A CONTINOUS PROFESSIONAL DEVELOPMENT MODULE

ON

TRADE OF ANIMALS AND THEIR PRODUCTS

For Veterinary and Para-veterinary Professionals

Course Code: Will be assigned by CPD CC
Credit Points: Will be assigned by CPD CC

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ACRONYMS

ALOP	Acceptable Level of Protection
AoA	Agreement on Agriculture
ARIPO	African Regional Industrial Property Organization)
BCPs	Member State's Border Control Posts
BTV	Blue Tongue Virus
CAC	Codex Alimentarius
CAHWs	community animal health workers
CBPP	Contagious Bovine Pleuropneumonia
CBT	Commodity Based Trade
CCPs	Critical Control Points
Chania GAP	Chania Good Agricultural Practice
CL	Critical Limits
CP	Critical point
CPD	Continuing Professional Development
DDA	Doha Development Agenda
ECOWAS	Economic Community of West African States
EU	European Union
Eurpe GAP	Europe Good Agricultural Practice
EVA	Ethiopian Veterinary Association
FAO	Food and Agricultural Organization
FBD	Foodborne diseases
FMD	Foot and Mouth Disease
GATT	General Agreement on Trade and Tariff
GDP	Gross Domestic Product
GF-TADs	The Global Framework for Progressive Control of Transboundary Animal Diseases
HACCP	Hazard Analysis and Critical Control Point
HPAI	Highly Pathogenic Avian Influenza
IBD	Infectious bursal disease
ID	Identification of animal
IGAD	Intergovernmental Authority on Development
IPPC	International Plant Protection Convention
ISO	International Standardization Organization
LITS	livestock identification and traceability system
LLP	Livestock and Livestock Products
MC	Member Country
MOA	Ministry of Agriculture
MRLs	Maximum reside limits
NASA	National Aeronautics and Space Administration space missions
NCD	Newcastle Disease

NGO	Non-Governmental Organization
NLMIS	National Livestock Market Information System
OAPI	Organization Africaine de la Propriété Intellectuelle
OCR	The Official Controls Regulation
OHHLEP	One Health High Level Expert Panel
WOAH	World Organization for Animal Health
PPR	Peste des Petits Ruminants
RMRs	Risk Management Recommendations
RTAs	Regional trade agreements
RVF	Refty valley Fever
SMS	Short Message System
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
TADs	Transboundary Animal Diseases
TBT	Technical Barriers to Trade Agreement
TFA	Trade Facilitation Agreemen
TPRM	Trade Policy Review Mechanism
TRIPS	Trade Related aspects of Intellectual Property Rights
UN	United Nations
UNEP	United Nations Environment Programme
WAHID	World Animal Health Information Database
WHIS	World Animal Health Information System
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WOAH	World Organization for Animal Health
WTO	World trade organization

LIST OF FIGURES

1. Course Description

The livelihood of smallholder rural farmers is highly dependent on the cash income from livestock and livestock products. About 80-90% of livestock product markets from developing countries are dominated by informal traditional marketing due to limited SPS and low-quality standards for export purpose (Steve Staal, 2019).

Under the current Ethiopian conditions, basic knowledge on how marketing routes and systems contribute to the spread of diseases and their respective implications on the domestic and international trade in livestock is highly appealing. Acquiring of basic knowledge by veterinarian and para-veterinarian towards international agencies, legal frameworks, rules and international standards are important for the trade of animal and their products. This is expected to alleviate the major constraints associated with domestic and international export markets, welfare of smallholder producers, urban consumers and the national balance of payment. Therefore, we aimed to develop and offer customized continuous professional development (CPD) training program regarding to the trade of animals, animal products and their byproducts. Provision this CPD training may contribute for improvement of professional competences in accordance to the national and international rules and regulations governing the trade of animals and their products.

This CPD course is intended for any professional who is involved in the trade of animals, their products and byproducts. The course covers the current state of knowledge on the agencies/organizations, international rules and regulations governing the trade of animals and their products, livestock policy hubs in the Inter-governmental authority on development (IGAD) region, livestock trade in Ethiopia, and the international and national code of practices for the export of animals and animals products.

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2. Course Duration

Module	**Session**	**Time Required (hours)**		
		Theory	**Discussion and exercises**	**Total hour**
Trade of animals and their products	**SESSION I:** International Agencies, Regulations, Legal Frameworks-Rules and Standards of Trade of Animals and Their Products	6	1	7
	SESSION II: Livestock Policy Hubs in the IGAD Region	3	1	4
	SESSION III: Livestock Trade in Ethiopia	3	1	4
	Total hours	12	3	15

3. Course Objectives

3.1. General objective

The general objective of this CPD is to enhance the professional competencies of VPs and VPPs to the minimum required standard as set by the Ethiopia government and international rules and regulations governing the trade of animals and their products thereby improving animal health and safety of animal products which, in turn increase export/revenue from animals and their products.

3.2. Specific objectives

- This CPD module is intended:
- To familiarize trainees with international agencies involved in the trade of animals and their products.
- To enable trainees for identifying the legal frameworks, rules, regulations, and standards of trade of animals and their products established by international organizations.
- To enable trainees for sorting out the challenges and opportunities regarding the trade of animals and their products in Ethiopia.
- To acquaint trainees with the objective of IGAD livestock policy hub.
- To enable trainees for evaluating the requirements laid in exporting and importing of livestock and their products.

4. Learning Outcomes

By the end of this module, trainees are expected to:

- Identify the rules and regulations set by international organizations regarding to the trade of animals and their products.
- Analyze the legal frameworks, rules, regulations, and standards regarding to the trade of animals and their products.
- Describe the challenges and available opportunities regarding to the trade of animals and their products in Ethiopia.
- Explain the objectives of IGAD livestock policy hub.
- Evaluate the requirements laid in exporting and importing of livestock and their products.

5. Learning Approach

Learning methods adopted this CPD include the following:

- Experience and case-based presentations, reflective and collaborative learning approaches.
- Group work and reflective discussions.
- Videos, pictures and other supportive materials for self-study.
- Power point presentations by team of experts.
- Virtual approaches and E-learning methods when time allows.

6. Evaluation/Assessment

The uptake of the lesson learnt and its impact will be assessed by:

- Pre-assessments (Pre-background check up with level of expectations will be assessed first).

- ❖ Post-assessments techniques such as formative (exercises and practical tests at the end of each session) and summative (assessments and exercises at the end of the training), Progressive (trainee daily performance assessment).
- ❖ Learning monitoring tools: by checking the active participation and proper follow up of the trainees using recap, question, feedback boards, reflective learning logs, and training survey.

7. TRADE OF ANIMALS AND THEIR PRODUCTS

SESSION I: International Agencies, Regulations, Legal Frameworks, Rules and Standards

Learning objectives:

- ➢ To enable trainees to be familiar with international organizations involved in the trade of animals and their products.
- ➢ To enable trainees for identifying the rules, legal frameworks, standards and regulations/guidelines established by international organizations involved in the trade of animals and their products.

Learning outcomes at the end of this session the trainees will:

- ➢ Identify the roles and responsibilities of international organizations involved in the trade of animals and their products.
- ➢ Identify rules, legal frameworks, standards, and regulation/guidelines established by international organizations involved in trade of animals and their products.

7.1. International Agencies Involved in the Trade of Animals and Their Products

- ➢ World Trade Organization (WTO)
- ➢ World Animal Health Organization (WOAH)
- ➢ World Health Organization (WHO)
- ➢ Food and Agriculture Organization (FAO)

What is the role of veterinarians in the trade of animals and their products? Veterinary Services provide the assurance of compliance with the conditions and measures necessary to minimize potential risks associated with traded commodities to human or animal life or health in importing countries. Veterinarians are a broad range of actors involved in the implementation of WOAH international standers distributed along complex and complimentary chains of responsibilities of documentation and reporting.

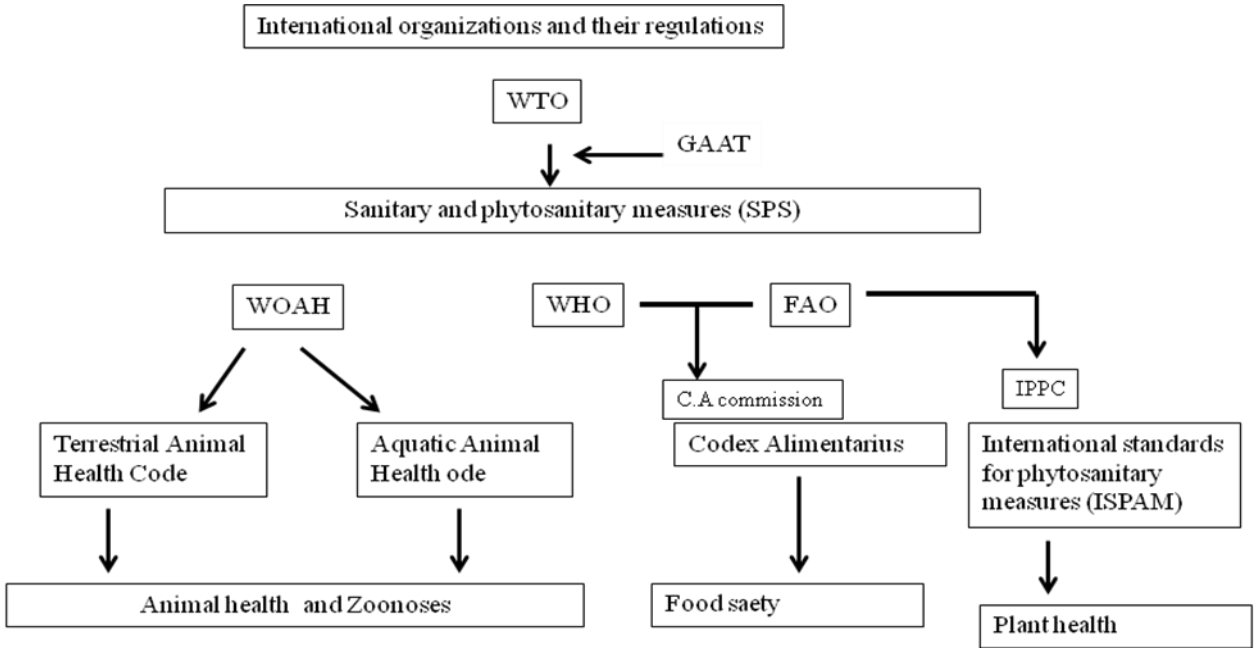

Figure 1. International agencies and regulations

7.1.1. World Trade Organization

The World Trade Organization is the only global international organization dealing with the rules of trade between nations, since its inception in 1995. Currently it has 164 member countries. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal is to help producers of goods and services, exporters, and importers conduct their business. From the early days of the Silk Road to the creation of the General Agreement on Tariffs and Trade (GATT) and the birth of the WTO, trade has played an important role in supporting economic development and promoting peaceful relations among nations. The WTO is an international organization conforms of country members, in which the main goal is to establish policies to regulate trade between nations at a global level (WTO, 2021).

