plant breeders right	Grant plant breeders right
		Improved variety testing capacity	# of trainees	Provide ToT training on DUS and NPT trial management, analysis and reporting for variety examiner
			# of trainees	Provide training on DUS and NPT trial management, analysis and reporting for variety examiner
			# of Examiners and CEO participated in study visit	Study visit on variety examining
			# of Variety examiners conducted their MSc studies	Provide MSc studies for variety examiners
			# of Variety examiners conducted their PhD studies	Provide PhD studies for variety examiners

Goal/thematic area/	Objective	Outcome/KPI	Output_KPI	Activities/KPI
			# of DUS and NPT testing protocols developed	Preparation of draft DUS and NPT testing protocols
			# of validation workshop	Conduct DUS & NPT protocols validation workshops
Improve Agricultural regulatory service provision center	Establish Distinct Uniform and Stable (DUS) and National Performance Trial (NPT) stations across prioritized agro-ecologies	Secured and properly managed DUS and NPT variety testing stations	# of fencing station	Fencing the testing stations
			# of purchased farm machinery	Purchase the required farm machineries
			# of Constructed offices and residents	Construction of offices and residents
			# of constructed storage	Construction of storage facilities
			# of constructed laboratories	Construction of laboratory facilities
			# of purchased vehicles	Purchase of field vehicles
	Strengthen regional regulatory authorities' regulatory execution capacity	Regional regulatory authorities equipped with seed testing and inspection technical, logistics and infrastructure capacities		

Table 19. Result framework for improving seed field inspection capacity

Goal/thematic area/	Objective	Outcome/KPI	Output	Activities/KPI
Regulate agricultural technology	Strengthen Field inspection Capacity	**Percentage of seed field area rejected is minimized from 5% in 2022 to 1% by 2030.**	Number of Equipped existing grow-out test stations and established new ones with irrigation access	Establish new GOT sites
				Equip exiting and new GOT site
				Develop Irrigation 3rd canal
				Support GOT operational costs
			Number of vehicles purchased	Provide station Toyota pickup for field work
			Provided number of GPS & drones	Introduce field inspection easing facilities
			Number of trainees in technologies meant for easing field inspection	training on Drone utilization for field inspection purpose
				Train seed inspectors and seed analyst in PhD for EAA and Regional Regulatory Authorities
				Train seed inspectors and seed analyst for EAA and Regional Regulatory Authorities
			Amount of money collected due to revised certification fee	Operationalize updated certification service rates.
			# of characterized local varieties	carry out characterization of local varieties using field experiment by regional RARIs jointly with Regional Certification authorities for two years.
			# of research papers developed with recommendation on field inspection efficiency	Conduct survey, laboratory testing and field experiment for three years (supported by project Proposal)
			# of offices built	Establish new offices at four regions level
			No of inspectors identified and certified	Awareness creation to seed producers for self-certification system
				Screen potential inspectors for COC.
				Train selected inspectors
				conduct system check field monitoring evaluation by the Ethiopia Agriculture authority

Goal/thematic area/	Objective	Outcome/KPI	Output	Activities/KPI
			# of studies conducted	Conduct survey-based study to check implementation level of policy and regulatory frameworks
			No of proficiency tests conducted	Support proficiency test among laboratories for harmonization.
			MoU signed	Strengthen enforcing power of the National Platform for Seed Quality Control (NPSQC).
			# of seed inspectors take examination	Operationalize occupational competency for Seed Inspectors.
			No of application submitted through SCTS and approved	Support full operationalization of ICT across the seed quality assurance system of the regulatory authorities.
			# of Inspectors decisions tracked using GPS-GIS-ICT	Improve trackability of field inspection linking it with GPS, GIS and ICT.
			# of rating tools calibrated	Calibration & maintenance of seed testing facilities
			# of code of conduct docs developed	Ensure corruption-free seed regulatory service provision.

Table 20. Result framework for regulatory of Research, Extension & Mechanization(REM)

Thematic area	Strategic objective	Outcome	Output	Activities
Agricultural Services Regulatory	Initiate and operationalize regulatory service for the Agricultural Research, Extension, & Mechanization regulatory system	A regulatory service for Agricultural Research, Extension, & Mechanization is put in place and operationalized	Number of service providers identified	Conduct National level survey to identify Public and Private REM service providers.
			# of Drafted and endorsed proclamations regulations & directives	Develop and endorse Proclamation on research regulatory system
				Develop and endorse proclamation on extension regulatory system
				Develop and endorse proclamation on mechanization regulatory system
				Develop Competence certificate issuance directives for research regulatory system
				Develop Competence certificate issuance directives for agricultural extension regulatory system.
				Develop Competence certificate issuance directives for mechanization regulatory system
				Develop research center standards/specifications
				Develop standards for Extension training provisions centers like (FTCs, PTCs)
				Develop standards for mechanization service providers / combine harvester specification
				Develop standards for Mechanization maintenance centers
			Number of Service providers identified	Conduct inventory of available service provider public, Cooperatives, and private research centers
				Conduct inventory of available service provider public, cooperative & Private FTCs/PTCs,

				Conduct inventory of available service provider mechanization centers.
			Number of service provider registered & issued with COC	Conduct promotion to enforce public, private & cooperative service providers in research towards registration
				Conduct promotion to enforce public, private & cooperative service providers in agricultural research towards registration
				Conduct promotion to enforce public, private & cooperative service providers in Agricultural mechanization towards registration
				Conduct Call for bids to engage 3rd party in competency checking of service providers that show interest to engage in research,
				Outsource competency checks to third party until EAA builds its capacity in certification of REM service providers.
			Constructed number of mechanization testing centers	Establish mechanization testing and certification centers.
				Establish testing facilities calibration and assurance center for research and extension
			# Of inspection conducted.	Conduct inspection to check comply of research, extension and mechanization service providers to legislations and service quality standards.

Table 21. Result Framework of regulating Pesticide and Fertilizer

Goal	Objective	Outcome-KPI	Output -KPI	Activities
Regulate agricultural inputs	Quality, safety and efficacy of pesticides and fertilizers ensured	Registered pesticide and fertilisers that are safe, effective and of high quality	Number of pesticide and fertilizers registered	Registration Application received.
				Dossiers evaluated
				Registration certificates given
				Import permits given
			Number of Harmonised Registration requirements	Selection of registration requirements
				Legal and institution clearance
				Harmonisations done
			Number of institutional COCs given	Conducting inspection on pesticide importers, manufacturers and relevant premises
				Conducting inspection on pesticide and fertilizer importers, manufacturers relevant premises in Ethiopia
			Number of pesticide and fertilizer manufacturers inspected for a Good Manufacturing Practices (GMP)	Conduct inspections on pesticide and fertilizer manufacturers for a Good Manufacturing Practices (GMP)
				Give GMP certificate for manufacturers fulfilling criteria
		Post-registration inspection of agro-chemicals enhanced	Number of post-registration risk assessment and management studies done	Preparation of ToRs and logistics
				Actual field risk assessments
				Validation of the results and recommendations
			Number of inspections done	Conducting inspection
			Number of release permits given	Issuing release permits
			Number of plant product samples taken	Collecting plant product samples for agro-chemical residue

