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Food Safety and Free Trade Area in East Africa

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Abstract

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by

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MA, University of East Anglia, Norwich, United Kingdom, 2003

BS, Makerere University, Kampala, Uganda, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Public Policy and Administration

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Abstract

Africans experience high incidences of foodborne diseases annually leading to poor public health, yet there is limited information on implementation of food laws in Uganda, Ethiopia, and Kenya from the perspectives of public officials with knowledge of and experience with implementing food laws, policies, and regulations to inform policy on food security and safety and help mitigate foodborne diseases and associated trade concerns between countries. The study's research question involved identifying the perceptions of public officials on the impact of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya. The study applied complex adaptive system theory to interrogate the different elements in relational systems to fill the information gap. In-depth interviews were conducted with 16 participants selected using a purposive sampling method to elicit their views. Data were recorded and transcribed verbatim and then coded, and data analysis was inductive. The research revealed that in the three countries, food safety systems were still developing; food laws and regulations existed but were outdated; and food safety was handled by multiple agencies that led in developing food laws, policies, standards, and regulations. The research showed the pivotal role that standards play in managing product certification, ensuring food quality, enforcing laws and regulations, and creating awareness, thus offering checks and balances to strengthen food safety systems. Challenges include inadequate public awareness on food laws and regulations, as well as limited human and financial resources to implement food safety strategies, enforce laws, and promote food safety. Findings may be used by public officials for positive social change to improve food safety.

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Dedication

I dedicate this Dissertation to my family who has always been the center of my life. The sacrifices you made to allow me pursue my dream has not been in vain, and has led to the completion of this project.

Lots of love and respect to my phenomenal mother (fondly known as Tata). who laid the solid foundation and instilled in me a sense of curiosity and a love of learning.

My children; Jonathan and Elizabeth have been my biggest source of inspiration! To hear you repeatedly say, 'mom, you have got this', and 'wow mom, this is awesome,' meant everything and kept me going. In all this, I only wanted to be the best example I could possibly be to you.

So, Tata, Jonathan, Elizabeth, Alison, Jethro, Diana, Isabel, Christine, Eliana, Miriam, Niara and Abigail, this, is for you!

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Chapter 1: Introduction to the Study

Introduction

Food is a key aspect and necessity of life and should be consumed with the assurance that it is safe. Schmidt and Rodrick (2003) drew a parallel between the beginning and the close of the 20th century regarding which food safety concerns were highlighted for public attention. The occurrence of foodborne diseases remains a key concern for many African governments since the continent has the highest number of foodborne disease-related deaths globally (World Health Organization [WHO], 2015). The purpose of this generic qualitative study was to examine factors that contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from the perspectives of public officials with knowledge of and experience with implementing food laws, policies, and regulations to inform policy on food security and safety and help mitigate foodborne diseases and associated trade concerns between countries.

The 21st century is characterized by increased interconnection among countries and making it easy to transport food from one location for consumption in another. To ensure effective global food trade, governments and the private sector endeavor to ensure food safety and guarantee policies that facilitate trade and ensure the protection of human health (Food and Agriculture Organization [FAO], 2019). These efforts require regular reviews to understand adaptations to continuous economic, environmental, infrastructural, political, social, and policy changes.

On March 21, 2018, African leaders signed the African Continental Free Trade Area (AfCFTA) and the African Union Commission embarked on its implementation

(African Union, 2018). The AfCFTA agreement set out an ambitious agenda to have a single market for goods and services with free movement of businesspersons to strengthen the economic sector and the integration of Africa. Trading within the AfCFTA commenced on January 1, 2021 and will usher in one of the biggest free-trade areas in the world with a single market of 1.3 billion people, resulting in increased trade opportunities for plants, animals, and food products (Albert, 2019). Many African leaders consider that being part of the free trade area holds some potential benefits for their countries. These countries bring in their experiences of being part of regional trade agreements and blocs, and their leaders are seeking to deepen Africa's economic integration. While this integration holds the promise of increasing trade in food, it also raises the questions of how countries will protect consumers from unsafe food and unfair trading practices. The effectiveness of a common market system starts at the national level with legal, policy, and institutional frameworks on food safety.

This chapter addresses the study's background and rationale, as well as how the study was conducted, including the theoretical framing and definition of key terms. The chapter spells out the research question and the theoretical framework underpinning the study. The nature of the study is also described, along with key concepts, assumptions, and the scope and delimitations of the study. I conclude the chapter by presenting the limitations and outlining the significance of the study.

Background

Africa has the world's highest rate of population growth; it is projected that Africa's population will reach 9.7 billion by 2050 (United Nations, 2019). Food scarcity

is common in many parts of the continent, making it challenging to ensure access to safe food. Africa is also the continent most vulnerable to the effects of climate change (Welborn, 2018), which affects its agriculture and food systems, making it more difficult to achieve food security and nutrition goals and reduce poverty. The Sixth Assessment Report of the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) (2022) referenced that all facets of food security will be threatened, including production, access, and price stability. The report gives an indicative account of the effect of both nonclimate and climate stressors on the four pillars of food security, namely availability, access, utilization, and stability. Climate change, characterized by increase in temperatures and unpredictable precipitation patterns, is impacting food security, gender and equity, pastoral systems and communities, and fruit and vegetable production. The IPPC report also shows that smallholder farmers, providing up to 80% of the global food supply, including livestock keepers, fishers, and foresters, and especially women and indigenous people, are the most vulnerable to the various impacts of climate change. Food systems and nourishment feature prominently in the Sixth Assessment Report (AR6) and previous IPPC reports, including the Special Report focusing on global warming (SR15) and the Paris Agreement, which aim to limit global warming to 2°C. AR6 shows that global warming attributed to human-induced activities reached approximately 1°C, above preindustrial levels, in 2017. Reduced anthropogenic greenhouse gas (GHG) emissions that minimize warming would significantly lessen the negative impacts of climate change on land ecosystems. However, lack of substantial reduction in rapid emissions and dependence on large-scale, land-based climate change

mitigation is projected to increase, with ripple effects on increased burden on land. AR6 projects that climate change mitigation efforts that require large land areas such as bioenergy, afforestation, and reforestation are bound to compete with existing uses of land. Such pressure on land use could increase food prices, limit water resources, increase air pollution, and result in substantial loss of biodiversity. Competition for land use would endanger Africa's capacity to achieve many Sustainable Development Goals (SDGs) that depend on land due to its growing and vulnerable population.