- Preventing trade barriers
- protecting consumers
- preventing the spread of disease

It is a forum for governments to:

1. Negotiate trade agreements
2. Settle trade disputes
3. Reviewing national trade policies
4. Building the trade capacity of developing economies
5. Cooperating with other international organizations

The Main Functions of WTO:

Negotiate trade agreements

WTO agreements

How can you ensure that trade is as fair as possible, and as open as is practical? By negotiating rules and abiding by them. The WTO's rules – the agreements – are the result of negotiations between the members. The current set is largely the outcome of the 1986 - 94 Uruguay Round negotiations, which included a major revision of the

original GATT. The Uruguay Round created new rules for dealing with trade in services and intellectual property and new procedures for dispute settlement. Decisions are normally taken by consensus and they are ratified by members' parliaments. The system was developed through a series of trade negotiations, or rounds, held under the GATT. The first rounds dealt mainly with tariff reductions but later negotiations included other areas such as anti-dumping and non-tariff measures. The 1986-94 round – the Uruguay Round – led to the WTO's creation.

7.1.2. World Health Organization

The WHO is the United Nations specialized agency for Human Health with various functions develop, strengthen and maintain core surveillance and response capacities to detect, assess, notify and report public health events and collaborate with States Parties to evaluate their public health capacities, facilitate technical cooperation, logistical support and the mobilization of financial resources for building capacity in surveillance and response established in 1948.

The WTO collaborates with the WHO on a number of different issues related to trade and health. Although there is no formal agreement between the WHO and the WTO, the WHO has observer status in the Committee on Sanitary and Phytosanitary (SPS) measures and the Technical Barriers to Trade (TBT) Committee (WTO, 2002).

The WHO and WTO secretariat published a joint study of the relationship between trade rules and public health. The 171-page study WTO Agreements and Public Health explains how WTO Agreements relate to different aspects of health policies. It is meant to give a better insight into key issues for those who develop, communicate or debate policy issues related to trade and health. The study covers areas such as drugs and intellectual property rights, food safety, tobacco and many other issues which have been subject to passionate debate. Furthermore, FAO/WHO Codex Alimentarius as the relevant standard-setting organization for food is financed jointly by the FAO and the WHO (WTO, 2002).

The FAO, WOAH, WHO and United Nations Environment Programme (UNEP) welcomed the newly formed operational definition of One Health from their advisory panel, the One Health High Level Expert Panel (OHHLEP), whose members represent a broad range of disciplines in science and policy-related sectors relevant to One Health from around the world.

These four organizations are working together to mainstream One Health so that they are better prepared to prevent, predict, detect, and respond to global health threats and promote sustainable development.

The One Health definition developed by the OHHLEP states: **One Health** is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems (WHO, 2021).

7.1.3. Food and Agriculture Organization of The United Nations

Food and Agricultural Organization is an agency of the United Nations (UN) that aims to eliminate hunger worldwide. Working with both developed and developing nations, FAO includes 197 member states, which consists of 194 member nations, 1 member organization, and 2 associate members. The mandate of FAO is to eradicate world hunger by ensuring that countries have food security, good nutrition, and cultivate sustainable agricultural methods. FAO focuses on several overlapping animal health issues: zoonotic diseases, transboundary diseases, insect-borne diseases, diseases of production and hygiene, veterinary public health, One

Health, food safety, strengthening of veterinary systems and antimicrobial resistance**.** Functions of FAO are categorized into three areas: food security, food safety, and influencing agricultural techniques (FAO, 2017).

Food and Agricultural Organization plays key roles on the following issues:

1. Control of transboundary diseases

The Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs) is a joint FAO/WOAH initiative, which combines the strengths of both organizations to achieve agreed common objectives. GF-TADs is a facilitating mechanism which will endeavor to empower regional alliances in the fight against transboundary animal diseases (TADs), to provide for capacity building and to assist in establishing programmes for the specific control of certain TADs based on regional priorities. Therefore, FAO has important role in trade of animals and their products since it works towards controlling and prevention of TADs such as FMD, HPAI and RVF (FAO and WOAH, 2004)

Food and Agricultural Organization believes on food security is achievable when food is not only available, accessible and nutritious, but when it is safe as well. All consumers have the right to expect that food available in domestic markets is safe and of high quality. However, food can become contaminated at any stage in the food chain. Good practices are critical at all stages throughout the food chain, from production to consumption, in order to maintain food safety. Therefore, it is critical to control foodborne pathogens, chemical contaminants and veterinary drug residues through good farm management, raising of healthy animals, and processing meat and poultry products in such a way that the introduction of pathogens is avoided. Improving animal health, including preventing infections, providing safe animal feed and controlling antimicrobial resistance and drug residues, is essential for the safety of food products that come from animals.

2. Animal health for food safety

Food and Agricultural Organization aims to improve food safety and quality management systems, based on scientific and risk-based principles that lead to reduced foodborne illness and support fair and transparent trade, thereby contributing to economic development, improved livelihoods and food security. Animal health practices that are important for food safety include:

- Health inspection of animals, and subsequent control strategies at harvest and processing to ensure product hygiene.
- Control of microbes that may be carried by healthy animals, but may make people sick if they contaminate food.
- Protection of animals from environmental chemical hazards that could make meat and milk products unsafe - for example, prevent animals from grazing on contaminated fields.
- Responsible use of antimicrobials so that residues are avoided and the development antimicrobial-resistant organisms.
- Waste management from animals to protect the environment - for example prevent Salmonella contamination from farm waste reaching water used for vegetable irrigation.
- FAO aims to identify likely food safety threats coming from animal production – and works on prevention and control with governmental authorities, veterinary services, local industry and other relevant stakeholders

3. Capacity development

- Advising governments on food safety policies, legislative and regulatory frameworks.
- Enhancing member country participation in Codex Alimentarius.
- Promoting food safety emergency preparedness in institutions to build resilient agri-food chains.
- Enhancing food safety management along food chains from production to consumption, including individuals' practices, to prevent foodborne diseases and trade disruptions.
- Raising awareness on prudent and proper use of antimicrobials in food-producing animals.
- Providing independent scientific advice to CODEX standard-setting through expert bodies.

4. Developing guidelines

Food and Agricultural Organization has developed a guideline on animal's identification and recording. This helped to operate technical cooperation projects for formulating legislation and designing national animal identification and recording systems in Chile, Uganda, Malawi, Lesotho, Moldova, Ukraine, India, Swaziland, Tanzania, Ethiopia, Suriname, Georgia (Besbes and Irene, 2011).

7.1.4. World Organization for Animal Health

It is a global authority on animal health. Founded in 1924 as the Office International des Epizooties (OIE), in May 2003 adopted the common name WOAH, which is an intergovernmental organization of 182 Member Countries. The officials representing their government during the WOAH General Session of the International Committee are veterinarians. In all cases, the representatives are required by WOAH to be technically competent so that they can actively participate in the decisions and discussions (WOAH, 2022).

Organizational structure

The WOAH operates under the authority and control of an International Committee formed by permanent Delegates designated by the Governments of the Member Countries. Each member country has one vote. The activities of the organization are conducted by a Central Bureau, headed by a Director General who is appointed by the International Committee. The Central Bureau implements the resolutions of the Committee drawn up with support from Commissions elected by the International Committees:
The WOAH has Five Regional Commissions, which have been formed to promote cooperation and to study specific problems encountered by Veterinary Services and to organize cooperation activities on a regional level. Elections were held in May 1997 for the Bureau of the Regional Commissions (President, Vice-President and Secretary General) for a three-year term:

- Africa, Bureau of the Commission;
- America, Bureau of the Commission;
- Asia, the Far East and Oceania, Bureau of the Commission;
- Europe, Bureau of the Commission; and
- Middle East, Bureau of the Commission.

WOAH has four sub-regions for Africa Region

- West Africa (Bamako, Mali)
- Southern Africa (Gaborone, Botswana)
- East and Horn of Africa (Nairobi, Kenya)
- North Africa (Tunis, Tunisia)

Implementing WOAH Mandate at the sub-regional level is to assist the Veterinary Services of Sub-regions with compliance with WOAH international standards.

WOAH member commitments - if the country is a member of WOAH but not a member of WTO

WOAH objectives enforced on an honor system: *The WOAH is not an enforcement body*. It relies on an honor system of conduct by the official authorities responsible for the animal health certification of livestock and livestock products for trade. The respect of WOAH Codes and principles is based on voluntary compliance by its members.

WOAH member commitments - if the country is a member of both the WOAH and WTO

WOAH standards given a stronger legal basis for WTO Members in the SPS Agreement: The items mentioned in Section 6.3 are the most relevant WOAH Member commitments. However, when a nation is a member of both the WOAH and the WTO, it should comply with all WTO agreements, including the SPS Agreement. (https://www.fao.org/3/X7354E/X7354e06.htm).

WOAH is one of the three standard-setting sisters:

The purpose of the WOAH's international standards is to improve the health and welfare of animals throughout the world, regardless of socio-economic, religious or cultural context. In the current trend of globalization, animal health measures have increasing importance to facilitate safe international trade of animals and animal products while avoiding unnecessary impediments to trade. WOAH standards are published interstitial animal health code, aquatic animal health code, the manual of diagnostic tests and vaccines for terrestrial animals and the manual of diagnostic tests for aquatic animals.