			Number of institutional inspection (registrants, manufacturers) done	Conducting institutional inspections
			Number of agro-chemical samples collected	Collecting agro-chemical samples
			Number of cooperative works with branch-offices	Cooperative works done with branch-offices
			Number of trial stations established	Priortation of station location
				Land acquisition
				Logistics
				Monitoring
		Lawfulness of agro-chemicals regulation strengthened	A pesticide policy ratified	Ratification of a pesticide policy
			A pesticide proclamation revised	Revision of the pesticide proclamation
			Number of pesticide regulation drafted	Drafting a pesticide related regulation
			Number of pesticide directives drafted	Drafting pesticide related directives
			Number of pesticide standards drafted	Drafting/revising pesticide related standards
			Number of pesticide protocols drafted	Drafting pesticide related protocols
			A fertilizer policy drafted	Drafting a fertilize policy
			A fertilizer proclamation finalised	Drafting a fertilizer proclamation
			A fertilizer regulation drafted	Drafting a fertilizer regulation
			Number of fertilizer directives drafted	Drafting fertilizer related directives
			Number of fertilizer standards drafted	Drafting/revising fertilizer related standards
			Number of fertilizer protocols drafted	Drafting fertilizer related protocols
		Online evaluation and tracking system of the regulatory services put in place	Number of online services integrated in Ethiopian Single Window (ESW) and e-Service system for agro-chemicals	Conducting pesticide related regulatory services using online platform (ESW and e-Service)
				Conducting fertilizers related regulatory services using online platform (ESW and e-Service)
				Retrieving pesticide related regulatory data using the centralized data base system at ESW and e-Service

			Number of database retrieved from the ESW and e-Service system	Retrieving fertilizer related regulatory data using the centralized data base system at ESW and e-Service
			Number of national on line data base system created for agro-chemicals management	Selecting and prioritising data base type needed.
				Establishing a pilot-system of data base centre
				Establishing a final data base centre
		National public and private stakeholders' capacity improved.	Number of pesticide private stakeholder's capacity building related activities done.	- Detailed capacity gap assessment of the supply chain actors. - Prioritization of capacity building areas via detailed assessment - Drafting a capacity building strategies - Conducting the capacity building activities
			Number of fertilizers private stakeholder's capacity building related activities done.	- Detailed capacity gap assessment of the supply chain actors. - Prioritization of capacity building areas via detailed assessment - Drafting a capacity building strategies - Conducting the capacity building activities
			Number of fertilizers public stakeholder's capacity building related activities done.	- Detailed capacity gap assessment of the public actors. - Prioritization of capacity building areas via detailed assessment - Drafting a capacity building strategies - Conducting the capacity building activities
			Number of pesticide public stakeholder's capacity building related activities done.	- Detailed capacity gap assessment of the public actors. - Prioritization of capacity building areas via detailed assessment - Drafting a capacity building strategies - Conducting the capacity building activities

Table 22.Result framework for Animal Veterinary Drugs

Thematic Area	Objectives	Outcome	Output	Activities
Regulate Agricultural Inputs	Strengthen systems for effective and timely registration of quality, safe and efficacious veterinary drugs	• High quality, safe and efficacious veterinary drugs authorized to enter the market • Improved efficiency of veterinary drug registration process	Number of dossiers evaluated compared to the submitted applications	Evaluation of new veterinary drugs (medicine, vaccine and instruments) registration application dossiers
			Number of dossiers evaluated compared to submitted dossiers	Evaluation of re-registration and variation registration application dossiers of veterinary drugs
			Number of samples sent to laboratory	Sending samples of products applied for new, re-and-variation registration applications to laboratory for quality and safety tests
			Number of registered products	Issue veterinary drugs registration certificates
			Number of companies inspected compared to applications	Inspection of manufacturing companies for cGMP compliance
			Number of certified manufacturing companies	Preparation and issuing of cGMP certificate to local and foreign veterinary drug manufacturers
			Number of purchase orders evaluated	Evaluation and approval of purchase order approval requests from importers
			Number of applications evaluated and approved	Evaluation and approval of applications to conduct clinical trial in animals
			Number of trials inspected and complied	Inspection of clinical trials to ensure if they are conducted according to the approved protocol
			Developed and endorsed list	Develop essential veterinary medicines list for five selected species
			Revised and approved list	Revision of the national veterinary drugs list
			Number of dossiers evaluated	Evaluation of traditional medicines registration application dossiers

			Number of traditional medicines registered	Issue registration certificates for traditional medicine
	Provide effective and timely process for certification of veterinary drug institutions	• Competent institutions certified to import and distribute veterinary drugs • Improved customer satisfaction	Number of applications evaluated	Evaluation of applications for certificate of competence
			Number of inspected premises	Conduct precertification inspection of import and wholesale premises
			Number of certificate of competence issued	Preparation and issuing of certificate of competence to veterinary drugs import and wholesale institutions
			Number of professionals licensed	Registration and licensing of veterinary drug professionals
			Number of renewed certificate of competence	Renew CoC of veterinary drug import and wholesale institutions
			Number of renewed professional licenses	Renew veterinary drug professionals license
			Number of change applications evaluated and approved	Evaluation and approval of replacement of certificate and change of name, warehouse and professionals applications
	Strengthen the inspection and market surveillance system of veterinary drugs	• Improved compliance level of veterinary drugs and veterinary drug institutions • Decreased number of illegal veterinary drugs in the market	Number of inspections conducted	Inspection of veterinary drug manufacturing, import and wholesale institutions
			Number of import permits approved	Evaluation of import permit applications
			Number and quantity of consignments inspected	Inspection of consignments at the ports of entry
			Number of consignments sampled and samples sent to lab	Sampling of consignments and sending the samples to laboratory for quality test
			Number of samples collected and tested	Post-marketing surveillance of authorized veterinary drugs

			Number of illegal products found in the market	Conduct market surveillance to assess the prevalence of illegal veterinary drugs
			Number of adverse event reports evaluated	Assessment of adverse event report
			Number of certificates issued for safe disposal	Inspection and certification of safe disposal of unfit veterinary drugs
	Improve public and professionals knowledge and awareness on the regulation and proper use of veterinary drugs	• Transparent and participatory regulatory system • Improved prudent use of antimicrobials and decreasing AMR development	Number of monthly developed information	Compile veterinary drugs regulatory information
			Frequency of dissemination of the information	Uploading the compiled information on the authority website
			Number of legislations and manuals developed	Development and revision of regulatory legislations and manuals
			Number of professionals trained	Organize trainings to animal health professionals and para-professionals on rational use of veterinary drugs
			Number of disseminated IEC/BCC materials	Develop and disseminate awareness creating printed and electronic materials on AMR
			Submitted survey report	Conduct survey on the prudent use of antimicrobials and the level of awareness and practice to prevent and contain antimicrobial resistance
			Number of sessions organized	Organize community awareness and mobilization sessions to improve community involvement in the control of illegal veterinary drugs trade
			Annual report	Reporting of national antimicrobial consumption to WOAH

