



Protecting Human  
Health Through a One  
Health Approach

Protecting human health through a One Health approach:

Food safety intervention workshop in Ethiopia

May 2022

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## Contents

Abbreviations and acronyms.....	iii
Acknowledgements.....	iv
Executive summary.....	v
Introduction .....	1
Objectives.....	1
Opening remarks .....	1
Food safety research in Ethiopia .....	1
Presentations on CGIAR initiatives on One Health and Resilient Cities to be implemented in Ethiopia .....	3
Experience of food safety interventions.....	5
Prioritization of food safety interventions.....	5
Recommendations.....	8
Annex 1: Opening remarks.....	9
Annex 2: Program .....	13
Annex 3: Participants .....	14

## Abbreviations and acronyms

AMR	antimicrobial resistance
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
MoA	Ministry of Agriculture
SOPs	Standard Operating Procedures

## Acknowledgements

We thank the Ethiopian partners who attended the meeting. We thank Sisay Getachew, Director of Veterinary Public Health, Ministry of Agriculture, Ethiopia and Namukolo Covic, International Livestock Research Institute Director General's representative in Ethiopia, for opening the meeting. We acknowledge all funders who support our work through their contributions to the CGIAR Trust Fund <https://www.cgiar.org/funders>.

## Executive summary

To implement its 2030 research and innovation strategy, CGIAR has developed 32 research initiatives designed to achieve a world with sustainable and resilient food, land and water systems. The CGIAR research initiative *Protecting human health through a One Health approach* has been approved for implementation from 2022 to 2024. The aim of the initiative is to protect human health by improving the prevention, detection and control of zoonoses, foodborne diseases and antimicrobial resistance in low- and middle-income countries. The initiative *Resilient cities through sustainable urban and peri-urban agrifood systems* harnesses the potential of urban capacities for innovation to generate evidence-based solutions to address the food safety constraints of food systems and improve the safety of foods sold in urban markets while strengthening the income opportunities that urban value chains offer, especially to the most vulnerable populations. Ethiopia is a focus country for both initiatives.

On 17 May 2022, the initiative teams held a stakeholder workshop for Ethiopian partners to introduce the initiatives, reflect on food safety priorities and ongoing food safety projects in the country and identify priority value chains and food safety interventions. The workshop was held at the Addis Ababa campus of the International Livestock Research Institute (ILRI) with some participants joining online.

Participants included representatives from the ministries of agriculture, health and environment, food safety authorities and non-governmental organizations involved in animal-source food value chains. The goal of the workshop was to understand the challenges of food safety in animal-source food value chains in Ethiopia and identify the most suitable interventions to tackle these challenges. The workshop was opened by Namukolo Covic, ILRI Director General's representative in Ethiopia, who addressed important issues related to food security and safety, and Sisay Getachew, Director of Veterinary Public Health, Ethiopia, who addressed important issues related to One Health and activities of the directorate.

Presentations on the two CGIAR initiatives and related ongoing projects set the context of food safety research in Ethiopia. The water work package of the One Health Initiative examined the link between water and food safety and the economics, governance and behaviour work package focused on behavioural food business as it relates to food safety. The experience of food safety interventions in Cambodia, Vietnam and Kenya were presented and discussed in the local context.

Following the presentations, two working groups were formed, representing dairy and meat value chains, to prioritize food safety interventions considering a multi-criteria approach and using the following pre-designed elicitation questions:

- What are the critical risks in dairy and meat value chains?
- What interventions can be implemented at which value chain nodes (farm, market, household)?
- What is the role of water in food safety challenges and subsequent potential interventions?

The market-oriented dairy value chain, where raw milk is the priority commodity, was identified as the primary focus. The intervention should also focus on the informal milk market as it supplies most of the milk in urban and peri-urban systems. The following priority interventions were identified:

- Training producers on hygienic milk production and handling at milk collection centres
- Capacity of milk collection centres: cold chain system; quality testing and surveillance systems
- Incentives to producers and vendors to produce and sell high quality milk
- Improving regulatory capacity through guidelines, training and advisory support to establish a food safety technical working group
- Waste management (e.g. biogas)
- Improving water quality

In the meat value chain, participants identified the meat vendor and abattoir nodes as the focus of the interventions. Antimicrobial residues and zoonoses were acknowledged as challenges, hence the need to target the knowledge, attitude and practices of meat handlers and processors in relation to hygiene and sanitation, with emphasis on foodborne pathogens. The following priority interventions were identified:

- Implement good hygienic practices, for example, using harmonized standard operating procedures (SOPs) to formalize the practices, with the ultimate goal of end-to-end ISO 14000 certification.
- Mandatory ISO 9000 certification
- Meat inspection (incentives)
- Waste management (outside of the facility downstream)
- Upgrading of facilities (meat vendors and abattoirs)

## Introduction

To implement its 2030 research and innovation strategy, CGIAR has developed 32 research initiatives designed to achieve a world with sustainable and resilient food, land and water systems. The CGIAR research initiative *Protecting human health through a One Health approach* has been approved for implementation from 2022 to 2024. The aim of the initiative is to protect human health by improving the prevention, detection and control of zoonoses, foodborne diseases and antimicrobial resistance (AMR) in low- and middle-income countries. The initiative *Resilient cities through sustainable urban and peri-urban agrifood systems* harnesses the potential of urban capacities for innovation to generate evidence-based solutions to address the food safety constraints of food systems and improve the safety of foods sold in urban markets while strengthening the income opportunities that urban value chains offer, especially to the most vulnerable populations. Ethiopia is a focus country for both initiatives.

On 17 May 2022, the initiative teams held a stakeholder workshop for Ethiopian partners to introduce the initiatives, reflect on food safety priorities and ongoing projects in the country and identify priority value chains and food safety interventions. The workshop was held at the Addis Ababa campus of the International Livestock Research Institute (ILRI) with some participants joining online. Participants included representatives from the ministries of agriculture, health and environment, food safety authorities and non-governmental organizations involved in animal-source food value chains. The goal of the workshop was to understand the challenges of food safety in animal-source food value chains in Ethiopia and identify the most suitable interventions to tackle these challenges.

## Objectives

The objectives of the meeting were to:

- introduce the CGIAR One Health and Resilient Cities initiatives to research partners;
- understand the food safety priorities and ongoing projects and programs in Ethiopia;
- agree on the focus commodities and interventions through the One Health initiative; and
- identify opportunities to collaborate with other food safety projects, programs and partners to implement the interventions.

## Opening remarks

The opening remarks were given by Namukolo Covic, ILRI Director General's Representative in Ethiopia, and Sisay Getachew, Director of Veterinary Public Health, Ministry of Agriculture (MoA), Ethiopia (see Annex 1 for the full text of the remarks).

## Food safety research in Ethiopia

Presentations on food safety in Ethiopia covered the status of food safety management and research projects. The main points are summarized below.

### **Overview of food safety research and implementation in Ethiopia (government, partners, priority and strategy): Kebede Amenu**

The presentation covered food safety challenges, relative causes of foodborne diseases (reality vs. perception), food supply diversity, examples of food safety research projects, evidence generated from research and a summary of technologies at hand. The need to translate the evidence generated into intervention actions was noted.



## Food safety research projects in Ethiopia (implemented by CGIAR): Silvia Alonso

### Safe food, fair food project (phase 1)

The project focused on understanding of the food safety priorities in the respective countries (risk assessment) and development of a participatory data collection tool (rapid integrated assessment) in food safety and nutrition. Evidence was generated from the informal milk value chain.

### Safe food, fair food project (phase 2)

Based on the results of the first phase, the second phase of the project followed a risk-based approach to develop and test locally relevant food safety interventions. The project also used a policy framework to address sustainability. The interventions had three pillars: (1) improve knowledge and access to technology, (2) develop incentive mechanisms and (3) create an enabling policy environment.

### Urban food markets in Africa: Incentivizing food safety through a pull–push approach

The project aims to reduce the burden of foodborne disease in Ethiopia and Burkina Faso in poultry and vegetable value chains. This project follows a risk-based approach and investigates if consumer demand can provide the incentive or ‘pull’ for food safety. The ‘push’ approach empowers value chain actors to implement best practices that affect food safety through targeted messages and simple tools. The project also builds the capacity of value chain actors to respond to demand, and of regulators to provide an enabling environment.