The landmark AfCFTA agreement involves the largest free-trade area globally, with a record market of 1.3 billion people (Trade Law Centre, 2019). It will promote access to food from areas with excess supply to those that lack it or cannot produce it efficiently. Sanitary and phytosanitary (SPS) measures will, however, play an important role in the implementation of the AfCFTA because 75% of trade in Africa is dominated by agricultural and food products (African Union, 2019a). Meeting SPS standards is often associated with increased efficiency in food production and processing; improved food quality, safety, and distribution; increased competitiveness; and reduction in cost of production and wastage.

Nevertheless, food safety presents a complex development challenge, specifically as it pertains to public health. In its new organizational strategy, the WHO (2022) indicates that the impact of foodborne diseases on public health and economies has been underrated because of insufficient reporting challenges to determine the linkage between food contamination and corresponding illness or death. The WHO African Region office runs the highest per capita burden of foodborne illness in the world, conservatively

estimated at 137,000 deaths and 91 million acute illnesses, and children are the most affected (WHO, 2015). The World Bank (2019) in its estimation reported that the annual economic cost for sub-Saharan Africa related to foodborne illnesses and lost productivity alone exceeds USD 16 billion. Food safety has therefore become an important precondition to accessing export markets and can be an impediment to agricultural competitiveness for many African countries. Both the United Nations SDGs and the African Union's Agenda 2063 present an opportunity to demonstrate political leadership and strengthen international food security and food safety policies. The two frameworks reference the need to boost private and public investments in the agri-food sector to have more productive, sustainable, and inclusive food systems as a pillar of human dignity. Another opportunity arises from the intended Nationally Determined Contributions to Climate action (Ge et al., 2019). Accordingly, many countries have identified activities and developed climate policies in response to the Paris Agreement to implement the SDGs and the African Union Agenda 2063 with a focus on integrating food security and nutrition into climate action.

Uganda, Ethiopia, and Kenya struggle to attain food security, which is defined in the Rome Declaration by the World Food Summit of 1996 as existing "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life" (FAO, 1996, p. 2). Paradoxically, Africa in general and East Africa in particular are considered rich in natural resources, with Uganda referred to as the food basket of the region (Streifel et al., 2018). The proportion of the population of Uganda that is food secure reduced from 83% in July 2016 to 69% in January 2017 (FAO, 2022). This report

also shows that the decline in food security in Uganda, a country that has long been food secure, has been attributed to the effects of the 2016 La Nina occurrence and the resurgence of crop and livestock pests and diseases such as fall armyworm and desert locusts, among other factors. The 2017 Global Hunger Index shows that Ethiopia is one of the hungriest countries in the world, with about 5.2 million people requiring food assistance (Grebmer et al., 2017). This problem is worsened by the low purchasing power of a considerable portion of the population due to a high rate of unemployment. The Ethiopian government, like the governments of Uganda and Kenya, has other needs and priorities competing for public resources besides making available adequate and safe food for citizens. This is reflected in the meager allocation of public resources of less than 10% of the annual budget allocated to the agriculture sector (World Bank, 2016). Nonoptimal prioritization of agriculture leads to negative effects in other sectors too.

The African Union (2019a) food safety scoping study lists some of the food safety challenges facing Africa. They include, among others, varying food safety standards and border controls used by different countries, inadequate private sector capacities to ensure food safety, and placement of food safety management across various government institutions, sometimes leading to inadequate food safety oversight required to protect consumers and facilitate trade. Furthermore, resources required for strengthening institutional capacity for effective implementation of food laws and policies are limited (Walker, 2013). Lack of resources is exacerbated by limited information on the relationship between food laws, food security, food safety, and food trade; lack of specific provisions for management of food safety crises in the laws; unclear food safety

mandates among government ministries such as trade, health, and agriculture; and lack of convergence between the national laws and international recommendations on food laws (African Union, 2019a). My research has provided additional knowledge in this area and added to the body of literature that can be used for making policy recommendations to improve food safety delivery systems for improved public health and livelihoods of the people of Uganda, Ethiopia, and Kenya.

Problem Statement

Africa faces high incidences of foodborne diseases and has the highest number of foodborne disease-related deaths globally (WHO, 2022, 2015), yet Uganda, Ethiopia, and Kenya lack information on where the actual food safety risks are. The lack of information on the effectiveness of the national food laws, specifically the segments that require strengthening to protect public health and facilitate trade, continues to have ripple effects on the continued consumption of unsafe food in Africa. The WHO (2015) reported that about 91 million people fall ill annually in Africa as a result of consuming unsafe food. Uganda, Ethiopia, and Kenya have all experienced incidences of foodborne diseases with deaths reported. According to the Republic of Uganda, 2015b, 14% of all cases treated in various hospitals in Uganda are due to foodborne diseases. In Ethiopia, most foodborne illnesses are attributed to eating raw meat, milk, and eggs, and about 70% of all episodes of diarrhea are attributable to ingestion of contaminated food and water (Ayalew et al., 2013). In 2004, aflatoxin contamination of maize led to poisoning in 317 reported cases with 125 deaths in Eastern Kenya, and fatalities attributed to consuming meat from animals infected with Rift Valley Fever virus remain a significant public health concern

in the country, according to Oloo (2010). According to Rodl and Partner (2020), despite

laws and standards to deter the sale of contaminated food products, such products still

find their way into markets and cause illnesses and deaths in humans and animals, as with

the case of aflatoxin contamination in maize.

Unsafe food is also associated with food insecurity occasionally experienced in

these countries. Communities faced with food shortages will often prioritize availability

of food more than its quality. The Food Security Information Network (FSIN); and

Global Report on Food Crises (2020) indicated that the East Africa region experiences

emergencies such as prolonged droughts, flash floods, and unreliable rainfall that

contribute to food insecurity in the region. These emergencies require a multisectoral and

a multipolicy approach by governments to respond to inadequate food supply so that food

shortages do not escalate to a food safety problem.