Table 23: Result framework for Regulatory of Animal Feed

Goal	Objective	Outcome/KPI	Output KPI	Activities
Regulate Agricultural inputs	**Quality and safety of feed and feed ingredients assured**	Annual renewal of feed trade premises, feed professionals and issuance of replacement and name change	Number of feed trade firms renewed	Renew competency certificate of feed trade firms
				Inspection of feed manufacturing, import and wholesale trade firms
			Number of renewed feed professional licenses	Renew of feed professionals certificate of competence
			Percentage replacement of feed trade firms	Issue of replacement competency certificate for feed firms
			Percentage of change of warehouse	Inspect feed trade firm ware house
			Percentage of professional's replacement	Inspect and evaluate feed trade firms
		Increased number of certified feed manufacturers, importers, whole sellers, and licensed feed professionals.	Number of registered and certified new feed trade premises	Evaluation of document for certificate of competence
				Conduct pre-certification inspection for GMP compliance of feed trade premises.
			Number of new feed professionals registered and certified	Evaluation of applications and documents for certificate of competence
		Increased number of compliant feed trade premises for quality and safety of feed	Number of feed samples collected from feed manufacturers for quality and safety test	• Collect different type of feed samples from feed manufacturers • Sending feed samples to laboratory for quality and safety tests.
			Percentage of feed comply quality and safety for registration	• Conduct analysis for laboratory test result • Conduct consultation workshop for stakeholders based on the laboratory result
			Number of registered feed comply quality and safety	• Issue feed registration certificates
			Percentage of feed standards implemented by feed manufacturers.	• Conduct assessment for the implementation of feed standards on feed manufacturers.
			Number of identified/endorsed new feed standards for setting	• Conducts need assessment for the new feed standards development

Goal	Objective	Outcome/KPI	Output KPI	Activities
				• Collect necessary information for the preparation of the standard • Prepare the standard • Follow-up for the approval of standards
			Number of participants	• Conduct awareness creation on the existing and newly developed feed & feed ingredient standards for stakeholders
		Develop and apply national Aflatoxin mitigation strategy document	Numbers of developed Aflatoxin mitigation strategy document	• Gather necessary information about the impact of aflatoxin • Conduct consultation workshop to solicit information
			Number of participants attending the workshop	• Conduct awareness creation about Aflatoxin for feed value chain actors.
			Alignment report document	• Create plat form and communicate among government line office (MoTRI& Regional Integration, EFDA, EAA and MoA).
		Develop and produce National Feed additives and premixes list for registration	Develop and produce national list of feed additives & premixes	• Identify the list of feed additives & premixes • Conduct approval work shop for feed additives and premix national list
			Number of registration guideline prepared for registration of feed additives and premixes	• Prepare registration guideline for feed additives and premixes • Cond workshop for approval of guideline
			Number of dossiers evaluated for registration and market authorization of feed additives and premixes	• Evaluation of registration application and dossier against guideline
			Number of samples of feed additives & premixes collected and send to laboratory	• Collect sample • Sending samples of products to laboratory for quality and safety tests
			Percentage of feed additives and premixes comply	• Conduct analysis for laboratory test result

Goal	Objective	Outcome/KPI	Output KPI	Activities
			Number of registered feed additives & premixes	• Issue of feed additives and premixes registration certificates
			Number of feed trade premises inspected for GMP compliance and percent of compliance	• Conduct inspection on manufacturing companies for GMP compliance
			Number of revised registration guidelines	• Revise and update the existing guidelines for registration and certification of feed trade premises
			Number of regulations prepared for collecting service fee	• Revise the existing and prepare regulation for collecting service fee.
		Issuance of Pre-import and release permit through Electronics Single Window	Number of issued pre-import permit approved	• Conduct evaluation & verification of document
			Number of issued release permit approved	• Conduct physical evaluation of the product and document evaluation
			Percentage of advertisement permitted for feed& feed trade premises	• Issuance of permit for feed and feed institution advertisement
		Organized and developed feed regulatory information	Number of feed manufacturers included	• Conduct assessment on feed manufacturers to compile annual feed produced
			Number of feed trade premises included	• Conduct assessment on feed trade premises to collect and organize basic information.
			Number of feed trade premises addressed.	• Conduct assessment on feed trade premises to provide feedback
			Number of approved/revised GMP training manual and directory	• Revise and approve the existing GMP training manual and feed directory
			Number of participants	• Provide trainings for feed and feed raw producers on quality and safety of feed and feed raw materials.
			Percentage of monthly developed information	• Compile feed trade premises

Goal	Objective	Outcome/KPI	Output KPI	Activities
				• Compile feed and feed additive registration, • Compile professional licensing information • Compile all feed regulatory activities and uploading them on the authority website
		Strengthened feed and feed institution inspection system	Number of inspections conducted on feed trade premises	• Conduct regular inspection on feed trade premises
			Number of feed samples collected and tested for quality and safety	• Conduct post-marketing surveillance of feed for quality and safety requirement
			Number of inspected feed professionals working in feed trade premises	• Conduct inspection on feed professional at feed trade premises
			Percentage of application of GMP, HACCP, GSP and GHP in feed manufacturers.	• Enforce for the application of GMP, HACCP, GSP and GHP in feed trade premises
			Number and quantity of consignments inspected	• Conduct inspection of consignments at the ports of entry
			Number of consignment sample collected for laboratory testing	• Sending consignment samples to laboratory for quality test
			Number of consignment sample comply	• Conduct analysis on the laboratory result

Table 24. Result framework for plant quarantine, quality, food safety & Genetic Resources

Thematic areas/Goal	Strategic objectives	Outcome (KPI)	Output (KPI)	Strategy/activity
Regulate agricultural products	Reduce entry, establishment and spread of regulated pests	Protected plant resources from damages of regulated pests	Number of endorsed standards	Review ISPMs and Codex standards
				Adopt ISPMs and Codex standards
			Number of PRA undertaken	Undertake pest risk analysis
			One prepared document of regulated pest and other prohibited articles	Prepare quarantine, Regulated Non-quarantine pests and prohibited articles lists
			One prepared document stating conditions of entry	Set conditions of entry
			Number of authorized importations	Issue pre-import permit
				Undertake import inspection
				Prescribe treatment as deemed necessary
				Authorize release
			Number of non-compliance communicated	Issue non-compliance notification to exporting NPPO for imports that fail to comply with the import requirements
			Number of new pests diagnosed and recorded	Carry out pest surveillance and coordinate surveillance programs performed by other institutions
				Diagnose and record new pest occurrence
			Number of planting materials ordered to pass through PEQ	Put plant propagating materials that are required to pass through PEQ facility
			Number of planting materials declared freedom from pests and released	Evaluate planting materials for freedom of regulated pests
				Release plant propagating materials that are free from regulated pests
			Number of regulated pests introduced and resulted in official control	Implement official control on newly introduced regulated pests
				Mobilize community to participate in the official control

			Digitalized Phytosanitary import service	Digitalization of phytosanitary import process
	Enhance phytosanitary export inspection and certification	Reduced number of export commodity rejection and non-compliance notifications	Number of endorsed standards	Review ISPMs and Codex standards
				Adopt ISPMs and Codex standards
			Number of phytosanitary certificated issued that fulfill the requirements of importing country	Identify the importing country's requirements
				Review and evaluate export application
				Carry out inspection of the consignment
				Supervise treatment undertaken by third party
				Order the service fee settlement
				Issue phytosanitary certificate
				Digitalization of phytosanitary export process
			Number of non-compliance received and notified	Notify the exporter if notification received
				Review and identify reason for Noncompliance
			Number of additional markets accessed due to pest free area	Carryout field survey for presence and absence of a given regulated pest
				Record pests survey result
				Delineate pest free area, area of low pest prevalence, pest free site of production
	Develop and establish mechanisms for the management of emerging pests	Operationalized national emerging pest management platform	Established National Emergency Response Management Committee (NERMC)	Established National Emergency Technical Working Group (NETWG
				Established Incident Operation Centre (IOC)
				Established Rapid Response Teams
	Enhance agricultural produces quality approval system	Improved quality assurance system	Number of COC issued	Prepare criteria for assurance of competence
				Review and evaluate applications
				Issue COC
			Number of COC renewed	Undertake supervision
				Issue renewal COC
			Type of crops identified	Identify type of crops to be regulated
			Number of prepared standards	Collect necessary information for the preparation of the standard