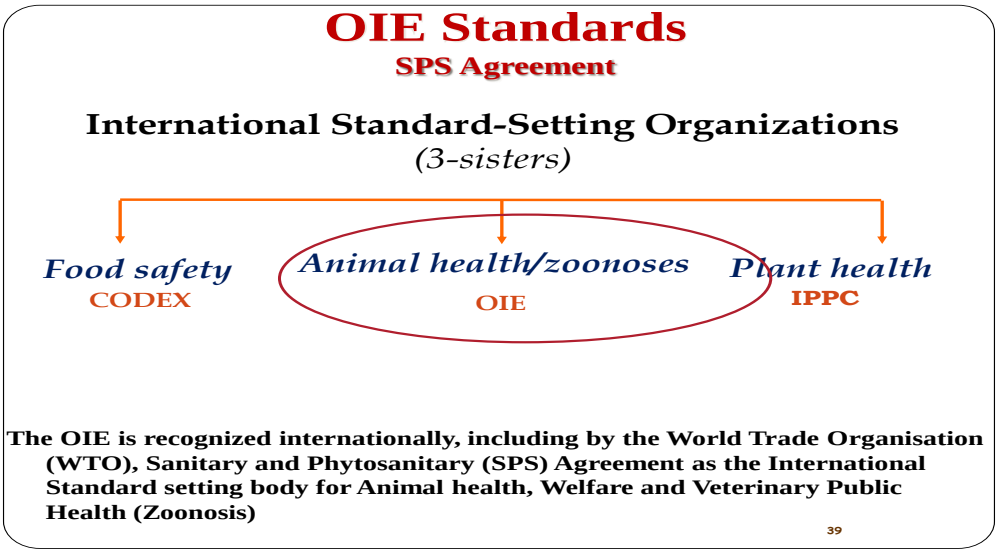

Figure 2. International standard setting organizations.

7.2. International Trade of Animals and Their Products: Legal Framework

The rules, rights and obligations of companies, governments, and citizens are set forth in a system of legal documents called a legal framework. The WTO Agreements and WOAH international standards provide the framework to facilitate the discussion between exporting and importing countries and to

agree on the sanitary requirements to be applied to achieve safe trade of live animals and animal products (Nadège et al., 2020).

7.2.1. What are Multilateral and Bilateral Trade Agreements?

Multilateral trade agreements are commerce treaties among three or more nations. The agreements reduce tariffs and make it easier for businesses to import and export. Since they are among many countries, they are difficult to negotiate. That same broad scope makes them more robust than other types of trade agreements once all parties signed. Bilateral agreements are easier to negotiate but these are only between two countries. They do not have as big impact on economic growth as does a multilateral agreement. The four main agreements are the GATT, Trade Related aspects of Intellectual Property Rights (TRIPS), the General Agreement on Trade and Services (GATS), and the Agreement on Agriculture (https://www.investopedia.com/terms/g/gatt.asp).

General Agreement on Tariff and Trade

The GAAT was signed by 23 countries in October 1947, after World War II, and became law on Jan. 1, 1948. The purpose of GATT was to make international trade easier. In 1995, GATT was absorbed into the WTO, which extended it. The GATT provides the general rules for the function of the WTO, which allows to govern the trade of goods, preventing trade barriers and at the same time protecting consumers and preventing the spread of disease (WTO, 2021).

7.2.2. WTO agreements

Agreement on the Application of Sanitary and Phytosanitary Measures

Sanitary and Phytosanitary sets out rules for national measures that aim to reduce hazards to animal, plant and human health, including food safety regulations; it incorporates the food safety guidelines and recommendations established by the Joint FAO/WHO. It recognizes that countries have a legitimate interest to protect human health from unsafe food, but upholds the principle that these measures should distort trade as little as possible. The SPS Agreement, provide governments with the means to establish a framework to facilitate trade on the basis of internationally agreed standards for food safety and animal health (Anneke,2020).

SPS measures are taken to protect

- Human or risks arising from additives, animal health contaminants, toxins or disease organisms in food, drink, feed stuff.
- Human life from plant- or animal-carried diseases
- Animal or from pests, diseases, disease-causing organisms
- A country from other damage caused by entry, establishment or spread of pests

SPS agreement: key provisions are

1. Non-discrimination
2. Scientific justification
   - Harmonization
   - Risk assessment
   - Consistency
   - Least trade-restrictiveness

3. Equivalence
4. Regionalization
5. Transparency
6. Technical assistance/special treatment
7. Control, inspection and approval procedures

Benefits and Risks of Global Trade

Benefits

- Benefit the national economy
- Provide employment
- Promote technology transfer
- Increase food safety
- Raise the diversity of food products available.

Risks

Outbreaks of transboundary diseases such as FMD, CBPP, PPR and Avian Influenza cause disruption within national, regional and international markets.

7.3. What are “International Trade Standards”?

A “standard” is defined as "a document, established by consensus and approved by a recognized body that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results.”
International trade standards are standards that are applied to goods and services which originate in one country, but which are sold or consumed in another. International trade standards can apply to the characteristics of the product itself, or to the production process.

7.3.1. Voluntary Verses Mandatory Standards

Mandatory international trade standards are embodied in trade treaties and agreements, and in national law.

- Specify product characteristics (e.g., drug residue levels) or labeling.
- They are legal requirements

Failure to comply prohibits a product or service from being sold in a given geographic market.
Products verse production processes: In the international trading system, mandatory standards generally apply to the characteristics of the product, not the process that produced it. However, food safety requirements “phytosanitary standards” are a “grey area.”

- Voluntary international trade standards:
  - Can apply to the characteristics of the product, its production process, or both. Are not legally required to export to a particular geographic market
  - Allow producers to sell into higher value-added markets, or to meet the requirements of key customers.
- Are “voluntary standards” always voluntary?

A voluntary standard can become mandatory for all intents and purposes if required by enough customers in a particular market. This is increasingly common for certain standards.

- **Why voluntary standards?** Voluntary and mandatory trade standards traditionally serve different objectives:
- Mandatory standards:
  - Foster trade and economic growth
  - Encourage competition
  - Protect consumers against unsafe or substandard products
- Voluntary standards
  - Develop markets for socially or environmentally responsible products
  - Promote other social and environmental objectives
  - Compensate for the lack of local or national regulatory capacity
- But as we shall see, objectives of mandatory and voluntary are beginning to overlap.

7.3.2. Sources of Standards

  - Many standards have many sources: Standards are set and administered by.
  - Regional (Standard Methods and Procedures (SMPs) for Export Quarantines in the Greater Horn of Africa)
  - International organizations (WOAH, CODEX, IPPC, ISO)

- International standards created through ISO helped organizations forge strong commercial partnerships across borders for over 50 years, building trust, transparency and quality. International standards from ISO are a cornerstone of the WTO rules-based trading system.(https://www.bsigroup.com/en-GB/standards/benefits-of-using standards/international-standards/).
- ISO (International Organization for Standardization) developed and published over 24,669 International Standards. The followings are examples of ISO standards for animal production and animal products:

1. ISO 24631, Radiofrequency identification of animals
2. The new ISO technical specification ISO/TS 34700:2016, *Animal welfare management* (ISO.2016)
3. ISO 22000, Food safety management systems –Requirements for any organization in the food chain
4. The ISO 22002 series of standards provides requirements for implementing and maintaining food safety prerequisite programmes (PRP)
5. ISO/TS22002-3, Prerequisite programmes on food safety
– Part 3: Farming
6. ISO/TS 22002-6, Prerequisite programmes on food safety
– Part 6: Feed and animal food production
7. ISO 22005, Traceability in the feed and food chain
– General principles and basic requirements for system design and implementation
8. ISO6492, Animal feeding Stuffs
– Determination of Fat content
9. ISO 6493, Animal feeding stuffs
– Determination of starch content
– Polarimetric method (https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100412.pdf).

7.3.3. The International WOAH Standards and its contents

The WOAH standards

- Set of agreed rules based on science and the most recent scientific evidence. The standard is made by the WOAH Scientific Commissions. All member countries are treated equally. They contribute and if necessary, vote for a one-country one-vote. Therefore, standards are fair without any bias. **WOAH standards** first published in 1968 with the aim of improving animal health, animal welfare and veterinary public health worldwide. These standards should be used by veterinary services for the implementation of the standard to protects animal health, animal welfare and ensure the safety of international trade in animals and animal products.

The WOAH international standards are published in:

1. **The Terrestrial Animal Health Code**

- Provides standards for the improvement of terrestrial animal health, animal welfare and veterinary public health services worldwide. These Implementation of the Terrestrial Animal Health Code enables professionals to protect animal health, animal welfare and ensure the safety of international trade in animals and animal products.

2.The Aquatic Animal Health Code

- Provides standards for improving aquatic animal health and animal welfare worldwide. It should be used by aquatic animal health services. Implementation of the aquatic code ensures the safety of international trade in aquatic animals and aquatic animal products.

3.The Manual of Diagnostic Tests and vaccines for Terrestrial Animals

- Provides a standardized approach to the diagnosis of livestock diseases listed in the Terrestrial Code. It is used for improving animal health worldwide, and facilitating the health certification for trade in animals and animal products. It also provides internationally agreed diagnostic laboratory methods and requirements for the production and control of vaccines and other biological products (WOAH, 2023)

4. The Manual of Diagnostic Tests for Aquatic Animals

- Provides a standardized approach to the diagnosis of the diseases listed in the Aquatic Code. Facilitate health certification for the trade of aquatic animals and aquatic animal products. A new edition is published every four years. However, any updated information could be available on the online version (WOAH, 2023) The WOAH standard code:
- These codes assure sanitary safety of international trade in terrestrial animals (mammals, birds, bees) and aquatic animals (fish, amphibians, crustaceans, molluscus) and their products. It provides detailed sanitary measures to be used by Chief Veterinary Officers of the Member Countries for establishing regulations regarding to the safe trade of animals and animal products. It also Establish health regulations required from importing and exporting countries.

CONTENTS OF WOAH TRADE STANDARDS

1. Disease notification and epidemiological information

- According to Terrestrial code chapter 1.1. The first WOAH historical objective is ensuring transparency in the global animal disease situation, including zoonoses.
- Diseases, infections and infestations listed by the WOAH are presented on the terrestrial animal health code of chapter 1.3. Members are obligated to report disease events of animal health significance. To achieve this, the WOAH developed and manages a web-based reporting system called the World Animal Health Information System (WAHIS). Through the WAHIS, members must report to the WOAH all notifiable terrestrial and aquatic animal diseases detected within their respective territories.

2.General obligations related to certification and certification procedures

- The health certificate issued by Central Ministry of Agriculture/Livestock/Quarantine is responsible for animal health in the exporting country as per WOAH Code (chapter 5.2, article 5.2.1 to 5.2.4). An international veterinary certificate is an official document that the Veterinary Authority of an exporting country issues in accordance with Chapters 5.1. and 5.2. It lists animal health requirements and, where appropriate, public health requirements for the exported commodity.