The World Bank (2019) estimated the economic cost for countries in Africa (and

Asia) not mitigating the problem of unsafe food consumption at approximately $110

billion in lost productivity and medical expenses each year. According to Uyttendaele et

al. (2015), food safety should encompass food and nutrition security. Morse et al. (2018)

highlighted the effect that weak food hygiene standards create on public health and trade

at the domestic and international level. Small-scale and poor resource producers and

traders struggle to generate income from their businesses and tend to compromise food

handling practice, further denying poor consumers access to quality food and increasing

the risks of exposure to foodborne diseases, according to Roesel et al. (2015). Some of

the current food safety problems are associated with changes in behavior, specifically in

the eating habits of the rising middle class (FAO, 2016). While many countries in Africa have strengthened their food safety systems, more can still be done to bolster some of the outdated and weak enforcement of food safety legislation and policies (African Union, 2019b). Moreover, it is also not clear to what extent sanitary and phytosanitary measures of African countries are based on international standards, science, proportionate, least-trade restrictive, or transparent (Standards and Trade Development Facility [STDF], 2012). Limited availability of information for the public and policy makers from officials on the effectiveness of food laws has ripple effects on the continued public consumption of unsafe food in Africa. Through this research, I sought to provide insights on the various food laws, regulations, and policies of Uganda, Ethiopia, and Kenya and how they are regarded by public officials responsible for the implementation of food safety policies.

Purpose of the Study

The purpose of this generic qualitative study was to examine factors that contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from the perspectives of public officials with knowledge and experience of implementing food laws, policies, and regulations to inform policy on food security and safety and help mitigate foodborne diseases and associated trade concerns between countries. The study showed strengths and limitations of current food laws and supported recommendations for ways to contribute to strengthening food laws, policies, and enforcement frameworks. My research question was designed to contribute to the purpose of the study by bringing out the various areas of the national food laws that public officials responsible for the

implementation of food safety policies consider to be working optimally and the deficiencies therein that require bolstering to protect public health and facilitate trade.

Research Question

My research question was the following: What are the perceptions of public officials responsible for the implementation of food safety policies on the impact of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya? The single research question helped to elicit the views of participants and show the differences in the food laws and what underlies successful approaches to their implementation. These perceptions may ultimately influence the decisions of governments in designing interventions that promote and ensure regional food security and help create a more formal system of regional food safety and trade policies.

Theoretical Framework

I used complex adaptive systems (CAS) as a theoretical framework. CAS is one of the variants of systems theory with roots in complexity theory and helps describe how different components of a system interact, adapt, and learn (Holland, 2006). CAS is central to understanding contemporary problems, including challenges of food safety that have become more prevalent due to globalization that promotes more mobility of people and materials. Furthermore, CAS studies often encompass various disciplines as opposed to conventional scientific studies (Sage et al., 2009). Therefore, it is an ideal framework to study the food safety continuum that brings together multiple stakeholders including farmers, processors, transporters, consumers, and policy makers. CAS suggests that a system may be characterized as complex due to the way the parts in it interact. In

addition, CAS is premised on complexity sciences and described as properties that are diverse, aggregate in nature, nonlinear, and dynamic. CAS is also described as mechanisms that shape the adaptation of the various components in conformity to the wider system (Holland, 1995).

Food safety is a phenomenon characterized by several factors, including changes in consumer habits and a consistent rise in urbanization, which increases uptake of food availed from public places; globalization that has induced a dynamic demand for different types of foods that has led to a more intricate and extensive global food chain; and more agricultural transformation, industrialization, and livestock to supply the high demand for food. These are influenced by both individuals and groups of individuals, governments, and regional and global institutions. Therefore, CAS is ideal for studying policies and laws intentionally designed for a desired policy or political outcome. As a strategy for attaining positive outcomes within CAS, each system is distinct and identified by its unique progressive or historical boundaries. It is also delimited and influenced by the environment in which it is found and defined by its configuration and aim, and it is demonstrated by what it does. CAS was used as a theoretical framework to examine the contribution of food laws in the targeted countries with the aim of mitigating foodborne diseases and strengthening trade in the targeted countries. CAS informed the analysis of the elements of the food laws that work better towards mitigating foodborne diseases and promoting trade. It was further used as a framework to show which areas of food laws are adequately prioritized and the areas that require reinforcement to have robust food safety delivery systems in the targeted countries.

Nature of the Study

I used a generic qualitative study to examine the food safety phenomenon in a Ugandan, Ethiopian, and Kenyan context and presented an analysis of findings following the processes outlined by Salkind (2012) for covering the research process, selection of the problem, and sampling, including generalization of the study. I chose a generic qualitative approach for my research to help explain the causal links and pathways emanating from a policy intervention. The approach was effective in answering questions designed to address how a policy intervention involving food laws, policies, and regulations was implemented; what gaps existed in the delivery mechanisms; and why a particular strategy was preferred over another (Yin, 2014). My research focused on food laws from the broader food safety realm. A generic qualitative study explores people's subjective perceptions and experiences of events or situations that ensue in the outer world (Percy et al., 2015). It is used for determining and understanding a phenomenon, a process, or the perspectives of the people involved (Merriam, 2002). I used the approach in this study to understand public officials' perceptions of existing food laws and policies in Uganda, Ethiopia, and Kenya. The unit of analysis for the study was public officials working on the implementation of food laws, policies, and regulations in the ministries responsible for agriculture, trade, and health.

Within the public sector, an in-depth understanding of effective food laws is better examined as a generic qualitative study to interpret participants' perceptions from the targeted countries. The perceptions and experiences of public officials in relationship to the practical problems in each country were examined individually. My choice of a

generic qualitative study approach may enhance understanding of the larger social issue

and brought out similarities and differences on food laws in the three countries that will

produce positive policy changes. The phenomena investigated included elements of the

national food laws that public officials responsible for the implementation of food safety

policies consider to be working optimally and the deficiencies—whether they protect

public health and trade or limit those efforts. The study examined the implementation of

food laws, policies, and regulations in Uganda, Ethiopia, and Kenya.

Data were collected through in-depth interviews to exhaustively address the

research question. The interview protocol used addressed the conditions that support

quality interviews, including reaching and choosing participants, building rapport and

trust, duration of the interview, the logical flow and clarity of questions, and the overall

execution of the interview (Creswell, 2009; Patton, 2015; Rubin & Rubin, 2012; Weiss,

1994). To enhance the quality of data collected, the interview protocol was refined to

ensure that the interview and research questions were aligned and to support an inquiry-

based conversation (Castillo, 2016). In-depth interviews were conducted with 16 public

officials responsible for the implementation of food safety policies, purposively selected

based on the qualities they possessed, such as their history with food security, trade, and

health, to respond to the information sought given their knowledge and experience.