				Prepare the standard
			Number of endorsed standards	Follow-up the endorsement of prepared standard
	Improve capacity to Implement regulatory related access and benefit sharing of genetic resources	Enhanced benefit from genetic resources secured	Types of genetic resource components identified and regulated	Identify components of genetic resources requiring regulation
				Developing standard for genetic resource regulatory
			Types of resources regulated	Implement resource regulatory activities
Modernizing and building Institutional capacity	Complete the required regulatory legal framework	Enhanced phytosanitary services	One regulation developed	Follow up of the endorsement of the drafted plant quarantine proclamation and regulation
				Collect information for preparation of phytosanitary service fee determination
				Prepare the draft service fee collection regulation
				Follow-up of the endorsement of the regulation
			Three directives prepared and endorsed	Collect information for preparation of plant quarantine directives
				Prepare the draft directives
				Follow-up of the endorsement of the directives
	Carry out phytosanitary capacity evaluation (PCE)	Capability of the Plant regulatory services identified	One proposal document prepared	Preparation of proposal to carry out PCE
			One PCE finding document prepared	Request IPPC to initiate the PCE process
				Conduct the PCE
	Deliver regulatory performance training	Improved effectiveness and efficiency phytosanitary service providers	One training need assessment document developed	Conduct training need assessment
			Number of trained and evaluated staff	Undertake on the job training in specific area of service

				Evaluate and record performance of the trained personnel
	Establish and strengthen plant quarantine stations and Establish post entry quarantine facility (PEQ)	Enhanced Import authorization export certification	Number of established and strengthened plant quarantine stations	Conduct study to identify strategic areas for establishment of quarantine stations Identify the required place for PEQ establishment
				Establish the quarantine stations
			Number of strengthened plant quarantine stations	Identify gaps of existing quarantine stations
				Fill the gap identified and strengthen the stations
			Number of operational PEQ	Identify the required place for PEQ establishment
				Construct the PEQ at selected place
				Equip the PEQ with necessary equipment

Table 25. Result framework for regulatory of animal product

Thematic areas/Goals	Strategic objectives	Outcomes (KPI)	Outputs (KPI)	Strategies/Activities
Regulate Animal products.	Develop new Animal product quality and safety related laws or Update the existing legal framework	Preparing new and update existing one proclamation, Regulation, directives and guidelines	No. of prepared proclamation, Regulation, Directives and guidelines	• -Prepare the new and update the existing one proclamation and regulation for animal product and by product safety and quality ,
				• prepare Directives animal product and by product safety and quality
				• Prepare Guideline for Milk quality and safety
				• Prepare guideline for honey quality and safety
				Prepare guidelines for fish, poultry and pork meat
				• -Prepare guideline for egg quality and safety
				• - Follow up of the endorsement of the drafted proclamation, regulation and directives.
		Enhanced sanitary services	One regulation developed	Collect information for preparation of sanitary service fee determination
				Prepare the draft service fee collection regulation
				Follow-up of the endorsement of the regulation
				Authorize release
			No. of non-compliance communicated	Issue non-compliance notification for exporting CVO that fail to comply with the import requirements
	Enhance sanitary export inspection and certification	Protected human and	No. of sanitary certificated issued that fulfill the requirements of importing country	Identify the importing country's requirements
				Evaluate export application
				Carry out inspection of the product

		animal from hazard		Improve Quality and safety of red meat, milk, honey, fish and egg,
				Improve waste disposal
		Reduced number of export commodity rejection and non-compliance notifications		Supervise treatment undertaken by third party
				Order the service fee settlement
				Issue sanitary certificate
			No. of non-compliance received and notified	Notify the exporter if notification received
				No. of noncompliance reviewed, and reason identified
	Adopt OIE sanitary standards	Improved implementation of animal regulatory system	No. of endorsed standards	Review OIE and Codex standards
				Adopt OIE and Codex standards
	Improve animal products quality and safety approval system	Improved animal product		Identify type of animal product to be regulated
				Collect necessary information for the preparation of the standard
				Prepare the standard
				Follow-up the endorsement of prepared standard
	Deliver regulatory performance training	Improved effectiveness and efficiency sanitary service providers	3 training need auditing documents developed	Conduct training for Auditing
			4 training is need for FSMS	Conduct training for FSMS.
			4 round 3 month and 6 month training based on previous curriculum	Conduct training for inspectors.

			Number of trained and evaluated staff	Undertake on the job training in specific area of service
				Evaluate and record performance of the trained personnel
	Establish and strengthen animal product producer and processor stations.	Enhanced authorization export and domestic certification	No. of registered and COC given animal product producer and processor stations.	Receive & evaluate application and check the whole process
				established meat by-product processing plants for export and domestic purposes
				Evaluate performance of the facility
				Conduct study to identify strategic areas for registration of animal product, producer and processor stations.
				Revise the existing standard
				Set standards
				Establish the quarantine stations
			No. of strengthened animal product producer and processor stations.	Identify gaps of existing animal product producer and processor stations
				Fill the gap identified

Table 26.Result Framework for Animal quarantine

Goal/Thematic area	**Strategic Objectives**	**Outcome (KPIs)**	**Output (KPIs)**	**Activities**
Regulate Agricultural Inputs	**Strengthen import and export system in livestock, livestock products and livestock by-products**	Quality and safe livestock and livestock authorized to export and import	number of received application	Receive and evaluate application
			number of approved application	Evaluate the performance export import companies Conduct qualification for individuals or organizations engage in import and export
		Reduced number of export commodity rejection and non-compliance notifications	No. of sanitary certificated issued that fulfil the requirements of importing country	Identify importing country's requirements
				Organize Supervision feedlots, quarantine stations based on SPS requirements
			Number of trainings conducted	Organize trainings for professionals to monitor authorize animal and products
			Supervision conducted based on OIE standard	System designed to prevent and control the trade sensitive disease
			Supervision conducted based on OIE standard and requirements	Control of exotic disease during importing, testing conducted at check posts and border areas
		A number of advocacy conducted	National committee established	Provide export import information and uploading them on the authority website regularl

	Establish and strengthen quarantine stations and check posts	Enhance Import and authorization export	No. of established animal quarantine stations	Conduct study to identify strategic areas for establishment of animal quarantine stations
				Establish quarantine stations
			No. of strengthened animal quarantine stations	Identify gaps of existing quarantine stations
				Infrastructure provide
		Improved implementation of animal regulatory system	n Number of trained experts	Risk based awareness creation conducted
			No. of endorsed standards	Develops guidelines or manuals and SOP and approved
			SOP, manual and guideline prepared and endorsed	Introduces approved SOs, guidelines or manuals to stakeholders and professionals
			Establishment of the traceability system	Technology-supported inspection and certification service delivery in quarantine and checkpoints.
	Strengthen livestock identification and traceability system	Number of live animal exported	Improve traceability of animal and animal products exports	Manages the database system
			Number of supervisions conducted based on OIE	develop the awareness to facilitate the LITS system
		Number of ear tag for identification	Establishment of safety, quality and health system	Ensures health, safety and quality assurance in quarantines, checkpoints before exporting animal, animal products and by-products
		Number traceable product exported	Number of animals inspected & amount of product inspected	Inspection and certification of animals, animal products for export to foreign countries ensure to meet the

				minimum standards of the importing countries.
			Number of animals and amount f product subjected to sanitary measures	Sanitary Measures taken on animals, animal products, by-products, and controlled substances that do not meet the set OIE standards
				Strategic documents and legal frameworks shall be enforced
				To become effective of (LITS) system, modernized approach and experience sharing from other country should be adopted
				Coordinates, and monitors the implementation process based on bilateral mutual agreements
				Conducts feasibility and sustainability studies
				Prepares international standards for animal and animal product and by products
				Designs procedures for the identification and registration of livestock for export
				Feedlot, Quarantine stations, market centres, animals and animal products are included for registration system
				System designed to implement livestock registration in all levels
				Monitoring of animals and animal products in order to find additional destination markets
				protect the welfare of animals