### Assessment and management of risk from non-typhoidal *Salmonella*, diarrhoeagenic *Escherichia coli* and *Campylobacter* in raw beef and dairy products in Ethiopia

The project seeks to understand the burden of foodborne diseases in Ethiopia and develop cost-effective and socio-culturally appropriate approaches to mitigate the impact of foodborne diseases, with the goal of improving food safety governance. The project tests interventions in milk and meat value chains. The main research questions are: (1) What are the costs and public health burden associated with non-typhoidal *Salmonella*, diarrhoeagenic *Escherichia coli* and *Campylobacter* in Ethiopia? (2) What are cost-effective and socio-culturally acceptable approaches to mitigate the public health risks associated with these pathogens in raw beef and dairy products in Ethiopia?

### Reflections/questions on the presentations

- It is important to involve stakeholders such as the Ethiopian Standards Agency, which works for inclusion of compulsory standards for dairy products, and animal health laboratories.
- Many organizations are working on food safety and One Health projects but there is little coordination among them.
- Food safety is complex in Ethiopia due to lack of enforcement of food laws and regulations; neither the market nor the institutions are well coordinated and structured, and there are overlaps of institutional food safety mandates with conflicts of interest. How will you engage with these institutions?
- Government institutions working on food safety are not well empowered and facilitated. Assigning expert focal persons will be crucial for building partnerships.
- AMR is a very important One Health issue in Ethiopia. Studies conducted in abattoirs in Addis Ababa, Dire Dawa and Shashemene found high levels of tetracycline resistance.

### Responses

- Involvement of stakeholders in the area is key and expected from this workshop.
- There is not enough data to locate exactly where the problem is and where should we target to make difference in our area of interest. The interest is to be more strategic and we need to know what the important points are to make impact. Regulations can be short-term solutions

but what would be the focus of food safety in Ethiopia (big abattoirs; vendors; which food commodities)? These to be addressed with experts and potential stakeholders in the area.

## **Presentations on CGIAR initiatives on One Health and Resilient Cities to be implemented in Ethiopia**

### **One Health initiative**

#### **General overview and food safety work package: Hung Nguyen**

The presentation emphasized the three things to be achieved from the discussion: understanding the current food safety research projects; agreement on commodity and research questions; and opportunities for collaboration. The structure of the One Health initiative and the theory of change were discussed. The contexts targeted were intensifying food systems, informal food systems and wildlife–livestock interaction. Selected intervention scenarios and impact forecast were also examined. The initiative will be implemented in seven countries (Kenya, Ethiopia, Uganda, Côte d'Ivoire, India, Bangladesh and Vietnam) under five work packages: zoonoses; food safety; AMR; water (environment); and economics, governance and behaviour. Only three work packages will be active in Ethiopia, namely, food safety; water; and economics, governance and behaviour.

#### **Water (environment) work package: Alemseged Tamiru**

The presentation covered the anthropogenic root causes of water quality deterioration, the importance of water in the food chain, the link between water quality and food safety, analysis of the relative contribution of polluted water to food safety, and business models for resource recovery.

#### **Economics, governance and behaviour work package: Gashaw Abate**

This work packages focus on behavioural food business as it relates to food safety and includes key actors and food businesses that are engaged in food product distribution from farm to retail. The overall theory of change for food safety was discussed in relation to economics and governance. Research objectives usually focus on testing the effect of food safety interventions like capacity building, incentives through consumer demand, and surveillance/monitoring of the food business practices and evaluating their impact. The food safety team will look at the impact in terms of food safety related outcomes like reduction in levels of pathogen contamination and the food policy team will look at business-related outcomes such as sales and price.

### **Resilient Cities initiative : Silvia Alonso**

The focus is on food systems in urban and peri-urban environments. As urban populations increase, there is a need to make cities resilient, sustainable, green and able to feed their inhabitants. CGIAR research and innovation were discussed under five main areas of work: urban and peri-urban production systems, commercialization (emphasis on informal urban food market), circular bio-economy, environment and health risk (food and consumer behaviour perspectives), and policy.

### **Reflections/questions on the presentations**

- What is the current status of the two initiatives? Have you secured funding and is there room for improvement?
- What were the criteria for selecting the three work packages in Ethiopia?
- How will you engage with local partners and at what point will you involve them?
- What was the priority in choosing partners and what is the role and level of engagement of the partners in the project? We need clarity. Among the partners, who will you engage more, the adopters or enablers?
- Are you focusing on animals? Which specific commodities are the priorities and what are the criteria? Which level of value chain are you focusing on?

- Please tell us about the connection between the two initiatives: One Health and Resilient Cities.
- What is the environment component expected to address?