Participants included public officials responsible for the implementation of food safety

policies, with experience of at least 5 years working on food-safety-related matters with a

focus on food laws. Data were obtained from the responses provided by the participants

through interview questions from each of the targeted countries. The interview data were

reviewed systematically, and the data were recorded, transcribed, coded, and analyzed using NVivo.

I used purposive sampling to identify potential participants. Often referred to as judgmental, selective, or subjective sampling, purposive sampling helps to identify participants following their specific qualities or characteristics (Ilker et al., 2016). Purposive sampling ensured that information-rich participants provided in-depth information about the food safety phenomenon in the targeted areas. Rubin and Rubin (2012) noted that the essence of qualitative research is in choosing the right people who to know about the subject matter to interview. For this study, I recruited participants who were knowledgeable on food safety in East Africa in general and in their respective countries. Asmiah et al. (2017) explained the importance of population to producing evidence-based research. The authors noted that the researcher's understanding, definition, and choice of the population is crucial to the credibility of research. This research relied on the perceptions of public officials from the ministries of agriculture, health, and trade who were conversant with implementation of food laws, policies, and regulations in Uganda, Ethiopia, and Kenya. Patton (2015) asserted that individuals or groups of individuals who are proficient and well informed about the phenomenon of interest enable the investigator to substantially learn about the issue at the core of a study. Participants selected for this study provided answers about the perceptions of public officials on food laws and their impact on the food safety delivery system in Uganda, Ethiopia, and Kenya.

Purposive sampling supported the research need to glean knowledge from persons with specific expertise and for participants to be identified from agencies, organizations, or systems involved in the implementation process of any (policy) intervention (Palinkas et al., 2015). Purposive sampling enabled participants for this study to inform the research inquiry through their knowledge, experience, and expertise (Patton, 1990).

Potential participants were selected based on the understanding that they possessed and requisite knowledge of and experience with implementing food laws, policies, and regulations for at least 5 years. They shared comprehensive (depth) and generalizable (breadth) information (Patton, 2015). Contact details of potential participants were obtained from the African Union public database of officials from ministries covering agriculture, trade, and health who worked on the areas of research interest in Uganda, Ethiopia, and Kenya. An email was sent to the public officials who met or exceeded the set criteria to request their participation in the study to share their insights on the inquiry issues.

To ensure focus, I developed and used a semi structured interview guide, drawing from Patton (2015). I was the principal instrument for data collection in undertaking the face-to-face interviews with the research participants. According to Jacob and Furgerson (2012), effective interview protocols spell out what the researcher will state from the beginning and in concluding the interview. The interview protocol contained prompts, and it helped in orienting the discussion towards the research objectives. A summary questionnaire focusing on the demographic data of each participant was part of the interview protocol. Appointments were made with participants who provided their

consent to be interviewed. Individual in-depth interviews were carried out with participants to explore their understanding of the status quo of food safety, food laws, food security, and policies and explored how to change the current narrative for the better.

Coding is essential in the initial stages of qualitative data analysis for ease of understanding the processes (Ravitch & Carl, 2016; Saldana, 2016). Responses from participants were recorded, transcribed, manually coded, and saved as a Microsoft Word file. Saldana (2016) asserted that it is important to precode by highlighting significant quotes from participants or outstanding passages from text. Predefined codes from interview data were used to support document analysis because they complemented the in-depth interview method chosen for this study. Coding the data involved identifying significant statements, sentences, or quotes that described what was going on in the data and showed how the participants experienced the phenomenon. Coding helped to define code categories and brought out emerging meanings and patterns in the data. The codes used in the interview transcripts were also applied in document analysis and vice versa to ensure that data from both sources were integrated. This further helped to form clusters of meaning from which significant statements were developed into themes. The statements and themes served to formulate a description of what the participants perceived from their administrative positions.

Data were analyzed through the lens of CAS to assign meaning to the data collected, ranging from public documents, notes, journal notes, and interview data to interview notes, to describe how different components of the system interact, adapt, and

learn (Holland, 2005). To facilitate ease of analysis, the software program NVivo was used to locate, code, and annotate results from the raw data to assess their relevance and to present the relations between the different elements in a visual form where appropriate. Data analysis was inductive and involved application of thick descriptions of the views expressed from participants in the targeted countries on what constitute effective food safety delivery systems. Ravitch and Carl (2016) provided an account of the strengths of thick descriptions in conducting qualitative research that this study relied upon to show how data are described, whether the descriptions are comprehensive and detailed, or whether the descriptions can allow readers who do not know the research context to comprehend the context and setting. Thick description also showed whether public officials provided adequate information and whether their thoughts and experiences provided useful lessons in similar social contexts.

Assumptions

My research was conducted based on the assumptions that selected participants would provide authentic and accurate answers to the interview questions, that the criteria used for selecting public officials were the most optimal in ensuring inclusion of participants with the required knowledge and expert opinion sought, that participants would be willing to share their experiences (good or bad) based on their expert positions, and that similar participants would be recruited across different target countries to share their views on their respective laws and policies without any personal or institutional encumbrances. Taking on the multiple realities of participants helps in describing the nature of reality of interest for a researcher (Creswell, 2007). This ontological assumption

was necessary because public officials are governed by public regulations that guide them on the extent to which they can discuss or release official information. Their various accounts were analyzed and reported based on the different themes that emerged.

Scope and Delimitations

My research focused on the perceptions of public officials regarding the alignment of food laws and policies of Uganda, Ethiopia, and Kenya with international food safety requirements as well as their effectiveness in mitigating foodborne diseases and promoting trade. The scope was limited to a selected number of public officials from the ministries covering agriculture, trade, and health who worked on the areas of research interest in Uganda, Ethiopia, and Kenya. Sixteen public officials with at least 5 years of experience were purposely sampled for the inquiry.

Because the research was hemmed into the perceptions and experiences of the participants on the implementation of food laws, policies, and regulations, their willingness and desire to fully share their experiences could have been a delimiting factor. Other delimitations included delays in scheduling and collecting data because of the COVID-19 pandemic.

While my research drew from the expert opinion of public officials and public documents from Uganda, Ethiopia, and Kenya, attention was paid to the importance of transferability to other contexts through detailed descriptions of the data and context to ensure sharing of lessons and best practices.