			Number of trainee	develop awareness to facilitate the LITS system
		Establish legal and operational guideline	number of Guidelines	Prepare operational guidelines to prevent biodiversity from leaving the country without permission
			A number of risk analysis	Prevent and control imported animals and resources from multiplying the country's genetic resources
			Number of trains	Prepares training for relevant professionals and stakeholders on biodiversity

Table 27. Result Framework for Plant Input & produce Quality testing laboratory

Strategic Goals	Strategic Objectives	Outcomes	Out put	• Activities
Agricultural inputs quality and safety regulatory	Monitoring pesticide and fertilizer quality	Ensured quality pesticides and fertilizers in the Market	Numbers of Analysed and registered pesticides and fertilizers	• Calibrating pesticides and fertilizers testing laboratory equipment's • Performing method validation
			Number of SOP prepared	• SOP/Standard Operating Procedure preparation
			Number of Pesticides and Fertilizers pre-registration and post market sample received	• Receiving pre-registration pesticides and fertilizer samples • Analysing pre-registration pesticides and fertilizers samples • Receiving pesticides and fertilizer samples in post market
			Proportion of Pesticides and fertilizers Samples at check post received and analysed	• Receiving Pesticides and fertilizers Samples at check post • Analysing pesticides and fertilizers samples received at check post • Producing analysis result for registration and inspectors team
Regulate Agricultural regulatory service	Ensuring quality of agricultural unprocessed or semi-processed outputs	Carried out laboratory testing to ensure safety standards for plant products meet for Importing countries	Number of testing methods validated	• Calibrating pesticides and Mycotoxins testing laboratory equipment's
				• reparing SOP/standard Operating procedure

		requirements and domestic uses.	Proportion of Unprocessed and semi processed plant products received and analysed	• Receiving samples on export unprocessed and semi processed plant products commodities for pesticides and residue analysis • Analysing Unprocessed and semi processed of plant products for pesticides and mycotoxins
	Laboratory services improved	Conducted laboratory tests at prescribed standards	No. of Duplicate seed samples tested	• Receive duplicate seed samples • Carry out seed quality testing for received seed samples • Laboratory result analysis • Notify Laboratory result
			No. of new testing methods included in seed quality testing parameters	• Identify important parameters to be included in seed quality testing methods • Adopt testing procedures and include new seed testing methods
		Trained experts	No. of laboratory technicians trained	• Conduct a training need assessment of regional seed laboratory technicians
			No. of experts participated on experience sharing and training abroad	• Identify gap of experts • Find internationally accredited laboratories and ISTA member countries with good experience in the field • Proposal Preparation and approval • Experience sharing and short term training at international level on seed quality testing and pesticide and fertilizer quality testing and pesticides residue analysis

Improve Agricultural Regulatory service Provider	• Laboratory infrastructures and logistics	•	One comprehensive constructed standard Laboratory	• Feasibility study • Produce document • Bidding and identifying the winner • Employment of consultant • Establish standard testing laboratory infrastructures
				• Proposal Preparation and approval
			Number of regional laboratory established	• Establish and fully equipped new seed quality testing referral laboratory at regional level
			No of branch office labs established	• Construct and equip new branch seed labs across required geographies
			No. of labs included in the expansion initiatives	• Expansion of EAA National Seed laboratory and selected exiting regional seed labs (constructing additional testing rooms and equipping them with modern testing facilities).
		• Well-equipped laboratory	Percentage of fulfilled laboratory equipment, apparatus, glassware's, pesticide standards and laboratory chemicals	• Identify the gap of seed laboratory
				• Proposal Preparation and approval
				• Purchase the laboratory equipment's and chemicals
				• Fulfilling internet connections
		• Accreditation with ISO 17025 and ISTA membership	• Percentage of progress for accreditation and membership • Numbers of pesticides testing methods accredited ISO 17025	• Create enabling environment with equipped and standardized laboratory • Obtain ISO 17025 certificate • Pay an annual fee to become an ISTA member

Table 28. Result framework for Animal product &input regulatory Laboratory

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
Regulate Agricultural Service Provision Centers	Livestock products and inputs laboratory infrastructures improvement	• Improved old testing laboratory facilities; • New standard testing laboratory infrastructures in place; • New testing laboratory auxiliary facilities in place; • New laboratory data management center in place • Well-furnished laboratory infrastructures and facilities in place	• Construction level of laboratory infrastructures • Construction level of laboratory chemical storage cold chain facility • Construction level of medical device testing facility • Construction level of laboratory equipment maintenance and calibration facility • Construction level of laboratory animals houses/facility • Construction level of laboratory waste disposal facility • Construction level of data management center • Percentage of computerized networking services • Number of project proposals developed • Percentage of financial resources collected • Implementation level of the procurement plan • Percentage of laboratory supplies purchased • Percentage of required logistics fulfilled • Number of workforce hired/recruited	• Facilitation of construction sites/land access and ownership approval • Undertake project feasibility studies • Setting construction specifications • Establish construction designs • Submit construction documents to Ministry of Plan (MoP) for approval • Solicit budget/fund for the project realization • Floating construction bids • Perform evaluation of bidders documents • Signing agreement with selected bidders • Site delivery and kick-off laboratory infrastructures constructions • Supervision of the ongoing chemical storage cold chain facility construction • Supervision of the ongoing medical device quality testing facility construction • Supervision of the ongoing laboratory equipment maintenance and calibration facility construction • Supervision of the ongoing laboratory animals houses construction • Supervision of laboratory waste disposal facility construction • Supervision of laboratory data management center construction

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
			• Percentage of planned activities accomplished • Number of inaugurated projects rendering services	• Project proposal development • Identification of laboratory materials • Laboratory materials specification preparation • Laboratory supplies procurement plan development • Avail adequate financial resources • Avail adequate laboratory supplies • Avail adequate logistics (e.g. vehicles) • Facilitate human resources recruitment • Project activities monitoring and evaluations
Regulate Agricultural Service Provision Centers	Improving Laboratory Service Delivery Capacity	• Number of regulated product samples tested • Number of test certificates issued • Percentage of laboratory results released within the turnaround time as per laboratory citizen charter • Level of customers satisfaction achieved in relation to laboratory services • Increased number of new scopes of testing capabilities • Number of planned monitoring activities conducted and results disseminated	• Number of received and tested veterinary drug samples for registration • Number of received and tested veterinary drug samples for consignment release • Number of received and tested post markets surveillance vet drug samples • Number of received and tested samples of animal vaccines for registration • Number of received and tested samples of medical devices for suitability checks	• Perform laboratory analysis on veterinary medicinal product (VMPs) samples • Perform laboratory analysis on veterinary drug consignment samples • Perform laboratory analysis on post market surveillance veterinary drug samples • Perform laboratory analysis on animal vaccine and related biological samples • Perform laboratory quality and safety analyses on commercial animal feed samples • Perform mineral analysis on feed supplements and additive samples • Perform laboratory safety analysis on industry by product feed raw materials samples