### Responses

- The proposals for the initiatives were approved and the plan is to undertake immediate activities under each work package and expand further.
- CGIAR is undergoing a reform to One CGIAR and only 60% of the planned budget has been secured for 2022. This limitation led us to prioritize work on the selected three work packages in Ethiopia. But we have other initiatives that work on zoonoses, for example.
- The best way of engaging partners is to be defined and this workshop will discuss who is to be involved. The food safety stakeholder engagement process is actually along the value chain from farm to fork. We might focus on vendors at the market level or farmers at the production level or slaughterhouse workers. These are the people who are directly involved in the research more than the assessment phase.
- The red meat and dairy value chains in Ethiopia are chosen.
- In Ethiopia, both initiatives work on food safety issues in animal-source food value chains.
- The environment work package can address waste management and water interventions.

### Rationale for choosing the red meat and milk value chains

- We have good evidence generated on meat and milk value chains.
- There is a visible value chain growth opportunity for the dairy value chain.
- Milk is an excellent food, but a lot of hazards are associated with milk.
- Meat/beef is common in the country, again with a lot of risky practices.

### Reflections/questions on the chosen value chains

- The chosen value chains are among the top priority commodities in the country's 10-year plan but when you refer to 'dairy', do you mean milk or other dairy products as well?
- Evidence is available on food habits of the population. Milk and meat are consumed more than poultry, fish and other animal-source foods. Between dairy and meat, which to focus on is the question.
- There is a tendency that both commodities (meat and milk) are being commercialized. The new agro-industries by the government initiative in four regions could be an entry point to address food safety. These agro-industries are going to involve several farmers, so if we support this system, we can address food safety at the level of farmers and consumers.
- Why is AMR not included as a component of the environment?

### Responses

- For the dairy value chain, the market-oriented value chain is the focus and for the meat value chain, butchers, meat vendors and consumers are targeted.
- There are currently no plans for AMR research and intervention in Ethiopia but there may be future opportunities through the CGIAR AMR Hub.

## Experience of food safety interventions

Three presentations on food safety interventions in other countries contextualized how similar food safety interventions can be introduced in Ethiopia. The key messages are summarized below.

### Food safety interventions in Asia: Pork in Vietnam and Cambodia (Hung Nguyen)

These interventions addressed the food safety in informal markets. The research approach was based on risk assessment of *Salmonella* and *Staphylococcus* contamination as causes of foodborne disease. The three-legged stool approach consists of training, incentives and enabling environment.

### Design of dairy intervention in Vietnam (Vivian Hoffmann)

Vietnam food safety training and certification: the goal was to develop and test an enabling approach. The intervention included training and tools (cleaning surface, disinfectants), slaughterhouse upgrading and post-training surveillance. The experimental design included control and treatment/intervention groups. The outcomes evaluated included vendor food safety practices, *Salmonella*-positive/negative and total bacterial counts.

### Dairy intervention in Kenya (Silvia Alonso)

The focus was on the informal market with the aim of safeguarding the quality of milk. Interventions included training of milk vendors (milk hygiene and handling, business and negotiating skills, product promotion), provision of milk marketing material and follow-up testing of milk.

## Prioritization of food safety interventions

Participants brainstormed to compare dairy and meat value chains in Ethiopia in terms of food safety. Various justifications were put forward to prioritize meat and milk value chains for the interventions.

### Justifications for milk-based interventions

- Though per capita consumption is low, milk is consumed by the majority and vulnerable groups such as children under five years of age.
- Milk is more prone to adulteration.
- Milk is less shelf stable than meat.
- There are many irregular farm management practices.
- There is a higher risk of aflatoxin contamination at milk collection centres than at farms.

### Justifications for meat-based interventions

- Raw beef is commonly consumed in Ethiopia where the risk is very high.
- Contaminated meat from one food vendor or service establishment can affect many people.
- The safety of meat as an export commodity needs to be addressed.
- Gaps in skills/awareness and informal slaughtering and handling are very common.
- Infrastructure at abattoirs and meat shops is not well developed.
- Waste management is difficult.

### What are interventions to do?

In two working groups (dairy and meat value chains), participants prioritized the interventions using multi-criteria and risk reduction measures based on the 'enabling, capacitating and motivating' approach. The elicitation questions about the intervention were as follows:

- What are the critical risks in dairy and meat value chains?
- What are the interventions and at which value chain nodes (farm, market, household)?
- What is the role of water in food safety?