3. Import risk analysis

- As it is indicated in Terrestrial code of chapter 2.2 article 2.2.1., an import risk analysis begins with a description of the commodity proposed for import and the likely of annual quantity. It must be recognized that whilst an accurate estimate of the anticipated quantity of trade is desirable to incorporate into the risk estimate, it may not be readily available, particularly where such trade is new.

4. Equivalence

- As indicated on terrestrial code chapter 5.3., though, the production methods of the exporting country may differ from their own, they may still provide an equivalent level of health protection. Article 5.3.1. deals with the equivalent health and production systems among import and export countries. The importation of animals and animal products involves a degree of risk to animal and human health in an importing country.

5. Import/export procedures

- **Guidance notes for importers and exporters**: It is recommended that Veterinary Authorities prepare "guidance notes" to assist importers and exporters for understanding trade requirements. Notes should identify and explain the trade conditions, including the measures to be applied before and after export, during transport and unloading, and during the relevant legal obligations and operational procedures. Exchange of information between importers and exporters helps to assure safe international trade.

6. Model international veterinary certificate

- Terrestrial code chapter 5.10 indicates model veterinary certificates for international trade in live animals, hatching eggs and products of animal origin certificates with appropriate requirements in exporting country. Certification should be based on the highest possible ethical standards to ensure that the professional integrity of the certifying veterinarian is respected and safeguarded.

7. Quality of veterinary services

- Chapter 3.1.1. of terrestrial animal health code indicate the quality of Veterinary Services that depends on a set of factors such as fundamental principles of an ethical, organizational, legislative, regulatory and technical in nature.

8. Zoning and compartmentalization

- *According to the* Terrestrial Code article 4.3.1.and aquatic animal health code 4.1.1., it provides recommendations on the principles of zoning and compartmentalization for Member Countries. Establishing and maintaining a disease-free status throughout the country should be the final goal for Member Countries. However, Member Countries establish and maintain a subpopulation with a specific health status within their territory for the purpose of disease control or international trade if there are any difficulties. **Zoning** of animal subpopulation defined primarily on a geographical basis. **Compartmentalization** for animal subpopulation defined primarily by management and husbandry practices related to biosecurity.

9. Disease surveillance

- Terrestrial code Article 1.4.1. indicate disease surveillance**.** It is a systematic ongoing collection, collation, and analysis of information related to animal health and timely dissemination of information for action to be taken.

10. Animal production and food safety

- The terrestrial code of chapter 6.2 elaborates the role of the Veterinary Services in the food safety systems. Veterinarians carry out a wide range of activities in animal production systems that ensure the production of safe

food. Therefore, international standardization of food production procedures and safety measures are necessary for the safe trade of food products.

11. Animal traceability

- **According to Terrestrial code Article 4.1.1.,** animal identification means the combination of identification procedures and registration of an animal individually with a unique identifier, or collectively by its epidemiological unit or group, with a unique group identifier. Animal traceability means the ability to follow an animal or group of animals during all stages of its life. Generally, animal identification and traceability are crucial for effective management of disease outbreak.

12.Antimicrobial resistance

- **Terrestrial code chapter 6.6-6.10** states about methodologies used for Member Countries to appropriately address the emergence or spread of resistant bacteria from the use of antimicrobial agents in animals. Antimicrobial resistance is one of the greatest global health challenges of our time today, and it is becoming a leading cause of death globally.

13. Animal welfare

- According to the Terrestrial Code chapter 7.1., animal welfare means 'the physical and mental state of an animals in relation to the conditions in which the animal lives and dies. Animal welfare is closely linked to animal health, the health and wellbeing of people, and the sustainability of socio-economic and ecological systems.

14.Quarantine and border post security

- Quarantine may be defined as: A strict isolation imposed to prevent the spread of disease. Quarantine measures may be applied to animals which are moving between and across countries, or those animals introduced to a new area (farm, village, etc.) with infectious diseases or those animals which have been in contact with infected animals. **Border post** means any airport, or any port, railway station or road check-point open to international trade of commodities, where import veterinary inspections can be performed. **Quarantine station** means an establishment under the control of the Veterinary Authority where animals are maintained in isolation with no direct or indirect contact with other animals. **Border security means** protecting our borders from the illegal movement of animals and their products, while promoting lawful entry and exit to protect our country from biological hazards of animals and their products.

7.4. European Union Animals and Animal Products Import and Export Laws and Regulations

The European Parliament and the Council adopted the Regulation (EU) 2016/429 on transmissible animal diseases ("Animal Health Law") in March 2016. It has been applicable since 21 April 2021. Overall, the single, comprehensive new animal health law supports the EU livestock sector in its quest towards competitiveness and safe and smooth EU market of animals and of their products.

Trade between the third country and EU

Health control of live animals

Live animals can only be imported into the EU if they come from a third country included in a positive list of eligible countries for the relevant animal, are accompanied by the proper certificates and have succeeded the mandatory controls at the pertinent Member State's border inspection post.

Imports of live animals into the European Union (EU) must comply with the general health requirements related to:

1. Country health approval and approved establishments
2. Official certificates
3. Official control

According to Regulation (EU) 2017/625 (CELEX 32017R0625) (the Official Controls Regulation), these products can only be imported into the Union if they come from an approved establishment of a third country included in a positive list of eligible countries for the relevant product (if required), are accompanied by the proper official certificates, and have succeeded the mandatory control at the pertinent Member State's Border Control Posts . Compliance with these requirements is closely related to the fulfilment of certain conditions laid down in order to protect public and animal health.

However, the European authorities might suspend imports from all or part of the third country concerned or take interim protective measures when animals may present any risk for public or animal health as in the case of dangerous diseases outbreaks.

EU legislation established protective measures

Regulation (EU) 2016/429 (CELEX 32016R0429) brings together in a single law a huge number of legal acts regarding animal health. It lays down rules for the prevention and control of animal diseases which are transmissible to animals to humans. In particular:

- Part I lays down general rules for the prioritization and categorization of diseases and for the establishment of responsibilities for animal health (arts. 1-17);
- Part II contains specific rules on disease notification and reporting, surveillance, eradication programme and recognition of disease-free status;
- Part III regulates disease awareness, preparedness and control;
- Part IV establishes the registration and approval of establishments and transporters, movements and traceability of animals, germinal products and products of animal origin within the EU territory;
- Part V regulates the entry into the EU and the export of animals, germinal products and products of animal origin from third countries and territories;
- Part VI applies to non-commercial movements of pet animals;
- Part VII establishes emergency measures in the event of an outbreak of a listed disease or emerging disease.

Breeding animals and their genetic material are also subject to the specific zootechnical provisions lay down in Regulation (EU) 2016/1012 (CELEX 32016R1012).

Besides, any imported animal which has passed the health control and which remains within EU territory shall be identified on the holding of destination according to the provisions laid down in the EU legislation for the different species.

1. Country health approval and approved establishments

Once approved by *European Commission's Directorate-General for Health and Food Safety*, the third country and/or part of third country is added to the list of authorized countries for that particular species of animal. These lists are published in the Official Journal of the EU. Certain animals can only be placed on the Union market if they are imported from a country or region thereof included in one of the EU lists published in new Regulation (EU) 2021/405 (CELEX 32021R0405). Such lists are set out to ensure compliance with EU safety requirements laid down by Regulation (EU) 2020/692 (CELEX 32020R0692) complementing Regulation (EU) 2016/429 (CELEX 32016R0429).

2. Official certificates

The consignment must be accompanied by a health certificate signed by an official veterinarian of the competent authority in the exporting third country certifying that the animals in question are suitable to be exported to the EU.

3. Official control

The Official Controls Regulation provides that national competent authorities shall carry out official controls on all operators at all stages of production, processing, distribution and use of animals, goods, substances, materials or objects that are governed by agri-food chain rules.
In this regard, Regulation (EU) 2019/2130 (CELEX 32019R2130) lays down detailed rules concerning the performance of documentary checks, identity checks and physical checks at border control posts. The list of animals and products subject to official controls at border control posts is set out in Regulation (EU) 2021/632 (CELEX 32021R0632).
Generally moving live animals and their products in EU market

- Must be accompanied by an Intra Trade Animal Health Certificate (ITAHC).
- Official veterinarians (officially authorized to sign trade documents) are to provide ITAHC.
- Animal identification
  - All animals should have the right identification (cattle & horses must have passports, and ear tags in each ear)
  - Sheep and goats must have an electronic identifier
- Animal products intended for human consumption eg. meat, dairy and eggs), can be transported accompanied by a commercial document without a health certificate
- To place animal products on the market, they must come from an approved establishment
- Shipments of animal products must be authorized by the competent authority in the destination country before transported (https://trade.ec.europa.eu/access-to-markets/en/content/health-and-consumer-protection-animal-and-plant-product)

7.5. The Codex Alimentarius

Its name is derived from the Codex Alimentarius Austriacus (CAC, 2012). Its texts are developed and maintained by the Codex Alimentarius Commission (CAC), a body established in early November 1961 by the FAO, was joined by WHO in June 1962.

The Commission's main goals are to protect the health of consumers, to facilitate international trade, and ensure fair practices in the international food trade (Understanding codex, 2018). The CAC is an intergovernmental organization; the member states of the FAO and WHO send delegations to the CAC as of 2021, there were 189 members of the CAC (188 member countries plus one member organization, the European Union (EU) and 239 Codex observers (59 intergovernmental organizations, 164 non-governmental organizations, and 16 United Nations organizations) (Codex observer, 2021). The Codex Alimentarius, or "Food Code" is a collection of standards, guidelines and codes of practice adopted by the Codex Alimentarius Commission. The CAC does not have regulatory authority, and the Codex Alimentarius is a reference guide, not an enforceable standard on its own. Codex standards are based on sound science provided by independent international risk assessment bodies or ad-hoc consultations organized by FAO and WHO International Food Standards.

Removing Barriers to Trade: The reference made to Codex food safety standards in the WTO'S Agreement on SPS means that Codex has far reaching implications for resolving trade disputes. WTO members that wish to apply stricter food safety measures than those set by Codex may be required to justify these measures scientifically. Since its foundation, the Codex system has evolved in an open, transparent and inclusive way to meet emerging challenges.