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
		• Number of planned survey or research conducted and results disseminated	• Number of received and tested commercial animal feedstuffs samples • Number of received and tested animal feed supplements/additives samples • Number of received and tested feed raw materials samples • Number of raw milk samples collected and tested • Number of raw meat samples collected and tested • Number of honey samples collected and tested • Number of pathogen microorganisms identified and tested for AMR • Number of tested non-regulatory samples obtained from external customers • Number of planned problem solving monitoring conducted • Number of planned problem solving surveys/research conducted • Number of laboratories performing screening schemes • Number of drug samples screened for quality testing • Number of honey samples screened for pesticide residue	• Perform laboratory (proximate) analysis on raw milk samples to verify adulteration • Perform laboratory safety analyses (chemical residues and microbiology) on raw milk samples • Preform laboratory analysis (proximate) on honey samples to ascertain adulteration and freshness • Perform laboratory safety analysis (chemical residues and microbiology) on honey samples • Perform laboratory safety analyses (chemical residues and microbiology) on raw meat samples • Perform laboratory safety analyses (chemical residues and toxic mineral) on raw fish samples • Perform antimicrobial susceptibility test (AMR/AST) on pathogen bacterial isolates • Perform laboratory analyses on non-regulatory samples obtained from external customers • Perform screening tests on drug samples • Perform aflatoxin screening tests on feed samples • Perform aflatoxin screening tests on milk samples

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
			• Number of raw meat samples screened for drug residue testing • Number of raw milk samples screened for aflatoxins (AFM1) testing • Number of raw milk samples screened for drug residue testing • Number of feed samples screened for aflatoxins testing • Number of increased new test parameters for regulated products • Percentage of improved supply of laboratory materials and screening kits • Number of trained federal and regional expertise on quality and safety regulation of livestock products and inputs	• Perform antibiotic residue screening tests on meat and milk samples • Perform pesticide screening tests on honey samples • Perform laboratory analyses on samples of medical devices • Conduct bi-annual veterinary drug residue monitoring tasks • Conduct annual pesticide residue monitoring • Conduct AMR surveillance and data collections • Conduct drug quality post market surveillances • Conduct vaccine quality surveillance activities • Conduct toxic minerals surveillance tasks • Develop project proposal documents to seek financial support from partners • Identify and prepare laboratory supply specifications • Facilitate laboratory supplies procurement process • Ensure laboratory supply correctness up on receipt/delivery • Ensure good laboratory supply management and utilization practices • Ensure the state of art laboratory supplies and screening test kits provisions

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
				• Expand test parameters to address quality and safety concerns on risk based approach • Ensure laboratory logistics (e.g. water purification systems and vehicles) • Provide skill and knowledge development trainings to laboratory personnel • Preparation and issuance of test certificates to customers • Organize VMPs surveillance data and disseminate information to decision makers • Organize meat and milk drug residue surveillance data disseminate information to decision makers • Organize honey pesticide residue surveillance data and disseminate information to decision makers • Organize feed and milk aflatoxins surveillance data disseminate information to decision makers • Organize AMR surveillance data and disseminate information to decision makers • Offer laboratory oriented livestock products and inputs quality and safety trainings to federal and regional expertise

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
Regulate Agricultural Service Provision Centers	Strengthening Laboratory Quality Management System	• Number of laboratories demonstrated competency • Number of ISO/IEC 17025 accreditations obtained • Increased customer and public trust • Decreased customer complaints • Ensured laboratory information management system • Ensured ITC	• Established quality management system • Ensured ISO/IEC 17025 requirements fulfillment • Established laboratory information management system • Number of customer request reviewed • Number of test parameters accredited • Number of approved general standard operating procedures (SOPs) • Number of approved test procedures • Number of approved guidelines and manuals • Number of approved record management formats • Number of approved data management electronic worksheets • Number of planned test procedures reviewed • Number of planned general SOPs reviewed	• Strengthen laboratory QMS establishment implementations • Establish laboratory information management system (LIMS) • Perform review of customer requests and contracts • Develop general standard operating procedures • Develop testing standard operating procedures • Develop standard working guidelines and manuals • Develop standard record management formats • Develop standard electronic data management worksheets • Periodically review general standard operating procedures • Periodically review testing standard operating procedures • Periodically review general guidelines and manuals • Conduct test method development and modifications as deemed appropriate • Conduct laboratory test methods validation and verifications as deemed necessary

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
			• Number of guidelines and manuals reviewed • Number of test methods validated and verified • Number of laboratory equipment calibrated • Number of laboratory equipment maintained • Number of Proficiency Testing (PT) samples provider communicated • Number of successful Proficiency Testing (PT) schemes outcomes • Number of planned internal audits conducted • Number of planned laboratory QMS external audits conducted by accreditation bodies • Number of planned quality management system review meetings conducted • Percentage of laboratory QMS non con-conformance identified	• Periodically perform laboratory instrument calibration activities • Periodically perform preventive laboratory equipment maintenance activities • Perform corrective laboratory equipment maintenance activities • Establish communication linkage with international Proficiency Testing (PT) samples provides or suppliers • Participate on VMPs quality PT schemes • Participate on animal vaccines quality PT schemes • Participate on honey quality and pesticide PT schemes • Participate on meat drug residue PT schemes • Participate on milk aflatoxin (AFM1) PT schemes • Participate on feed aflatoxin (B1,B2, G1,G2) PT schemes • Participate on livestock products (honey, milk, honey) and animal feed toxic and essential minerals PT schemes

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
			• Number of root cause analysis conducted and problems identified • Number of planned corrective and preventive (CAPA) plans formulated and problems fixed • Number of received customer complaints investigated and feedback communicated • Percentage of risk identified as very high, very high, medium and low • Percentage of staff sensitized on risk management • Number of planned training program instituted • Number of competent and skilled laboratory personnel deployed	• Participate on livestock products (meat, milk, honey) and animal feed microbiology quality PT schemes • Periodically perform laboratory QMS internal audits/self-inspection tasks • Facilitate laboratory QMS external audit activities conducted by accreditation bodies • Periodically conduct laboratory QMS management review meetings • Identify and maintain records of laboratory work non conformances • Perform root cause analysis on the identified laboratory QMS non-conformance • Establish and implement preventive and corrective (CAPA) measures to eliminate recurrence of laboratory non conformances • Register customer complaints, investigate the case and timely communicate the feedback to the customer

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
				• Conduct laboratory service delivery customer satisfaction feedback assessment • Ensure laboratory technical records, reports, data and document control and managements system • Ensure test results and reports quality assurances activities • Establish laboratory access control system • Establish laboratory waste disposal system • Establish laboratory records and document disposal system • Ensure proper management of test samples, reference standards, chemicals, reagents, medias and solutions • Ensure laboratory equipment and instrument measurement traceability and proper managements systems • Implement proper risk management system • Periodically assess laboratory personnel skill gaps and establish

Goal/thematic area	Objectives	Outcome key indicators	Output key indicators	Key activities
				deliverable capacity development plans • Provide QMS trainings to laboratory personnel on theoretical principles and practical laboratory exercise • Establish a mechanism to identify and contract external laboratories (if needed) • Automation of the data management system with LIMS