Limitations

A limitation of the qualitative research design can be the inability to test or verify the research problem statistically. Bias can be reflected in responses when the interview questions are formulated poorly. Due to reflexivity, participants might only give responses that they think the interviewer wants to hear. Perceptions of the participants might contain some inaccuracies because of poor recall. This limitation was addressed by consistently checking for any reporting biases by retrieving notes taken and recording interviews. Furthermore, the inability to interview respondents in person and observe the situations and their body language might have limited the capacity to obtain optimal data. To minimize this limitation, interviews were conducted and recorded on Zoom.

I considered the potential challenges that were likely to occur during data collection, such as the need to understand and comply with the various interrelated procedures and practices that contemporary social science research is based on as described by Rudestam and Newton (2015). To overcome these challenges, I provided an overview that showed how the various sections aligned in the iterative process of ensuring the quality and rigor of the dissertation research. Ethical concerns can constitute a barrier to any research. Ethical considerations are central to scientific research work because they concern work relating to a study and the need to protect the dignity of the subjects involved. To preempt challenges, I ensured that participants' consent to participate in the study was obtained in advance.

Significance

This research provided insight into the underlying problems of food safety linked to relevant laws, regulations, or policies in Uganda, Ethiopia, and Kenya. The results of the study showed similarities and differences in food laws, regulations, and policies in the target countries; addressed how the national food safety systems are prepared to operate within a continent-wide market governed by rules of trade in food products; indicated how countries are promoting trade and consumption of safe food domestically; highlighted the challenges around food safety in Eastern Africa, focusing on Uganda, Ethiopia, and Kenya; and generated policy recommendations for formulating public programs to galvanize a community of practice around food safety. My research will hopefully complement available information on ongoing initiatives with the long-term objectives of promoting consumption of safe food and developing programs that can provide tax savings, save lives, and improve health. Often, food business operators are obliged to pay for destroying products that fail to meet quality standards that they have exported. However, it is the country from which the product originates that is blacklisted on the international market. Countries later struggle to rebuild trust with importers once they are blacklisted for exporting substandard or unsafe food products. In some cases, it takes several years before an importing country can allow import of commodities from a country that has previously supplied unsafe products.

Summary

Through generic qualitative research design, I examined factors that contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from the

perspectives of public officials with knowledge of and experience in implementing food laws, policies, and regulations to inform policy on food security and safety to help mitigate foodborne diseases and associated trade concerns between countries. Chapter 1 provided an introduction outlining the topic of the study with adequate background information that defined the scope and gap that the study addressed. The problem statement was articulated, showing the extent of the problem and presenting the purpose of the study. It further posed the research question and defined the theoretical framework that guided the study. The chapter further presented the nature of the study, defined key concepts and paradigms used, and addressed the assumptions that had to be met, the scope and delimitations, the limitations, and the significance of the study.

In Chapter 2, I present the literature search strategy and a synopsis of research literature. This focuses on foodborne diseases, food safety, and related terms. Through the literature review, I address and justify the selected concepts used in the study.

Chapter 2: Literature Review

Introduction

Food safety affects both health and economic growth and development (World Bank, 2016). It is now known that consumption of unsafe foods results in about $110 billion in lost productivity and medical expenditures annually in Africa and Southeast Asia. On the public health side, the WHO (2015) reported that Africa records 91 million cases of foodborne-related diseases with 137,000 mortalities annually. Africa also accounts for one third of the global deaths due to foodborne diseases, with poorer people being the most affected. These multifaceted problems associated with food safety undercut both public health and the economy, including foreign and domestic affairs, and often require a holistic and decisive approach to address them. Various scholars have pointed out these challenges, signifying the need to understand how food laws are positioned in this context from the perspective of public officials.

The purpose of this generic qualitative study was to examine factors that contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from the perspectives of public officials with knowledge of and experience in implementing food laws, policies, and regulations to inform policy on food security and safety and help mitigate foodborne diseases and associated trade concerns between countries. The study drew from the experiences of public officials from the ministries responsible for agriculture, trade, and health as the main source of information used to understand how they perceived food laws and policies. The views of public officials complemented what the literature review showed.

Few studies address what is working well as well as the limitations with the current food laws and policies in the target countries. Food safety has emerged as an important driver in realizing Africa's food security, economic, and trade as well as public health objectives (African Union Development Agency, 2019). At the Global level, World Food Safety Day is commemorated every 7th day of June and 2019 was the year of food safety. In addition, the First FAO / WHO / AU International Food Safety Conference was held in Addis Ababa and the WTO International Forum on Food Safety and Trade in Geneva, bringing global limelight on issues that affect global food production and supply systems, consumers, industry and the planet itself (FAO & WHO, 2019b). These trends have influenced, and demonstrated that the increased appreciation of the importance of food safety in Africa as a whole has generated more political will to change the narrative on food safety (African Union, 2019a). The recent agreement by African leaders to establish the Africa Continental Free Trade Area, along with the food trade goal contained in the African Union 2014 Malabo Declaration, are concrete political steps that have been taken to elevate food safety modernization as a driver for Africa's food security, improved public health, and economic growth. Morse et al. (2018) and Roesel and Delia (2015) reported that Africa records minimal public awareness on the importance of food safety, which is exacerbated by an outdated and inadequate regulatory framework with overlapping definitions of mandates and limited food safety and hygiene systems to comply with the regulations of the World Trade Organization (WTO) Sanitary and Phytosanitary (SPS) Agreement. Bouet (2020) attributed Africa's global trade potential problems to lack of competitiveness and nontariff measures. While

food safety is bolstered through various government sections, Smith et al. (2016) found that clear communication, monitoring, and feedback processes between policy formulators and policy implementers strengthen food safety regulations systems.

In Africa, the problem of food safety is compounded by minimal empirical data on the effect of inadequate food safety regulations, knowledge, and data. This undermines availability of information to develop public policies on food safety management as well as limits the continent's participation in the global market, signifying the need for more information on how trade-related institutions can be repositioned to perform optimally (Adesina & Philips, 2015; Olayinka, 2019). In addition, the approved Codex guidelines on safe handling of food present an opportunity for strengthening the capacity of countries to improve their food safety standards and to promote the consumption of safe food (Aber et al., 2018; Odongo et al., 2017).

Wambo and Otieno (2019) determined that healthcare authorities, communities, governments, and various stakeholders continue to express anxiety over the increasing global health and development problem due to noncommunicable diseases and the double burden of childhood undernutrition and obesity. Raising nutrition knowledge in primary school-going pupils leads to providing learning content that elevates the importance of food safety at an early age. Pastoral communities have also received several interventions on water, sanitation and hygiene, health, and food security, among other areas, to overcome nutritional and health challenges in drought-prone and marginal areas (Wayua, 2017). Makhunga et al. (2019) detailed the role that poor food safety and general hygiene

play in aggravating foodborne illnesses in Africa, notably in children, the elderly, and people with underlying diseases, including HIV/AIDS.