Common understanding: The standards published in the Codex Alimentarius codify a common understanding among members on what is considered safe food and of agreed and acceptable quality, which allows them to ensure fair practices in the food trade. Even before the establishment of the WTO, Codex standards constituted a benchmark for food trade. (https://www.fao.org/fao-who-codexalimentarius/en/)

Examples of some of import codes of codex are:

1. Animal production and food safety

- General principles of food hygiene CAC/RCP1-169 revised in 1997and 2003
- Code of hygienic practice for meat CAC/RCP 58-2005
- Code of hygienic practice for milk and milk products CAC/RCP 57-2004

Toxin, drug residue: Guideline for the design and implementation of national regulatory food safety assurance programs associated with veterinary drugs in food producing animals CAC/GL 71-2009. Maximum reside limits (MRLs) and risk management recommendations (RMRs) for residue of veterinary drugs in food CAC/MRL2. General standard for contaminates and toxin in food and feed CODEX STAN193-1995. Code of practice concerning source directed measures to residue contamination of foods with chemicals CAC/RCP 49-2001

3. Antimicrobial resistance

- Guideline for risk analysis of foodborne antimicrobial resistance CAC/GL77-2011.
- Code of practice to minimize and contain antimicrobial resistance CAC/RCP 61-2005.

7.6. Hazard Analysis Critical Control Point

Current international trade standards based on the geographic distribution of TADs exclude large numbers of livestock producers in Africa from high-value markets for livestock products. This has prompted proposals for alternative, non-geographically based international standards founded on commodity-specific risk management (Thomson et al al., 2013). Hazard Analysis Critical Control Point (HACCP), CBT and sanitary risk management along the value chains are examples for non-geographically based sanitary risk management systems. HACCP still is not formally recommended as a system for animal disease risk management by WOAH due to unknown reason. On the other hand, CBT is increasingly recommended by WOAH, however; standards are often lacking (Article 8.6.25 is an exception).

History of HACCP

It was developed in the 1960s in the United States to ensure food safety for the first manned National Aeronautics and Space Administration (NASA). NASA required a ‘zero defect’ program to guarantee safety in the foods astronauts consumed in space. Since then, HACCP principles have been defined and endorsed in international food standards (CAC), and in European and UK legislation (www.foodscienceuniverse.com).

The Need for an Effective Food Safety Assurance Method

The HACCP system has grown to become the universally accepted method for food safety assurance. Why? (www.foodscienceuniverse.com)

- Foodborne diseases are a widespread public health problem
- Emergence of foodborne diseases
- Increased knowledge and awareness of the serious and chronic health effects
- New food technologies and processing methods
- Increased awareness of the economic consequences of foodborne diseases
- Increase in the number of vulnerable people

- Industrialization and mass production
- Urbanization
- Changing lifestyle
- Increase tourism and international trade in foodstuffs
- Increase consumer awareness of food safety

Definition of HACCP

- HACCP is a systematic approach to the identification, evaluation, and control of food safety hazards.
- HACCP is a management tool used to protect the food supply against biological, chemical and physical hazards.

Hazard Danger to health
Analysis Investigation of the hazard
Critical Crucial for containment
Control Handling of conditions
Points Position in the process

Why Adopt HACCP?

A properly functioning HACCP system will result in the production of safer food.
Benefits:

- Improved food safety
- Increased market access
- Protection against liability
- Drive for continuous improvement
- Enhanced process control

Where can HACCP be used?

HACCP can be used in any food sector from production to retail

Figure 3. HACCP can be applied from production to retail.

Implementing HACCP

The five preliminary steps and seven basic 'principles' are provided by FAO/WHO (CAC) (2003).

1. Preliminary steps for the introduction of a HACCP System
    - ❖ Gathering the resources and information needed
2. Seven principles of HACCP in action
    - ❖ Completion of all steps will result in a properly functioning HACCP plan

Preliminary steps

1. Assemble the HACCP team

- ❖ Group of people that will oversee the implementation and maintenance of the HACCP programme
- ❖ Multi-disciplinary (i.e. production, sanitation, management, etc.)
- ❖ Including a HACCP-trained person

2. Description of the products

- ❖ A full description of the product should be prepared
- ❖ All relevant safety information should be reported including: composition, physical/chemical characteristics, packaging, storage conditions, etc.

3. Identification of intended use and consumers

- ❖ Which group(s) will be consuming the food product
- ❖ Where will the product be sold
- ❖ How will it be prepared

4. Development flow diagram(s)

- ❖ Flow diagram for process should be constructed by HACCP team
- ❖ The flow diagram should cover all steps in the operation
- ❖ HACCP team should confirm the processing operation against the flow chart

5. Verification/validation of the flow diagram

- ❖ Validating that the constructed flow diagram accurately reflects what happens during production

The seven principles of HACCP

Principle 1: Conduct Hazard Analysis

Hazard

A hazard is a biological, chemical or physical agent that is reasonably likely to cause illness or injury in the absence of its control. In HACCP, hazards refer to the conditions or contaminants in foods that can cause illness or injury.

Types of Hazards

There are three types of hazards

- ➢ Biological
- ➢ Chemical
- ➢ Physical

Biological hazards can cause illness and include:

- ➢ Bacteria
- ➢ Viruses
- ➢ Parasites
- ➢ Yeasts and moulds
- ➢ Any toxin produced by microbiological organisms is also a biological hazard

- Chemical hazards can cause injury or poisoning and include:
- Naturally occurring substances (e.g. allergens, plant specific toxins)
- Excessive, intentionally added chemicals: antibiotics, pesticides, herbicides,
- fungicides, nitrates
- Accidentally added chemicals: cleaning chemicals, paint, pest control chemicals

Physical hazards are foreign objects that can cause injury:

- Glass
- Metal grindings, screws, nuts, bolts
- Stones, pebbles
- Needles
- Hard plastic
- Bones

Hazard Analysis

The process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant to food safety and therefore should be addressed in the HACCP plan.

Principle 2: Determine critical control points (CCPs)

Critical control points are a point, step or procedure at which a control measure has to be applied to prevent, eliminate or reduce a food safety hazard. CCPs are not necessarily located where the hazard occurs; they may be located at a subsequent step. There may be more than one CCP at which control is applied to address the same hazard. Control measure is any action or activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. More than one control measure may be required to control a specific hazard and more than one hazard may be controlled by a specified control measure.

CCP vs. CP.

Critical control point

- Any point in process that is critical to food safety

Control Point

- Any point in process critical
- Regulatory - weight control, labeling
- Economic - customer quality

Principle 3: Establish Critical Limits (CL)

Critical Limit

- Critical limits are the boundaries that must be met to control a food safety hazard
- The maximum and/or minimum value to which a parameter must be controlled at CCP
- The critical limit separates acceptability from unacceptability
- The critical limit must be clearly defined and measurable
- Critical limits must be specified and validated for each CCP

For example, a bridge can bear

Maximum load: 1 ton and Maximum speed: 15 km/h

If you exceed the critical limit, the bridge will break

Principle 4: Establish System to Monitor Control of the CCP

Monitoring is the process of conducting a planned sequence of observations or measurements of control parameters to access whether a CCP is under control.

- Monitoring results must be recorded. If monitoring shows that critical limits are not met, then the process is out of control and the food may be unsafe.

- Monitoring data should be evaluated by designated person with knowledge and authority to take action.
- Frequency of monitoring must be sufficient to ensure effective control.

Principle 5: Establish Corrective Actions

Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.

Corrective Action

Any action to be taken when the results of monitoring at the CCP indicate a loss of control.

- Specific corrective actions must be developed for each CCP in the HACCP system in order to deal with deviations when they occur
- Actions must ensure that the CCP has been brought under control
- Deviation and product disposition procedures must be documented

Principle 6: Establish Verification Procedures

Establish procedures for verification to confirm that the HACCP system is working effectively.

Verification

- Verification procedures are those activities, other than monitoring CCPs, that verify the

HACCP plan and show the system is operating according to the plan.

- It is usually completed annually or when a system fails or there is a significant change in the product or process.

Principle 7: Establish Documentation

Establish documentation concerning all procedures and records appropriate to these principles and their application.

- Documentation and record keeping should be appropriate to the size and nature of the
- operation
- Documentation includes: Hazard analysis; CCP and CL determination
- Records of CCP monitoring; Deviations and corrective actions

7.7. Review Exercises and Activities

Review exercises

1. Is Ethiopia a full member of the WTO? Discusses it.
2. Each member country of WOAH is represented by a delegate in most cases. Who is the delegate for?
3. Why some countries are unable to be transparent for notification transboundary livestock diseases?
4. What are the major constraints for African countries to enter successfully into the international and regional trade?
5. How Veterinary Services are evaluated?
6. What are the five freedoms of animal welfare?
7. What are the four steps should be taken when drafting international veterinary certificates?
8. What are the principles of veterinary certification

Review activities

1. Discuss with your group and present how trade was regulated traditionally.
2. Discuss with your group how are trade disputes settled currently.
3. Discuss with your group and present about Doha Development Agenda and its importance for livestock trade of developing countries.

4. Discuss in detail with your group the most important WOAH chapters that the Veterinary Authorities and all veterinarians directly involved in international trade.
5. Discuss with your group and present the guideline of FAO on animal's identification and recording.
6. Discuss with your group in detail the importance of the WOAH trade standards.
7. Describe the functions of WOAH in International Trade
8. Describe the principles of WOAH Standard setting process
9. Discuss in detail the Criteria for listing diseases (infections)
10. Discuss in detail Notification procedures and steps in reporting
11. Describe the obligations of importing and exporting countries
12. Describe how antimicrobial resistance can be controlled
13. Describe the influences on trade standards and the importance of adherence to WOAH trade standards

SESSION II: Livestock Policy Hubs in the IGAD Region

Session Learning Outcomes: At the end of this session the trainees will be able to:

- Identify the role of IGAD in the control of livestock diseases
- Describe the livestock policy hubs in the IGAD region
- Evaluate the potential benefits of a national animal ID and traceability system
- Discuss how disease transmission occurs during international trade of livestock and livestock product.
- Discuss the advantages of local, regional or national-scale livestock movement restrictions.

7.8. Livestock Policy Hubs in the IGAD Region

IGAD is an intergovernmental authority on development with eight member states: Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, Uganda and Eritrea (currently inactive), and it is based in Djibouti. It was established in 1986 to respond to drought, desertification, famine and related disasters by coordinating regional cooperation among Member States and partners. Its revitalization in 1996 reinforced these interventions and expanded IGAD's mandate to provide leadership in a wide-range of development sectors focusing on peace and security; agriculture, food security, climate change and environmental protection; economic cooperation and regional integration; as well as health and social development. IGAD helps member states address the challenges of drought and desertification by mobilizing resources and expertise to support project implementation and harmonization in the region.