## Prioritization of food safety interventions in the dairy value chain

Value chain node	Challenges	Impact on milk safety	Key actors to work with	Priority in terms of risk (low, medium, high)	Role of water in food safety
Production	Zoonoses (mastitis, tuberculosis, brucellosis, listeriosis) Poor hygiene during milking Milk adulteration (water [90%], milk powder, formalin or urea) Poor farm waste management Poor knowledge Low access to clean water	Bacterial and chemical contamination	Producers Vendors Processors Regulatory bodies	Bacterial contamination (high) Zoonoses (high) Adulteration (high)	Clean water is needed for safe milk production
Transport	Lack of cold chain Unhygienic milk containers Feed contaminants (aflatoxin)				
Processing	Improper pasteurization Post-processing contamination	Bacterial contamination			Clean water is needed for safe milk processing
Consumption	Consumers in peri-urban areas mostly buy milk from individual farmers on contractual basis				

## Ranking of interventions to improve milk safety, on a scale of 1 (bad) to 5 (excellent)

Intervention	Effectiveness in reducing contamination	Social/cultural acceptability	Affordability	Scalability	Feasibility	Consensus (ranking)
Training in milk hygiene	5	5	5	5	5	1
Improved capacity at milk collection centres	5	5	4	4	4	2
Incentives to produce/sell high quality milk	5	5	5	5	5	3
Improved regulatory capacity	4	4	4	4	4	4
Waste management	4	4	4	4	4	5

## Prioritization of food safety interventions in the meat value chain

Value chain node	Challenge	Impact on meat safety	Key actors to work with	Priority in terms of risk	Role of water in meat safety
Production	High pathogen load in gastrointestinal tract Unrestricted use of growth hormones Poor feed supply and management AMR in wastewater (circulation of bacteria) Faeces from urine and manure Zoonotic diseases	Contamination of carcass during slaughter Resistant pathogens Growth hormones affect human health (carcinogenic)	Fattening Farmers at source Traders	Feed and water safety (high) Pathogens (high) Residues (low) AMR (high)	Waste management (contamination) Farm cleaning needs sufficient water Feedlot animals can be driven to river As part of feed, can be a contaminant
Transport (source to fattening or fattening to slaughterhouse)	Poor animal welfare; stressed animals (transporting animals without rest, feed or water for long periods) Excessive use of antimicrobials after arrival Bruising during transport	Poor quality meat Antimicrobial residues Higher risk of contamination	Transporters Ranchers Traders	Stress (high) Antimicrobial use (medium)	Water scarcity may hinder removal of pathogens
Processing (and transport of products)	Primary processing (slaughter): illegal slaughter is a major problem Carcass contamination from workers, environment, water, animal skin, intestinal contents, offal Bleeding and evisceration Poor hygiene and sanitation practices Meat inspection skill Facilities (materials; equipment) Lowly skilled personnel Secondary processing (canning)			Workers, abattoir owners, meat inspectors	Scarcity (borehole water is a must) Treatment (shortage of chemicals) Source of contamination
Consumption	Raw meat consumption Cross-contamination at retail Inappropriate storage temperature Storing with other food items				Preparation, handling, hand washing, dish washing

## Ranking of interventions to improve meat safety, on a scale of 1 (bad) to 5 (excellent)

Intervention	Effectiveness in reducing contamination	Social/cultural acceptability	Affordability	Scalability	Feasibility	Consensus (rank the interventions)
Good hygienic practices at abattoirs	5	5	5	5	5	1
Meat inspection (incentives)	2	5	5	5	5	2

## Recommendations

### Milk

- In general, market-oriented dairy value chain is the primary focus.
- Raw milk is the priority commodity.
- The intervention should also focus on the informal milk market as it includes most of milk supply in urban and peri-urban systems.
- The priority interventions are:
  - Training of producers (hygienic milk production and handling) and actors in the value chain (milk collection centres)
  - Capacity building of milk collection centres: cold chain system, testing system for quality (surveillance)
  - Incentives for producers and vendors to produce and sell high quality milk
  - Improving regulatory capacity through guidelines, training and advisory support for the establishment of a food safety technical working group
  - Waste management, e.g. biogas
  - Water quality and supply