Food safety is instrumental in sustaining life and ensuring optimal nutrition and health. Unsafe food compromises human health and maintains undesirable conditions including food insecurity, poverty, and many problems causing illnesses and curtailing national development and growth. Furthermore, the literature reviewed underscored that food safety risks present significant threats to the health of Africa's population and undermine the competitiveness of African agriculture. They also curtail progress toward enhancing public health and ensuring food security and nutrition, including boosting trade in agricultural commodities and services envisaged as desirable to achieve inclusive growth and sustainable development in Africa.

The literature provided a broad overview of food safety and experiences in the target region. The major sections of this chapter contain the literature search strategy; definition of the major concepts, including the broad understanding around food safety; and experiences defining how these concepts were understood in the study. The following section of the chapter focuses on the literature search strategy, followed by an overview of the concept of food safety and description of the underlying dimensions. Other sections address literature on the nexus between food safety, food security, nutrition, and trade, including the challenges of ensuring food safety in general. The concluding section of the chapter outlines the gaps in the literature and provides a summary and conclusion.

Literature Search Strategy

Various research databases were used to obtain relevant literature commensurate with the topic of this study. The Walden University Library provided access to databases such as SAGE Journals, Political Science Complete, ProQuest Central, Political Science Complete and Business Source Complete Combined, Public Administration abstracts, SocINDEX with full text, Political Science Complete, Nexis Uni, GuideStar, Emerald Insight, ABI/INFORM, Taylor and Francis Online, and Bloomsbury Open Archives.

Derived from the ideas around the topic, the search terms included *foodborne diseases*; *food safety*; *governing food safety at the global level*; *nexus between food safety*, *food security*, *nutrition and trade*; *global agenda and food safety*; *regional priorities*; *food safety*; and *food laws*. Additional ideas used to have a comprehensive literature review on the area of study included review of publications covering food safety challenges in Africa and the advent of the African Continental Free Trade Area. To broaden the scope of the literature search and align the search to the African context, the *African Journal of Food, Agriculture, Nutrition and Development* (AJFAND) was a source of literature on agriculture, nutrition, and food safety and other relevant information.

However, research on the implementation of food laws in Africa was limited. To address this limitation, conference papers from the First AU/FAO/WHO International Food Safety Conference held in Addis Ababa, Ethiopia from February 12–13, 2019 and the International Forum on Food Safety and Trade, organized by FAO, WHO, and WTO in Geneva, Switzerland from April 23–24, 2019 provided additional materials to review.

The papers showed that the issues prioritized included the burden of foodborne diseases and the benefits of investing in safe food; safe and sustainable food systems in an era of accelerated climate change; science, innovation, and digital transformation at the service of food safety; empowering consumers to make healthy choices and support sustainable food systems; the use of new technologies in the realm of food safety and trade; how trade in safe food can be facilitated at the borders; multistakeholder coordination and the role of partnerships; and harmonizing food safety regulation in a period of change and innovation.

The FAO and WHO (2003) underscored the need for relevant and enforceable food laws and regulations as elements that constitute modern food control systems but noted that many countries lack adequate food legislation, leading to inadequate capacity to carry out food control activities effectively. Food safety programs are therefore often not designed as systems to rebuff risks posed by foodborne illnesses and instead tend to be reactionary to crises and enforcement-oriented in nature. A review of current food laws of Uganda, Ethiopia, and Kenya revealed the context of what is working well and the limitations faced. All the countries do not have unified or modern food laws. However, matters relating to food safety are governed by national laws.

Onen (n.d.) outlined East African regional and Uganda's regulatory instruments governing food safety as the East African Standards Quality Assurance Metrology and Testing Protocol (SQMT), Food and Drugs law (1964), Uganda National Bureau Standards Act (1983), draft Food Safety law (not approved), Public Health Act (2000),

Fish Quality Assurance rules (1998), Fish Beach Management Act (2003), Animal

Disease Act (1964), and Crop Protection Act (1964).

Chapter 278 of the Food and Drugs Act (1964) of Uganda covers interpretation of

terms used in the Act, composition and labeling of food and drugs, food unfit for human

consumption, registration of premises in connection to particular foods, food poisoning,

administration, enforcement, and legal proceedings. A food safety bill was tabled before

the parliament of Uganda in 2005, but it was not passed. The Food and Drugs Act (1964)

is complemented by the Public Health Act of 1935 to govern food safety and public

health-related matters. The Public Health Act (1935) addressed the protection of

foodstuffs and water and food supplies, outlining the role of public officials and local

authorities. Onen (n.d.) indicated that Uganda mainly exports its food commodities to the

European Union (EU) and is subject to its strict guidelines, standards, and regulations

defined under the EU general food law; regulation on food hygiene; regulation on

microbial contaminants; regulation for setting maximum levels for certain contaminants

in foodstuffs; regulations on maximum pesticide residues in food and feed of animal and

plant origin; and regulation laying down marketing standards. However, Kasozi et al.

(2018) showed that inadequate data and lack of monitoring and reporting for the level of

inorganic pollutants in animal food products cause contamination of milk and beef,

subsequently undermining consumer health. These authors indicated the need for a

review of current food safety policies and for studies that cover a wider geographic area

to give a more comprehensive view on the link between consumption of food

contaminated with heavy metals and rising incidences of cancer among the population of Uganda.

The main instruments relating to Ethiopia's food safety governance include, among others, the Quality and Standards Authority of Ethiopia Establishment Proclamation Number 102 of 1998; Meat Inspection Proclamation Number 274 of 1970; Municipal Public Health Rules Legal Notes Number 146 of 1950 issued with regard to water; Municipal Public Health Rules Legal Notes Number 147 of 1950 issued with regard to food; and Standards Mark and Fees Council of Ministers Regulation Number 13 of 1990.