The region has a wide range of agro-ecological zones with rich biodiversity and diverse economic potential, which if effectively managed could provide opportunities for poverty reduction and ensure food and livelihood security to the people in the region. Despite the fact that livestock play a life line for majority of the population in the IGAD region and regardless of its development potential, livestock production in most of IGAD region is faced with many challenges. Some of these include widespread animal diseases coupled with weak veterinary services, low production and productivity of the indigenous livestock breeds, critical shortage in feed, inadequate public resource allocation and private investment in the livestock sector. Furthermore, poor marketing and trade infrastructure and lack of marketing opportunities, inadequate development policies and

lack of tools for enforcement of policies, regulations and laws are major problems. The sector is not guided by adequate research and reliable statistical information due to which most decisions are taken without adequate evidence of impact and benefits.

The role of livestock policy hub in the IGAD region is to enhance the contribution of the livestock sector to sustainable food security and poverty reduction in the IGAD region through promoting alternative approaches to disease control and livestock exports. Recent years have seen a growing interest among both governments and donors in promoting international trade in livestock and livestock products which meet international standards for safety from disease. Thus, the IGAD livestock policy hub plays a prominent role in the development of alternative approaches to achieving export product safety.

Concerning the livestock sector, IGAD is aiming at the promotion of joint development strategies and the harmonization of national policies that affect livestock development. Livestock production systems in IGAD MS comprise mainly of three production systems based on the way livestock husbandry and animal management systems are managed: pastoral and agro-pastoral livestock production system, settled mixed crop-livestock production system and small and large scale fattening and dairy production systems. Pastoral livestock production is the most dominant production system in the IGAD region, and is characterized by a large (over 50%) contribution of livestock or livestock related activities to household gross revenue.

Considering the policy gaps and the policy development process required, IGAD has established national and regional livestock policy hubs (LPH) to facilitate the engagement of stakeholders in policy advocacy. These policy hubs have been first established by IGAD/LPI and then further strengthened through the VET-GOV project of AU-IBAR and are tasked with tackling several challenges in their respective countries.

7.8.1. Livestock Identification and Traceability

Identification of animal (ID) refers to keeping records on individual or groups of farm animals so that they can be easily tracked from their birth through the marketing chain. In earlier times, animal ID was used to indicate ownership and prevent theft, but the reasons for identifying and tracking animals have evolved to include rapid response to animal health and/or food safety concerns. Today, animal identification has been expanded to include information on the animal's origins (e.g., birthplace, parentage, sex, breed, and genetics) as well as traceability- the ability to trace an animal product back through the marketing chain to its source or is limited specifically to movements from the animal's point of birth to its slaughter and processing location, while identifying those other animals or animal products with which it has come into contact.

To effectively respond to an outbreak of an infectious animal disease, a system for identifying and tracking animals is a prerequisite. To be successful, a livestock identification and traceability system (LITS) requires two basic components, an identification system (for example brands, marks or a device) and a system that tracks an animal, or groups of animals, along the value chain to the final destination. It is only when these components are all put together that a LITS system becomes functional (Britt *et al.,* 2013).

For many importing markets, food safety is a major concern and it is now becoming a prerequisite for countries that import live animals, or animal products. The exporting country has to prove that the animals are free of disease or have been vaccinated and monitored throughout a significant part of the value chain. Health Certificate for each animal should be provided. A LITS enables such a certificate to be issued.

The livestock Industry and especially pastoralists in developing countries will usually support a LITS system if it can clearly demonstrate that there is a direct benefit to their livelihood. For example, if it can be demonstrated that a LITS will prevent cattle rustling, and is possibly supported by a vaccination program, the potential added financial value accrued per animal usually allows this sector to become supportive of a LITS.

In principle, a national database of animal ID combined with traceability, accessible via a high-speed computer network, is considered the ideal system to permit quick response to news of an animal disease outbreak or the discovery of tainted food so as to limit threats to human or animal health and to minimize commercial damage.

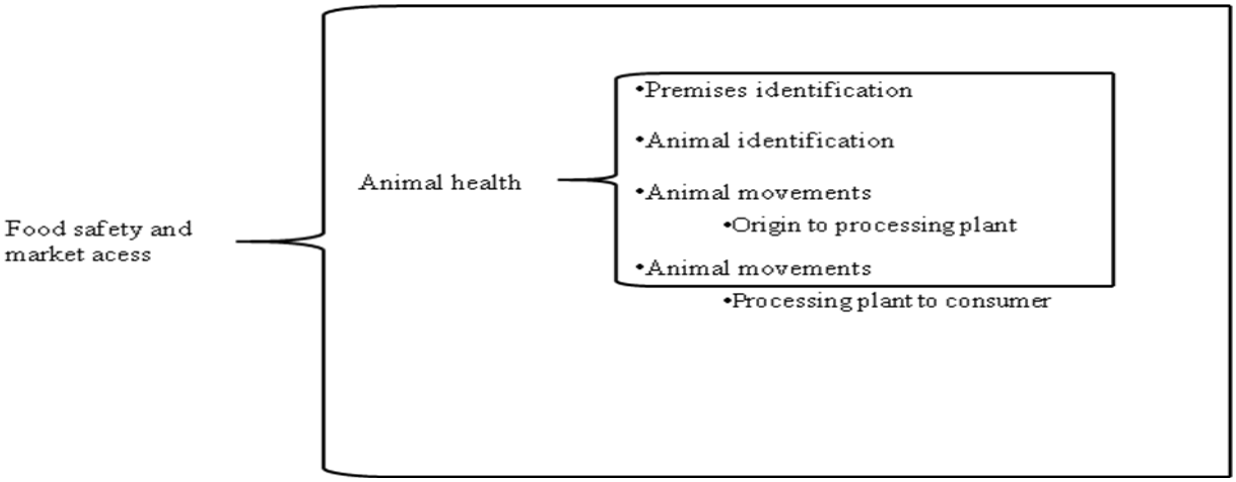

Figure 4. Animal ID goals expand with level of Traceability.

The potential benefits of a national animal ID and traceability system include:

- Enhances animal health surveillance and disease eradication
- Minimizes economic impact of an animal disease outbreak
- Increases domestic marketing opportunities
- Provides a valuable management tool for producers
- Addresses food safety and national security concerns
- Enhances foreign marketing opportunities for animal products
- Enhances animal welfare in response to natural disasters

All countries require a cost effective LITS system that can address the following concerns.

- Reduce cattle rustling and improve security
- Prove ownership
- Add value to the cattle
- Facilitate disease surveillance
- Improve access to markets
- Monitor productivity of herds in the commercial production system.

Branding of cattle is still the main form of Identification for most countries. Many countries in the IGAD region are in the process of considering or piloting some type of LITS program and there is a clear willingness to follow a regional approach to a LITS implementation. At the same time, it must be recognized that each country has its own specific requirements, and in some instances unique challenges and specific production systems.

However, it is clear that a general framework and guideline should be developed for the region that considers the major production systems and the economic status of each country.

7.8.2. Free Movement of Livestock and Spread of Diseases

Infectious diseases are transmitted between hosts by a variety of mechanisms, including direct, airborne and vector-borne transmission. Control of animal-to-animal transmission of disease agents is a key concept in infectious disease epidemiology; however, a more sensible approach might be to prevent the types of contact that lead to transmission in the first place. In humans, it is often difficult to prevent contacts, particularly with the ease of long-distance travel (Wilson, 1995). However, in livestock and animals, movements can be the subject of legislation or strict controls and there is a real opportunity to reduce disease transmission. The importance of animal movements is, of course, well understood and international regulations e.g. from the World Organization for Animal Health (WOAH) exist to mitigate the risks involved (Kellar, 1993). In spite of these regulations, outbreaks occur regularly as a result of both legal and illegal animal movements.

The issue of mobility is of fundamental importance to pastoral livestock keepers, whose traditional transhumance routes often cross-national borders. For the most part, pastoralists are, in practice, able to move relatively freely across borders for grazing purposes. This freedom, though, is not absolute nor ensured, as there is no formal system in place in order to ensure that livestock keepers' rights are fully protected. This is a problem that has afflicted pastoralists throughout Africa, and the countries of the ECOWAS region have recently developed a Transhumance Certificate, which acts as a "Livestock passport" and ensures free mobility across borders for grazing purposes. This provides a potentially valuable model for IGAD, and is likely to gain legitimacy from having been an African initiative. Further, members of the Pastoral Affairs Standing Committee in Ethiopia have publicly expressed their support for developing such a program, offering a ready entry point and set of allies (Guleid, 2005, Gebru *et al*., 2003).

Recognition that livestock movement is an important driver of infectious disease transmission and spread has stimulated research efforts to understand how and where livestock move in different settings. In Africa, livestock movements are largely motivated by a need for animals to access resources (e.g. grazing and watering) to ensure their survival. Livestock often travel several kilometers each day to reach communal resource areas where extensive mixing of herds and contacts between animals occur, with considerable implications for pathogen transmission and subsequent disease spread to other areas.

Many of novel and endemic diseases such as FMD, BTV, avian influenza, African swine fever, Newcastle disease, Rift Valley fever and brucellosis, spread easily between animals on a farm, which are kept at relatively high densities, and can spread between farms through a mixture of airborne infection, fomites, vector transmission and animal movements (Garcia-Alvarez et al., 2011). Of these transmission routes, animal movements have the potential to lead to very-long-distance dispersal of infection, but can be readily prevented through emergency legislation (Kiss *et al*., 2008). For this reason, local, regional or national-scale movement restrictions (often banning the non-essential movement of all farm livestock) are often one of the first control policies to be adopted when an outbreak occurs (DEFRA, 2017).

7.9. Session Activities and Review Questions

a) Discuss the role of IGAD in the control of livestock diseases
b) What are the IGAD livestock policies?

c) What is animal identification (ID)?
d) Discuss in a group how disease transmission occurs during international trade of livestock and livestock product.
e) What are the potential benefits of a national animal ID and traceability system?
f) Discuss the advantages of local, regional or national-scale livestock movement restrictions.

SESSION III: Livestock Trade In Ethiopia

Learning objectives

This session enables the trainees:

- To acquaint the trainees regarding to the trade of livestock, livestock products and byproducts in Ethiopia
- To identify the type of live animal and animal products available in the market
- To sort out challenges associated with livestock marketing
- To identify available opportunities for livestock marketing in Ethiopia
- To evaluate codes of practices associated with livestock marketing in Ethiopia.