### Meat

- For a given intervention, the closer the chain node is to the consumer, the better the result.
- Value chain focus: Processing (abattoir or slaughter site)
- Problems:
  - Antimicrobial residues and zoonoses
  - Hygiene and sanitation; knowledge, attitudes and practices (related to pathogens); contamination (tackled at the level of processing)
- The priority interventions are:
  - Good hygienic practices, formalized through harmonized SOPs; end-to-end ISO 14000 certification
  - Mandatory ISO 9000 certification
  - Meat inspection (incentives)
  - Waste management (outside of the facility downstream)
  - Upgrading of facilities (meat vendors and abattoirs)

## Annex 1: Opening remarks

### Message from Namukolo Covic, ILRI Director General's representative in Ethiopia

Distinguished guests, ladies and gentlemen,  
All protocols observed,

I welcome you to the ILRI campus for this important meeting on an initiative that focuses on protecting human health through a One Health approach and food safety interventions. Food safety and a One Health approach is critical to attaining not only objectives of food security that can provide optimal nutrition and health outcomes for people. It is also critical for sustaining livelihoods and economic growth right across the globe. The COVID-19 pandemic, perhaps the most significant One Health challenge of our time, has clearly demonstrated why a One Health approach is critical and, I would add, essential to addressing the Sustainable Development Goals.

Coming home to Ethiopia, a One Health approach and the added attention to food safety interventions considered for this meeting come at a very opportune time. This past year, Ethiopia was quite a front runner in the United Nations Food Systems Summit process and developed a food systems transformation pathway and is now working further on a roadmap to realize benefits from the pathway that was developed.

Ethiopia's food systems transformation pathway has set out the following stated vision: 'A holistic transformation of Ethiopia's food systems from production to consumption that promotes enhanced food safety, nutrition and diets, improved livelihoods, greater land preservation and restoration and greater resilience to shocks and stress.'

It is further indicated in the vision that Ethiopia seeks 'to transform our food systems using a sustainable and healthy diet-centred lens that minimizes trade-offs through calling for strong collaboration across all food systems actors, uniting around a common goal of healthy and sustainable diets for all' (MoA 2021).

To promote and attain the desired outcomes of increasing consumption of healthy nutritious and sustainable diets, a One Health approach needs consideration as part of the package of efforts towards the vision that has been set, not just in the food systems transformation pathway, but also for other policy instruments Ethiopia has in place such as the food and nutrition strategy, the nutrition-sensitive agriculture strategy and others.

Against this background I have painted, Ethiopia is also one of the most important livestock countries on the continent. Indeed, taking a One Health approach is very opportune at this time. And the One Health experts in this room today I am sure will remind us of the importance of One Health to address the health issues at the interface of humans, animals and the environment such as zoonoses, food safety and AMR. They will no doubt remind us that a One Health Approach should now be an area of priority for all countries without exception as demonstrated by our current global context of the coronavirus disease (COVID-19) pandemic. COVID-19 is a zoonotic disease. The initiative you will be discussing is part of implementing the One CGIAR transition.

CGIAR has moved to a One CGIAR approach in which CGIAR research centres have come together to operate as one, taking a broad food systems approach to deliver on a research and innovation strategy that contributes to five different impact areas: nutrition, health and food security; poverty reduction,



livelihoods and jobs; gender equality, youth and social inclusion; climate adaptation and mitigation; and environmental health and biodiversity.

Ethiopia has attracted at least 14 of 32 initiatives under the One CGIAR research and innovation strategy. And during this meeting, you will also deliberate on two: one on One Health and the other on resilient cities. The One Health initiative will focus on food safety, environment and economic and governance aspects of One Health to improve food safety, focusing on the key value chains of animal-source food such as milk and meat.

This stakeholder consultation meeting is a follow up of last year's meeting in July 2021 (consultation to develop the One Health initiative proposal) to make sure to embrace national priorities on food safety. The One Health initiative will closely work with the One Health National Steering Committee to support and promote One Health activities together with other One Health projects led by ILRI in Ethiopia (Capacitating One Health in Eastern and Southern Africa and the One Health Research, Education and Outreach Centre in Africa).

As you engage in your deliberations, I want to end my remarks by challenging you to also think of how you contribute to answering the following questions:

1. How will the initiatives you will discuss contribute to the vision the country has set in its food systems transformation pathway? What questions will you provide evidence towards?
2. How might those who will need to take up the evidence you generate be empowered to make the most of this evidence once available?
3. How can you leverage the two initiatives you will be discussing to create synergy and the desire for a One Health approach with policy implications.