Table 29. Result framework to improve EAA cross cutting issues

Objective No	Goal	Objective	Out come	Output	Activities
1	**ImprovedAgricultural regulatory service provider centre**	**Establish and enhance Good Governance practices**	Increased regulatory Effectiveness	Reduced percentage of service delivery complaints	Ensure good governance principles and practices
					Develop a code of conduct based on the regulatory condition
					Establish 'open' mechanisms for citizen's complaints and redress
					Design and implement mechanisms of translating policies and strategies into action including provision of legal frameworks.
					Ensuring financial Audit compliance by implementing existing finance administration rules.
				Increasing Percentage of regulatory services provided as per the citizen charter	Enhancing service quality and delivery to customers through Accountability and transparent strong internal control on corruption by designing different strategy
					Promote gender equity in leadership and other roles
					Strengthen transparent system through evidence-based & coordinated planning including priority setting, monitoring, and evaluation system
				Reducing number of ecords in corruption.	Conduct customer(internal and external) satisfaction survey, take correction action based on the finding
					Mitigate the problems by investigating complaints that will be found
					Design and implement the anti-corruption strategy

		Improved Human Resource Development and Management	Adequate, competent, motivated and committed workforces	Percentage of filled open (newly approved and vacant) positions with workforce	Recruitment planning
2	**Improve Agricultural regulatory service provider centre**				Identifying jobs Number of posts to be filled Number of positions Duties and responsibilities to be performed Qualification and experience required
					Search from internal source promotions, transfer, Internal Advertisements (Job Posting),Employee Referrals, former employees
					Job analysis Recording and collecting job information Accuracy in checking the job information Generating job description based on the information Determining the skills, knowledge and skills, which are required for the job
					Job description and job analysis
			Effective leadership	Number of trained employees	Skill gap assessment
					Budget plan for training
					Conduct training
					Feedback and assessment
			Satisfied employees	Number of Incentives awarded.	Regular performance appraisal
					analysis of performance
					Designing incentive mechanisms
					Recognition and incentives

				Percentage of Safety and workplace protection implemented.	Ensure safety and healthful workplace with adequate protection against hazards(Create conducive work environment)
3	**Improve Agricultural regulatory service provider centre**	**Establish and strengthen regulatory ICT Infrastructures.**	Efficient, responsive, and modern regulatory institution	Software maintenance and application.	Software upgrade
					Software development for planning monitoring and evaluation
					Establishing Excellency Data centre
					CCTV Camera at 20 points with complete system
					IFIMIS and e-payment follow up and maintenance
					One window service improvement
					Fleet management software: procurement, maintenance and service.
					Software development for (inspection system Implemented regional level))
					Software procurement for LMIS logistic management system..
					Regulatory information system scale up from federal to branch level
					Hardware and software maintenance
4	**Improve Agricultural regulatory service provider centre**	**Establish and enhance partnership and collaboration**	Continuous and aligned strategic partnership	Number of signed with international, federal, and local organizations for partnership and collaboration	Conducting mapping of potential stakeholders.
					Engagement in partnerships with foreign governments, regulatory coalitions, development organizations, and academic institutions, among others.

					Engage stakeholders in the planning, implementation, monitoring, and evaluation of the regulatory system
				Number of joint activities of regulatory function conducted with different stakeholders	Inform and engage all stakeholders through effective internal and external communication.
					Promote and create public-private partnerships
					Strengthen & establish Result oriented performance mgt, and a system for follow up
					No of Formulated and implemented partnerships and collaborations strategy.
5	**Improve Agricultural regulatory service provider centre**	**Improved Efficiency & Effectiveness**	Improved percentage of financial utilization	Reduced wastage and proper management of resource and budget	Increase Governmental budget allocation
					Evaluate plan versus budget alignment periodically
					Reduce budget wastage
					Implement effective IFMIS or other ICT method of procurement process
					Develop an effective harmonized financing and purchasing functions
					Strengthen modern inventory & stock management system supported by modern IT system
					Establish a modern contract management system for large & extended projects
			Increase the Agricultural regulatory financial self-reliance	Improved resource mobilization (from treasury, **internal revenue** and donor fund)	Asses regulatory gaps and develop mutual interested fund projects for resource mobilization
					Execute periodical liquidation /liquidate and report fund on time.
					Strengthen and Conducting Monitoring & Evaluation, and periodic review at mgt level the Strategic Performance

				Successful accessibility of regulatory services	Revise service fee and negotiate with decision makers
6	**Improve Agricultural regulatory service provider centre**	**Establish and maintain regulatory communication strategies**	Healthy work place culture.	Improved relationships among employee and the public.	Get specific with instructions
				Improved direction flows.	Open multiple lines of communication
					Connect across departments
				Increased information flow and innovation to Strengthened team work	Selection of proper method to upward, downward and horizontal communication.
					Use verbal, on verbal, visual and written communication methods
			Modern, loyal and impressive regulatory.	Improved client relation	Use technology to facilitate communications.
					Create an open environment
					Provide opportunities for feedback
					Celebrate achievements and milestones