Learning outcomes

At the end of this session, trainees will be able to:

- Evaluate marketing of livestock, livestock products and byproducts in Ethiopia.
- Appreciate and learn from the existing export procedures and systems of live animal and meat export from Ethiopia to Middle East and Northern Africa.
- Identify the types of livestock products that can be commercialized
- Identify challenges associated with livestock marketing in Ethiopia
- Identify available opportunities for livestock marketing in Ethiopia
- Evaluate codes of practices associated with livestock marketing in Ethiopia.

7.10. Trade of livestock, livestock products and byproducts in Ethiopia

Ethiopia has huge livestock population in Africa with 70.1 million cattle, 42.9 million sheep, 52.5 million goats, 8.1 million camels and 49 million chickens. This livestock population is a major source of animal protein, power for crop cultivation, means of transportation, export commodities, manure for farmland and household energy, security in times of crop failure, and means of wealth accumulation. The livestock sector contributed up to 40% of agricultural Gross Domestic Product (GDP) and nearly 20% of total GDP. Livestock marketing plays key role in the national foreign exchange earnings (20%) through the trade of livestock, livestock products and byproducts. Many actors are involved in livestock product marketing, broadly classified as: livestock producers, traders, processors, retailers, food service providers, and consumers (CSA, 2020/21).

Livestock marketing in Ethiopia is at the grass root level and it is tied with traditional management, which is not market oriented, poor infrastructure, poor financial facility, and presence of cross-border trade. This underdeveloped marketing system has many actors in it with characteristics that has not been adequately addressed. Livestock products are still at the level of household consumption, despite the surplus production and supply chain in urban areas due to market orientation and urbanization, which creates better demand for products. Based on the data obtained from CSA, 10.0% of the milk, 29.4% of the beef, 3.9% of mutton/goat meat, 16.3% of camel meat and 46.8% of the eggs were subjected for marketing. Farmers sale livestock and livestock products to cover household cash expenses and to purchase crop inputs. Fresh milk and egg is directly sold after meeting family needs at farm

level though production is carried out at subsistence level. In this regard, more than 50% of the livestock products were used for household consumption (Feed the future, 2021).

7.10.1. Livestock market channels

There are several marketing channels through which cattle, sheep, and goats flow to final consumers in both the domestic and export markets. In Ethiopia, the supply chain of livestock includes producers, primary, secondary and terminal markets centers (feedlot operators, export abattoirs, or major markets) based on types of major market participants, volume of supply per unit of time and the purpose of buying. These final market destinations are far away from supply sources, and the transportation costs associated with getting live animals to markets can result in significant weight loss and even death; stock routes are characterized by lack of adequate feed, water, and resting places (Ayele, 2019).

7.10.2. Price determination

The price of livestock is determined through bargaining at the market. Price variation in livestock marketing is associated with trader availability, lack of infrastructure, socioeconomic factors (fasting periods, holidays), conflict and many other factors as well (Ayele, 2019).

7.10.3. Livestock and livestock product exports

Ethiopia exports both live animals and meat to various African countries, as well as the Middle East. These include Saudi Arabia, United Arab Emirates, Bahrain, Yemen, Jordan, Kuwait, Oman, Qatar, Iran, Syria and Egypt. Purchasing of live cattle at market places is performed based on the requirements of the customers. Thus breed, sex, age, weight and sometimes color of the animal are the major criteria considered by the export abattoirs during purchase. The actual volume of export is unknown due to illegal livestock marketing practices and poor documentation. Livestock are exported through formal channels where live animals are directly exported, or in the form of chilled or frozen meat carcass. The other channel of export is the informal and traditional live animal export across borders. The annual outflow of beef cattle from Ethiopia through informal market is very huge. The immediate destinations of this illicit export are Djibouti, Somalia and Kenya which are further re-exported after meeting domestic demands to the Middle East countries.

7.10.4. Live animal exports

Ethiopia has been exporting large numbers of animals (about 150,000 per annum) consisting of camels, cattle and shoats to Yemen, Jordan, Egypt and other destinations through Djibouti. The official export figure is insignificant compared to the volume of informal exports that take place through cross border trade to Sudan, Kenya, Somalia and Djibouti. The cross-border trade deprives Ethiopia from accessing export revenues. In any case, the potential to increase live animal exports from Ethiopia is constrained by a number of internal weaknesses varying from poor infrastructure to SPS standards and the recurrent ban imposed by the importing countries of the Middle East. Export abattoirs are facing supply shortages (especially of shoats) from time to time (Ayele, 2019).

7.10.5. Meat export

Low levels of export and diversification show the potential growth areas for meat exports in terms of increasing the volume of exports and diversifying into different meat products with more value addition. Export diversification is important to reduce the risk of meat export market due to demand and price instability. The chilled whole carcass

also has a limited shelf-life which requires fast delivery. To address such problems, it is suggested that vacuum packaging should be developed to increase the shelf-life of meat and use alternative cheaper means of transportation (Ayele, 2019).

7.10.6. Hide, skin, and leather exports

Official exports of hides, skins and leather have been both more stable and more valuable than official livestock and meat exports. For a time in the 1990s, hides, skins and leather were Ethiopia's second largest export earner after coffee. However, hide, skin and leather exports have been declined steadily (Ayele, 2019).

7.11. Challenges of livestock, livestock product and byproduct trade in Ethiopia

7.11.1. Under-developed livestock sector

In Ethiopia, development of livestock sector is constrained by many factors: poor genetic makeup of animals, insufficient and low-quality supply of livestock feed, limited innovation and technology transfer methods, poorly organized livestock extension and financial services, limited linkage of MoA with other sectors, widespread diseases of livestock. Based on data from CSA (2020), 97.8% of cattle, 99.6% of sheep, 81.7% of poultry, and almost all goats (99.9%) in Ethiopia are indigenous breeds with relatively poor productivity and reproductive performance. Feed supply doesn't meet the feed demand, particularly during drought season. The available feed resource, mostly roughage, is managed poorly with low nutritional value. Improved feed accounts for only 0.7% of the total feed available in the country (CSA, 2020), and the price of concentrates is high. Feed availability is seasonal and producers/farmers have little knowledge to conserve extra feed during the wet season for the coming dry season. Increased cropping and urbanization have resulted in shortage of land thereby reduced livestock feed production, particularly in the highland mixed farming areas.

Technology transfer is an instrument that contributes to economic growth. It is defined as a set of skills, innovations, and practices that are transferred from the places of their creation to places where they are used daily. Insufficient implementation of technologies related to livestock breeding, nutrition, and health affects reproductive performance of the herd. In Ethiopia, despite their suitable means of production, such as large tracts of land dedicated to livestock, and programs of nutrition and health, farmers have not widely adopted reproductive and productive practices.

Extension is a way out for the transfer of technology from educational and research institutions to farmers by participatory problem-solving educational approaches, which aim at reducing poverty and enhancing community involvement in the processes of development. So far, livestock extension service has been focused on the production, reproduction, forage production, feeds, genetic improvement and veterinary services. The market has got little attention in the service. It was too late to recognize that market could have pushed the progress of the past efforts to a higher level. After market gap was recognized, particularly milk production, the livestock extension service started organizing smallholders into primary dairy cooperatives and dairy cooperative unions. The creation of these cooperatives resulted in increased production and income in a short period. The accumulated income showed the farmers that milk is really making money. When men started collecting money from their cooperatives every 15–30 days, they started supporting their wives. It is lately that the marketing aspect got into programs and the commercial livestock farmers getting extension services. Various NGOs and projects also started focusing on market since then and the attempt has shown promising results.

7.11.2. Livestock diseases

Many endemic livestock diseases caused by bacteria, viruses, protozoa, and parasites are compromising the productivity of livestock and hamper the livestock trade in Ethiopia. Livestock export from Ethiopia is jeopardized by repeated bans, in particular from the countries in the Arabian Peninsula, as they are perceived to carrying the risk of introducing a number of transboundary livestock diseases. The frequent occurrence of livestock diseases in the country directly inflicts a heavy loss on the export abattoirs' business and further regaining of their market takes time which depresses the abattoirs to perform their scheduled activities. Livestock diseases such as foot and mouth disease, lumpy skin disease, contagious bovine pleuropneumonia, bovine tuberculosis, brucellosis, contagious caprine pleuropneumonia, peste des petits ruminants, trypanosomiasis, newcastle disease, infectious bursal disease, sheep and goat pox, Rift Valley Fever and highly pathogenic avian influenza virus are major livestock diseases, among many others, that may have detrimental effect on the trade of livestock, livestock products and byproducts. Over the past few years, Ethiopia has lost a substantial market share and foreign exchange earnings because of frequent bans by the Middle East countries.

7.11.3. Illegal livestock smuggling

In Ethiopia, live animals have been marketed through traditional marketing routes (channels) developed over the years. Livestock passes from primary markets (collection centers) to secondary and tertiary markets to reach the consumer. Cross-border exports are also common in the southeastern, southern and northwestern parts of Ethiopia.

7.11.4. Poor veterinary service delivery

The delivery of animal health services in Ethiopia is inadequate both in terms of coverage and quality. Only 45% of the country is served by animal health delivery systems. There are very few private veterinary service providers, few private veterinary pharmacies and very few community animal health workers (CAHWs) often supported by NGOs. The government, instead of providing incentives to the private sector, has been expanding the number of public clinics, which does not necessarily increase the provision of clinical service delivery. The woreda's, zonal and regional bureaus currently face problems in retaining their veterinary field personnel, especially in the more remote pastoral areas. Growth of private animal health service delivery is constrained by absence of an enabling policy environment and subsidized delivery of public animal health services. A system of sanitary mandates does not exist. Field services are constrained by lack of input supply, high operational cost and lack of transport. Livestock keepers in remote regions of the country, pastoralists, women, poorer, and older livestock keepers have less access to services. Satisfaction with services is low to medium and the major concerns of livestock keepers appears to be availability and accessibility of services (Gizaw, 2021).

Public veterinary clinics, which are located in major towns are few in number and they are providing veterinary services mostly to cattle owners. Poor private veterinary service, poor public-private partnership on veterinary services, drug resistance, weak veterinary drug quality control and weak disease reporting system, unorganized research and community services could be taken as major constraints that affect the quality of veterinary service delivery system in many areas of Ethiopia. Encouraging privatization of the veterinary service, community-based animal health programs, promoting mobile veterinary clinic, improved research work on veterinary services in line with better implementation of community services could be considered as a way out of the prevailing poor veterinary services in Ethiopia (Hadush, 2015).