Distinguished guests, ladies and gentlemen, I wish you fruitful deliberations.

## Message from Sisay Getachew, Director of Veterinary Public Health, MoA, Ethiopia

All participants,  
Good morning.

It gives me pleasure to be here today to participate and deliver a speech from MoA on the One Health meeting organized by ILRI to promote the need for a One Health approach to address health threats shared among people, animals, plants and our environment.

As we all recognize, general health risks are increasing with trade globalization, global warming and changes in human behaviour, all of which provide multiple opportunities for pathogens to colonize new territories and evolve into new forms, endangering human, animal and environmental health. There are also emerging and re-emerging potential pathogens that can affect all lives on Earth, circulating among animals, human and the environment. These emerging and re-emerging diseases often need a multi-sectoral approach and use of multidisciplinary efforts to prevent and or control their occurrence.

According to the World Organisation for Animal Health, 60% of pathogens that cause human diseases originate from domestic animals or wildlife, 75% of emerging human pathogens are of animal origin and 80% of pathogens that are of bioterrorism concern originate from animals. These scenarios indicate that the risk is not only for humans. While most risk assessments focus on the transmission of pathogens from animals to humans, animal health is also greatly affected by diseases transmitted from humans.

We all understand that our society faces an enormous challenges to feed, house and provide a healthy life for the growing human population while preserving the environment and natural resources for the benefit of future generations. In order to meet these challenges, sustainable food production and environmental stewardship are paramount and will require a One Health approach.

Evidence from the Food and Agriculture Organization of the United Nations shows that the global human population is expected to reach 9.7 billion people by the year 2050. As the human population continues to grow, we face increasing challenges to ensure that people will have access to safe, nutritious and healthy food. By the year 2050, food production will need to increase by more than 50% of 2012 production levels to meet demand. As incomes in developing countries continue to rise and living conditions improve, demand for meat, dairy and specialty crops such as fruits, nuts and vegetables has increased.

Therefore, we believe that today's meeting will contribute to possible interventions in the government plan for food security and food safety development in the country. CGIAR's new two-year (2022–24) research initiative titled *Protecting human health through a One Health approach* is one of the main focus areas contributing to solving the challenges of ensuring sustainable food systems, food safety and food security. Taking this opportunity, the MoA is committed to supporting the implementation of the initiative.

Dear participants, the MoA has been closely working with the main health stakeholders to combat public health threats such as zoonotic diseases, through a One Health approach. Regarding animal health, the MoA has a mandate for activities under zoonotic diseases prevention and control, food safety (raw food sources from animal and plants) and AMR containment and prevention.

I would like to mention some of the current activities that MoA has been undertaking. The ongoing rabies control campaign all over the country that is being coordinated and run by the MoA is a good

example that needs a One Health approach. Still, there are many disease scenarios that need multisectoral cooperation and coordination to develop and implement national strategies to tackle such priority zoonotic diseases and broader health threats such as AMR.

The health of animals and the environment determine human health, and the health of animals and of the environment strongly depend on human activities. It's everyone's health. Therefore, I would like to express our continued commitment to promote a sustainable One Health approach towards ensuring sustainable food systems, food security and food safety, recognizing the interdependence of animal, human and environmental health. Together, we can find tangible results for a healthier and more sustainable food system through a One Health approach coordination platform.

Finally, on behalf of the MoA, I wish you the best deliberations in this workshop.

Thank you!