As in many African countries, the Ministry of Health, Ministry of Agriculture and Rural Development, Ministry of Trade and Industry, and Quality and Standards Authority of Kenya are mandated to oversee matters relating to food regulation. Temesgen and Abdisa (2015) provided a detailed account of food safety challenges in Ethiopia, noting that there is inadequate coordination among the various government agencies. The author noted that current laws and regulations are obsolete and ineffective in addressing contemporarily food safety and quality issues and expose consumers to adulterated food. That notwithstanding, Ethiopia has developed and implemented food regulations and management systems to ensure compliance with international standards in its agricultural food chain by adopting various Codex Alimentarius guidelines and the establishment of the National Codex Committee. Temesgen and Abdisa underscored the need for a comprehensive food law in Ethiopia accompanied by adopting effective regulations to support implementation of the law.

According to the National Council for Law Reporting (2009, 2012, 2013), Kenya has implemented various laws relating to food safety, including Chapter 254 of the Foods, Drugs and Chemical Substances Act of 2013, which outlines required standards for food and prohibition of sale of food unfit for consumption; Chapter 336 of the Dairy Industry Act of 2012 establishing the administration of the Kenya Dairy Board; the Biosafety Act of 2009 establishing power, authority, and functions including conducting risk assessment by regulatory agencies, and monitoring and evaluation, among others; Chapter 378 of the Fisheries Act of 2012 addressing registration of fisheries vessels, licensing provisions, offense and enforcement, and general provisions; Chapter 365 of the Meat Act of 2012; Chapter 246 of the Pest Control Act of 2012 establishing the powers of inspectors and analysts and pest control regulations; Chapter 496 of the Standards Act of 2012 establishing the Kenya Bureau of Standards and Kenya standards and enforcement; and Chapter 242 of the Public Health Act outlining the protection of foodstuffs, public water supplies, meat, milk, and other articles of food.

Wainaia et al. (2017) recommended increased training on hygiene practices to create awareness on transmission of foodborne diseases. Focusing on the dairy sector, Kemboi et al. (2020) reported that limited information and awareness on mycotoxin contamination of dairy feed results in milk contamination and associated economic losses and food insecurity in Kenya and most of sub-Saharan Africa. Mutiga et al. (2019) also noted that the multi-faceted problems associated with mycotoxin contamination undermine food safety and food security in the maize value chain in East Africa in general. Mutua et al. (2020) recommended adoption of the concept of traceability to

improve food safety and market access since the responsibility for meat inspection has been devolved to the county level of the local governance structure.

At the 2020 ReSAKSS conference on sustaining Africa's agricultural food system transformation with a focus on the role of public policies, a case was made for policy action on food safety (Jafee et al., n.d.). The case was made based on the findings that the speedy rise in Africa's urbanization and dietary demands presents huge market opportunities yet there is limited investment and prioritization of food safety for the domestic market (World Bank, 2019). The authors also found that consumption of unsafe food leads to substantial public health and economic costs that would otherwise be circumvented with the appropriate investments, public policy measures, and a change in the approach to food safety governance and how various stakeholders in the food safety value chains are engaged.

The rationale for the focus of this study on the perceptions of public officials on food laws was premised on the challenges and gaps that scholars in the field have recognized. The research gaps on the perception of public officials on food laws can be linked to greater focus placed on the "what" rather than "how" officials' views matter in establishing an effective food safety delivery system. Public service regulations shape the attitudes and behaviors of public officials (Harris et al., 2018). Some of the regulations are dated and are inadequate in responding to current global, regional, and national dynamics, notably increased trade in food commodities.

Uganda, Ethiopia, and Kenya all have codes of conduct that public officials abide by in determining how they relate with each other and the public. The code puts emphasis

on public officials not making unguarded statements or communicating with the media or the public issues related to work without getting permission to do so (Harris et al., 2018; Republic of Kenya, 2016; Ministry of Civil Service of Ethiopia, 2012; Ministry of Public Service of the Republic of Uganda, 2005). These publications also indicate that Uganda, Ethiopia, and Kenya all have public service procedures that specify how to obtain information from public officials that were followed to appropriately obtain views of public officials specific to food laws to make solid policy recommendations since most would not be inclined to offer them voluntarily.

Theoretical Foundation

I used the complex adaptive systems (CAS) approach for framing the understanding on the factors contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya with a view to providing policy recommendations on how it can be strengthened. Public policies are based on social problems and this work aimed to generate knowledge about causes, consequences, and solutions to food safety as a social problem (Dimitris & Schimer, 2014). CAS presented an ideal approach to examine the nature of social problems that this study pursued. Founded in complexity science, also traced to the work of biologist Ludwig Von Bertalanffy, CAS helps to explain how different components of the system interface, adapt and learn (Holland, 2005). The theoretical underpinning suggests that a change in one, or many of the multiple elements of the interconnected and interdependent parts of the system, and stakeholder interactions such as relationships, infrastructures, and information processes may influence change in another part or an ensemble of parts (Schneider & Somers, 2006).

Holland (1998) uses the theory of emergence to explain the idea that the whole being greater than parts of a system and that numerous rules or laws can create substantially complex systems. CAS presents a more adaptive approach to understanding the problems relating to food safety that is addressed across different sectors and involves multidisciplines and stakeholders (Sage et al., 2009). CAS posits that the extent to which the various parts and its properties in the systems interact determines its level of complexity. Ellis (2011) describes CAS as a large number of interacting parts which are interrelated, reciprocally dependent on one another and receive feedback. It is also described as mechanisms that shape the adaptation of the various components in conformity to the wider system (Holland, 1995). Complex adaptive systems adjust to an environment and emergent changes over time.

CAS helped to highlight how my research study on food safety and free trade area in East Africa permeates the agriculture, trade, and health sectors. It revealed how public officials perceive the positioning of their respective countries to the complex dynamics of operating within a free trade area from the aforementioned sectors. The Agreement establishing the Africa Continental Free Trade Area was signed in 2018 (African Union, 2018). Enhancing market access and transforming agricultural sector underpins the national policies of poverty reduction and economic development in Africa (African Union, 2017b). Public officials constitute the intellectual mechanism through which the desired transformation can happen.