Figure14.Staphylococcus aureus AMR development levels against selected

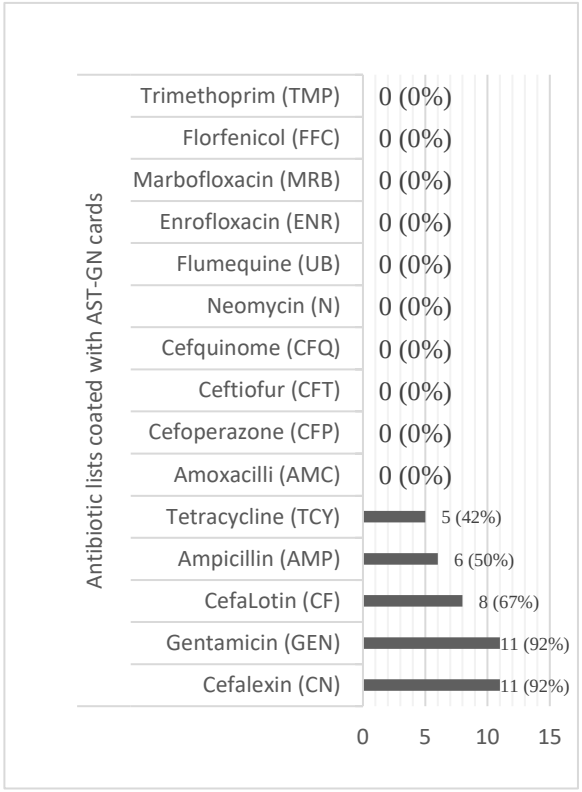


Figure 15. Escherichia coli AMR development levels against selected antibiotics

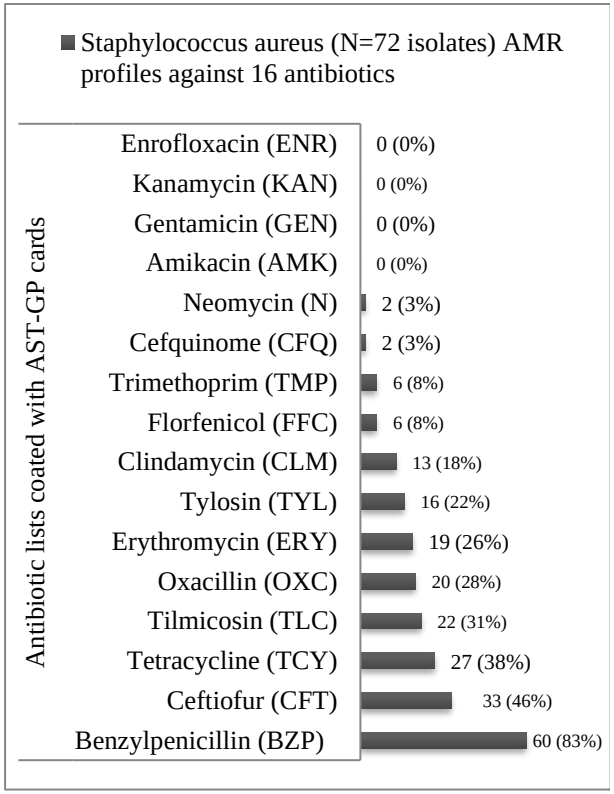
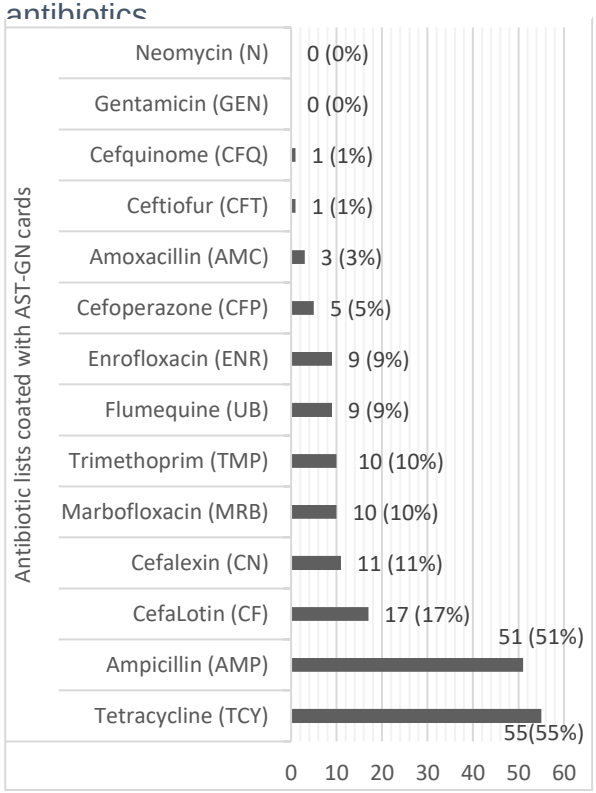


Figure 13. Salmonella Spps AMR development levels against selected antibiotics



.

References

Assefa A and Bihon A (2019). Bovine cysticercosis in Ethiopia: A systematic review and meta-analysis of prevalence from abattoir-based surveys. Preventive Veterinary Medicine, (), 104707.

Berg S, Firdessa R, Habtamu M, Gadisa E, Mengistu A, et al. (2009) Correction: The Burden of Mycobacterial Disease in Ethiopian Cattle: Implications for Public Health. PLOS ONE 4(4): 10.1371

Beyene N Mormeta (2017). Occupational risks and health effects of pesticides in three commercial farming systems in Ethiopia. PhD Thesis. Utrecht University: The Netherlands. https://dspace.library.uu.nl/bitstream/handle/1874/351047/Mormeta.pdf.

COMESA (2019). Assessment of livestock market and mapping of enterprises in exporting and importing countries to establish basic data on import and export of live animal (beef cattle and small ruminants) and meat. Common Market for Eastern and Southern Africa (COMESA). https://www.comesa.int/wp-content/uploads/2020/08/Livestock-Trade-in-COMESA_ONL.pdf.

EAA (2021). Plant Variety Release, Protection and Seed Quality Control Directorate, Ethiopian Agriculture Authority, Addis Ababa, Ethiopia.

Feinstein International Centre (2007). Livestock Exports from the Horn of Africa: An Analysis of Benefits by Pastoralist Wealth Group and Policy Implications. Feinstein International Center, Tufts University, MA 02155 USA.

Fromsa, A. and Jobre, Y. (2012). Estimated annual economic loss from organ condemnation, decreased carcass weight and milk yield due to bovine hydatidosis (Echinococcus granulosus, Batsch, 1786) in Ethiopia. Ethiopian Veterinary Journal. 16(2):1-14.

Gadissa AA, Teklu BM and Damene S. (2022). Environmental implications of pesticide use and application practice on beekeeping: Evidence from Gudeya Bila Woreda of East Wollega Zone in Oromia Regional State, Ethiopia. African Journal of Environmental Sciences and Technology. 16(7), pp. 275-285. DOI: 10.5897/AJEST2022.3111.

HFFA Research GmbH (2017). The Socio-economy benefit of UPOV membership in Viet Nam: executive summary. UPOV, Geneva.

KEPHIS (2012). Annual Report and Financial Statements. Kenya Plant Health Inspection Service, Nairobi, Kenya.

MOA (2013). Animal health strategy and vision for Ethiopia. Ministry of Agriculture of the Federal Democratic Republic of Ethiopia.

MoH, MoA, and EFCCC (2021). Antimicrobial Resistance Prevention and Containment Strategic Plan 2021-2025: The One Health Approach. Federal Democratic Republic of Ethiopia Ministry of Health, Ministry of Agriculture, and Environment, Forest and Climate Change Commission, Addis Ababa.

Negatu B, Dugassa S,Mekonnen Y. (2021). Environmental and Health Risks of Pesticide Use in Ethiopia . Journal of Health and Pollution 11 (30): 210601.

Negatu B. (2019). Assessment of pesticide hazard related knowledge and practices of agricultural extension workers in selected small-scale horticulture production areas in Ethiopia. *J Environ Agri and Int Devl - JAEID*, 113 (1): 5-15 DOI: 10.12895/jaeid.20191.739.

Negatu B., Kromhout H., Mekonnen Y., Vermeulen R. (2016). Use of Chemical Pesticides in Ethiopia: A Cross-Sectional Comparative Study on Knowledge, Attitude and Practice of Farmers and Farm Workers in Three Farming Systems. *Ann. Occup. Hyg*, 60(5), 551–566.

OIE, (2018). Terrestrial Animal Health Code. World Organization for Animal Health.

Tadesse, G. and Gebremedhin, E. Z. (2015). Prevalence of Salmonella in raw animal products in Ethiopia: a meta-analysis. BMC Research Notes. 8:163.

Teklu B.M., Adriaanse P.I., Van den Brink P.J. (2016B). Monitoring and risk assessment of pesticides in the irrigations systems in Debre Zeit, Ethiopia. *Chemosphere*, 161. 280-291.

Teklu B.M., Hailu A., Wiegant D.A., Scholten B.S., Van den Brink P.J., (2016A). Impacts of nutrients and pesticides from small and large scale horticulture on the water quality and ecology of the Lake Ziway catchment, Ethiopia. *Env. Sci.Pollut*. Res. 25 (14): 13207-13216, http://dx.doi.org/10.1007/s11356-016-6714-1.

Teklu BM, Adriaanse PI, Ter Horst MMS, Deneer JW and Van den Brink PJ(2015). Surface water risk assessment of pesticides in Ethiopia. Science of the Total Environment. 508: 566–574.

Teklu, B. M.; Haileslassie, Amare; Mekuria, Wolde. 2021. Pesticides as water pollutants and level of risks to environment and people: an example from Central Rift Valley of Ethiopia. Environment, Development and Sustainability, 20p. (Online first) [doi: https://doi.org/10.1007/s10668-021-01658-9]

Tesfaye A., Dejene H., Admassu B., Kassegn TA., Asfaw D., Dagnaw GG., Bitew AB (2021). Seroprevalence of Bovine Brucellosis in Ethiopia: Systematic Review and Meta-Analysis. Veterinary Medicine: Research and Reports, 12: 1–6.

VDFACA (2021). Annual report. Veterinary Drugs and Feed Administration and Control Authority, Addis Ababa, Ethiopia.