7.11.*5. Livestock and livestock product transportation problems*

In Ethiopia, small trucks are used to transport livestock from markets to their holding grounds. Proper livestock transport facilities, except those possessed by export abattoirs, do not exist. Transporting animals such as cattle by small ordinary trucks may result injuries to the animal body and weight losses. Chilled meat export has been taking place using the available cargo space in scheduled passenger flights, which forces the abattoirs mostly to operate under capacity. When cargo space is unavailable, exporters are forced to take back the consignments to their own cold chain facilities (Ayele, 2019).

7.12. Opportunities for livestock, livestock product and byproduct marketing in Ethiopia

7.12.1. Huge livestock population with diverse and adaptable genotypes

Ethiopia's geographical proximity to the historical entry point of many livestock populations, the diverse topographic and climatic conditions together with wide ranging production systems have contributed to the existence of large diversity of farm animal genetic resources with a huge potential for livestock marketing.

7.12.2. Demand for livestock product by the middle east countries

Middle East is one of the major consumers of livestock and livestock products from Ethiopia, which has comparative advantage in terms of geographic proximity to the Middle Eastern markets, with the potential for the quickest delivery time of fresh meat or meat products. Ethiopia's lowland cattle, sheep, goat, and camel breeds are also highly demanded in the Middle East due to their better taste and the organic nature of their production.

7.12.3. Increase in domestic demand due to urbanization and economic growth

With growing urbanization, there has been a rapidly developing food service sector (fast food outlets, restaurants, and hotels) in Ethiopia. This will increase the demand for high quality processed dairy products and dairy ingredients. Additionally, the food manufacturing sector, which utilizes dairy ingredients, has been expanding in Ethiopia. There are several bakeries and factories that require dairy products as their main ingredients. These represent another area of growing market opportunities for dairy producers and dairy product processors and suppliers.

7.12.4. Expansion of agro-industries

The Government of Ethiopia aims to boost exports and trade by investment on agro-processing industrial parks to make Ethiopia a top manufacturing hub on the continent. Industrial parks broadly are a key focus of Ethiopia's economic development strategy. Livestock commodities intended for processing include cattle fattening and processing, dairy production and milk processing, honeybee production and honey processing, chicken production and processing, and livestock feed manufacturing (Ethiopia-country commercial guide: https://www.trade.gov/country-commercial-guides/ethiopia-agro-processing).

7.12.5. Policy change

In 2019, the Ethiopian Ministry of Finance implemented a policy change authorizing duty free import of agricultural and irrigation equipment. This new directive aims to increase agricultural productivity for both smallholder farmers and commercial farmers, as they will have improved access to new agricultural farming capital goods. Key livestock commodities intended for processing and exports include poultry production (chicken meat), dairy production and

livestock feed. Duty free import of feed production machinery and value added tax levied on animal feed products will lower the cost of animal feed and enhance dairy and poultry production.

7.12.6. Use of information communication technology (ICT)

The use of information communication technology (ICT) is important and plays a critical role in bridging the information gaps on the livestock marketing and early warning related information to monitor the situation in the value chains. It also creates enabling environment to collect the market data in such large country in cost effective ways and reduce paper workloads for the government enumerators. Furthermore, the use of short message service (SMS), web-portal, and other applications increase information dissemination to the stakeholders (pastoralists, traders, government and non-government) in near real time to support the decision making. The national livestock market information system (NLMIS) of Ethiopia was designed to collect timely price and volume data from designated national livestock markets. The data is then conveyed to the NLMIS server at Addis Ababa using a short message system (SMS) through enabled cell phones and a data coding system. Pastoralists, livestock traders, and other interested stakeholders can then request the price and volume information for specific markets using SMS or through a market information portal (http://www.lmiset.gov.et) including historical time series data for policy and research. Therefore, this system is expected to enhance decision-making at multiple levels in the livestock trade and improve the bargaining power of sellers or livestock producers to negotiate for better prices and to create a stable market environment in Ethiopia. In addition, the system will also help to support national livestock market information web portal (www.lmiset.gov.et) and the community to tackle the illegal livestock market challenges through the provision of timely and reliable market information to the respective stakeholders. In recent years, the use of mobile technology in the livestock sectors particularly in the livestock producing areas for marketing and social interaction has increased rapidly. Given the expansion of the mobile technology infrastructure in Ethiopia, the adoption rates have increased significantly. The NLMIS has created an excellent environment for the infrastructure. The system uses all types of mobile apparatus (cheap or expensive), both for data collection and accessing the market data.

Enumerators submit averaged livestock pricing data from 56 different market centers over six regions and two city administrations. Information from animals such as cattle, sheep, goats and camels include species, breed, age, sex and grade. Animal product volumes such as honey, hides, skins, meat and milk are also collated to enable sellers to identify optimal market conditions for their produce. The information is sent to NLMIS via SMS, email or a web portal and disseminated regularly via means such as text, phone, radio and bulletins. The structure and data flow into and out of NLMIS is shown in the figure below.

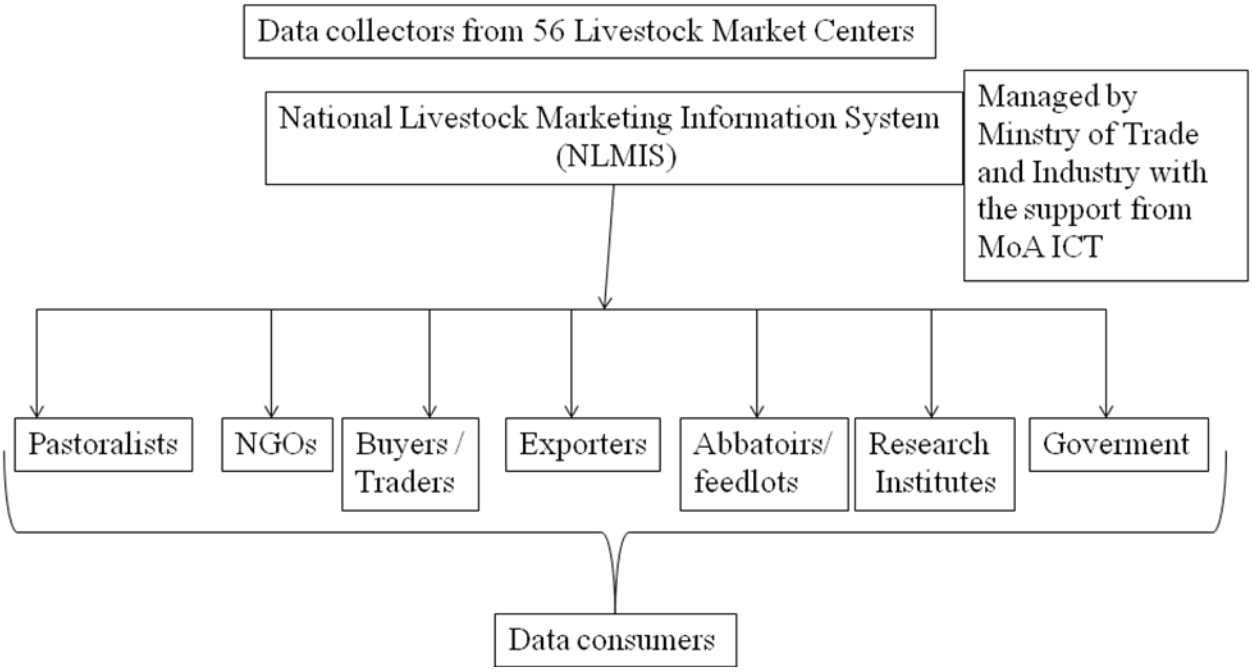

Figure 5. Data flow of animal market information by NLMIS

In general, the opportunities of livestock marketing in Ethiopia are based on resource availability; demand availability both regionally and in the Middle East; proximity to the markets of neighboring countries; development of export-abattoirs within the country and their substantial demand for lowland animals, especially shoats; and the tendency of both the government agencies and the NGOs to work towards integrating the pastoral marketing cooperatives with the export abattoirs supply chains.

7.13. Codes for the export of animal and animal products

7.13.1. Code of hygienic practice for meat (CAC/RCP 58-2005)

The codex alimentarius FAO-WHO covers hygiene provisions for raw meat, meat preparations and manufactured meat from the time of live animal production up to the point of retail sale. It includes **i) primary production** (principles of meat hygiene, hygiene of slaughter animals, hygiene of feed and feed ingredients, hygiene of the primary production environment, transport of slaughter animals), **ii) presentation of animals for slaughter** (principles of meat hygiene applying to animals presented for slaughter, conditions of lairage, ante-mortem inspection, information on animals presented for slaughter), **iii) establishments: design, facilities and equipment (**principles of meat hygiene applying to establishments, facilities and equipment, design and construction of lairages, design and construction of slaughter areas, design and construction of areas where bodies of animals are dressed or meat may otherwise be present). Trainees should refer the ***Code of hygienic practice for meat (CAC/RCP 58-2005)*** for further details.

7.13.2. Proclamation of the Ethiopia livestock marketing

The proclamation of the Ethiopia livestock marketing (Proclamation No.819/2014) includes marketing of live animals, first level live animals market centers, second level live animals market centers, live animal health control, transportation of live animals, obligations of exporters, obligations of live animal transporters, obligations of abattoir operators, obligations of butchers. For further details, refer to "***Live Animals Marketing Proclamation No. 819 /2014***"

7.14. Review questions and activities

Review questions

1. Why is the trade of livestock, livestock products, and by products are still at the grass root level in Ethiopia?
2. What can be done to boost the marketing of livestock, livestock products and by products in Ethiopia?

Activities

1. With your colleagues, mention livestock, livestock products, and by products that may help to earn foreign currency in Ethiopia.
2. With your colleagues, discuss livestock diseases that may pose deleterious effect on livestock trade.

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9. Annexe

Targets of the CPD Program

This CPD module is prepared for frontline veterinary professionals (VPs) and veterinary paraprofessionals (VPPs) and those providing veterinary services (public and/or private) at border, central part of Ethiopia where animals and their products are traded. The module can be used to train professionals working at animal product processing plants; live animals trade certification centers, animal product inspectors and trans-boundary animal disease diagnostic centers. The expected number of trainees will be 200 VPs and VPPs based on the information obtained from EVA experts. The number of trainees for the first round will be twenty-five (25) with proportional numbers of males and females.