## Annex 2: Program

Time	Activity	In charge, presenter or facilitator
0930–1000	Registration	Yodit/Getachew
1000–1010	Opening remarks	Namukolo Covic, Director General's Representative to ILRI Ethiopia
1010–1020	Brief about MoA and organization of food safety activities	MoA, Veterinary Public Health and Ethiopian Public Health Institute
1020–1050	Introduction of participants (1 min each; name and interest area in food safety)	Silvia Alonso
1050–1230	Overview of food safety research and implementation in Ethiopia (government, partners, priority and strategy)	Kebede Amenu
	Food safety projects in Ethiopia (implemented by CGIAR)	Silvia Alonso
	Discussion	Hung Nguyen
	One Health initiative overview, including food safety work package; Resilient Cities initiative	Hung Nguyen and Silvia Alonso
	Water (environment) work package	Alemseged Tamiru
	Economics, governance and behaviour work package	Gashaw Tadesse
	Q&A and discussion	Hung Nguyen
	Rationale for value chain candidates	Kebede Amenu
	Brief feedback on the choices of the value chains	All
1230–1400	Lunch	
1400–1415	Further feedback on the value chains	Silvia Alonso
1415–1430	Experience of food safety interventions <ul style="list-style-type: none"> <li>• Pork in Asia</li> <li>• Dairy Intervention in Kenya</li> <li>• Design of food safety intervention in Vietnam</li> </ul>	Hung Nguyen, Silvia Alonso and Vivian Hoffmann
1430–1530	What are interventions to do?*	Dairy: 2 groups (Facilitators: Biruk Alemu and Meseret Bekele)
	Identify critical risks in dairy and meat value chains, type of interventions (farm, market, household) and the role of water in food safety	Meat: 2 groups (Facilitators: Kebede Amenu and Getachew Dinede)
1530–1545	Coffee break	
1545–1600	Presentation of each group on the different priority interventions: Which interventions (or combinations thereof) can be used to improve food safety?	Silvia Alonso
1600–1620	Identifying implementation arrangements Who needs to be involved based on interventions? What projects are already working on these areas?	Theodore Knight-Jones
1620–1630	Next steps and closing	Kebede Amenu and Hung Nguyen

\*Use multi-criteria to prioritize value chains and risk reduction measures based on enabling, capacitating and motivating approach

## Annex 3: Participants

Name	Designation	Organization	Focus area
Sisay Getachew	Director, Veterinary Public Health	MoA	Food safety
Waktole Gobena	Associate researcher	Ethiopian Public Health Institute	Food safety
Aderajew Mekonnen Girmay	Senior researcher, environmental health and water	Ethiopian Public Health Institute	Water/food
Beniyam Tollosa	Senior meat inspector	Addis Ababa Abattoir Enterprises	Meat
Assaminew Shewangzaw	Meat quality and safety expert	Livestock Development Institute, Bishoftu Centre	Meat
Tesfaye Alemu	Dairy product quality researcher	Livestock Development Institute, Bishoftu Centre	Dairy
Ulfina Galmessa	National dairy coordinator	Ethiopian Institute of Agriculture Research	Dairy
Mihret Mersha	Water quality expert	Addis Ababa Water and Sewerage Authority	Water
Andualem Mekonnen	Assistant professor, environmental sciences	Addis Ababa University	Water
Lakech Haile	Environmentalist	Addis Ababa Environmental Protection Authority	Water
Sisay Girma	Assistant professor, veterinary public health	Haramaya University	Food safety
Kebede Abegaz	Food safety researcher and consultant	Hawassa University	Food safety
Sintayehu Yigrem	Assistant professor, dairy food safety and security	Hawassa University	Dairy
Melake Assefa	Director, meat development directorate	MoA	Meat
Biruk Alemu	Research fellow	ILRI	AMR
Siobhan Mor	Joint appointed scientist	ILRI and University of Liverpool	Zoonoses
Silvia Alonso	Senior scientist	ILRI	Food safety
Kebede Amenu	Postdoctoral scientist	ILRI	Food safety
Michael Victor	Head, communications and knowledge management	ILRI	Communications
Meseret Bekele	PhD fellow	ILRI	Food safety
Gashaw Abate	Research fellow	IFPRI	Economics
Arshnee Moodley	Team leader, AMR	ILRI	AMR
Florence Mutua	Scientist	ILRI	Food safety
Javier Mateo-Sagasta	Senior researcher	IWMI	Water
Vivian Hoffmann	Senior research fellow	IFPRI	Economics
Alemseged Tamiru	Senior researcher	IWMI	Water
Elizabeth Cook	Senior scientist	ILRI	Food safety
Delia Grace	Professor of food safety systems and joint appointed scientist	Natural Resources Institute and ILRI	Food safety
Tezira Lore	Communication specialist	ILRI	Communications
Mike Murphy	Senior research analyst	IFPRI	Economics
Getachew Dinede	Research officer	ILRI	Food safety
Hung Nguyen-Viet	Co-leader, Animal and Human Health program	ILRI	Food safety
Theodore Knight-Jones	Team leader, herd health	ILRI	Epidemiology
Namukolo Covic	Director General's Representative in Ethiopia	ILRI	Nutrition