In June 2014, African leaders adopted the Malabo Declaration on "Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved

Livelihoods," which builds on the successes and lessons learnt in implementing the Maputo declaration from 2003-2013 (African Union, 2014). Malabo Declaration was endorsed with a commitment to carryout regular agricultural review process on a biennial basis from 2017, and report on the progress to the African Union Assembly from 2018. The commitment areas include; re-commitment to the CAADP process and enhancing investment finance in agriculture; ending hunger by 2025; halving poverty through agriculture by 2025; tripling intra-African trade in agriculture commodities; enhancing resilience of livelihoods and production systems to climate variability and other related risks and; strengthening mutual accountability for actions and results. Public officials are responsible for submitting information for the biennial review processes. The biennial reviews are the primary mechanisms through which countries hold themselves, and each other accountable in realizing the commitments they made to each other. The inaugural, and the second biennial review reports both showed that not all countries presented their reports and, many of them are not on track in achieving the Malabo commitments (African Union, 2017a, 2019a). With every biennial review and peer review, public officials are beginning to appreciate their role as the source of feedback and information on public policy implementation, which may positively impact their input into my study on food safety laws.

System theorists categorize systems in three ways, noting that in conceptual systems, it is possible to tease out common, and unusual themes to help explain the behavior and efficacy of individuals or groups in organizations (Gibson et al., 1997). Concrete systems on the other hand, refer to the physical infrastructure. CAS supports the

description of internal and external performance of an organization indicating how, and why individuals do their respective assignments. It also shows why an organization interacts with others. Abstract systems are defined by an organization's culture which are developed by various elements interacting interdependently (Von Bertalanffy, 1968). Within this context, CAS further helps to describe how individuals and groups behave in an organization. For example, how individuals use their mental capabilities to produce specific outputs and related outcome for the mutual benefit of existence within the system.

Food safety is a phenomenon characterized by several factors influenced by both individual, groups of individuals found in different domains of society, and organizations. Complex adaptive systems theory is therefore ideal for studying food safety phenomena, specifically, food safety delivery systems in Uganda, Ethiopia, and Kenya. The approach was appealing to the study given the various definition of a system as an organized composition of interrelated and interdependent parts and can be a natural occurrence or deliberately created by man for a specific purpose. Each system is distinct and identified by its unique progressive or historical boundaries, which can delimited and influenced by the environment in which it is found, and further defined by its configuration and aim, and demonstrated by what it does (Heil, 2017). The impact of a system could become greater than the combination of all its parts if it demonstrates it interface or collaboration (Sage, 2009). When one element of the system is subjected to change, it affects other parts and the entire system, with expected patterns of behavior or outcome. Systems that exhibit the capacity to learn from, and adapt to its environment experience positive

change, Kast & Rosenzweig (1972). Other systems mostly exist to support other systems and to ensure that they do not fail or collapse.

I used CAS as the theoretical framework for this study since it can support and inform a qualitative research design. The theoretical framework also resonated with the objective to examine existing food laws and policies in the targeted countries, with a view to inform policy on food security and safety to mitigate foodborne diseases and associated trade concerns between the countries. At an analytical level, CAS was used as a framework to understand the factors that bolster food safety system among the targeted countries. Since policies are derived and implemented within structures that fit into systems framework, CAS helped to analyze how effectively national systems are configured to address food safety, how the different elements of the system work in harmony to promote reinforcement and implementation of food laws and policies, how the feedback loops in the system work to promote awareness on the importance of food safety, and how the systems accommodate emergent issues to promote trade and consumption of safe food for the greater good of African citizens. The following section contains the definition of concepts relevant to this study.

Literature Review Related to Key Concepts

Foodborne Diseases

Foodborne diseases are illnesses experienced when people eat food contaminated with bacteria, parasites, or viruses (Adley & Ryan, 2016). Food contamination occurs due to poor hygiene practices in food production, handling, and preparation. Consuming food contaminated with bacteria, viruses, pesticide residues, and heavy metals amongst other

substances cause diseases in humans and increase disease burden and mortality at a global scale (FAO & WHO, 2019c). The authors also noted that food contamination may arise from water, soil, or air pollution and from poor handling of food either at processing or storage levels. Foodborne diseases can lead to immediate symptoms like diarrhea or have a gradual impact and cause cancers.

While foodborne diseases are mainly experienced as gastronomical problems, they can also create immunological, neurological and gynecological symptoms. The most common foodborne disease worldwide is diarrhea and it mainly affects children below 5 years. Adley and Ryan (2016) listed salmonella nintyphyoidal, Listeria, Camplylobacter and Shiga toxin-producing Escherichia coli as the main foodborne pathogens that most governments pay careful attention to, and take required steps to avert their future outbreaks. The authors also showed that food poisoning leading to nausea, vomiting, and diarrhea is commonly caused by parasites and they are more dangerous than bacteria. For example, the United States Centre for Disease Control and prevention (2020) reported that 122 people in 17 Midwestern states of the United States suffered from food poisoning due to contamination by cyclospora parasite leading to 19 hospitalization. However, foodborne diseases caused by microbiological contamination of foods of plant origins like fruits and vegetables that are eaten raw or undercooked is also common (Thanner et al., 2016). Soil, organic fertilizers and irrigation water are the main sources of microbial contamination of food and outbreaks of diseases caused by anti-microbial resistance.

According to the WHO (2015), the risk of foodborne diseases is most prevalent in low-income and middle-income countries. The high risk of exposure to foodborne diseases is associated with preparing food with unhygienic water, poor production and storage conditions, inadequate food safety regulations, low literacy, and education among other problems. Irrespective of cause, foodborne diseases can be mild and those affected may recover within hours or days whereas severe conditions may lead to hospitalization or death in some cases. How food is accessed may play a key role in determining exposure to risks and hazards. Whether food is consumed domestically or it is transported over long distances to reach various supply points, it is imperative to ensure that food consumed is safe. This is also the reason the phenomenon of food safety has increasingly gained prominence globally. Government capabilities to manage exposure to risks and hazards is thus crucial in minimizing incidences of foodborne illnesses.

Food Safety

Food safety denotes handling, preparation, and storage of food while paying attention to the need to reduce the risk of individuals falling sick because of foodborne diseases. Food safety is a matter that attracts global attention and involves multiple dimensions of daily life. In addressing the food safety imperative, the World Bank (2019) emphasized that farmers, food handlers and distributers, food manufacturers, food service operators, consumers, regulators, scientists, educators, and the media all contribute to ensuring the safety of food through their action or inaction. The extent of the stakeholders' actions or inaction are influenced by their varying environmental condition, infrastructure capacity, and socio-political circumstances including their level of

awareness of food safety hazards and other capabilities to use effective mitigating practices; existing regulations, and incentives (African Union Development Agency, 2019).

The WHO and FAO (2018) asserted that most food safety incidents are not reported in the media unless something is substantially wrong. The publication showed that the actions of different stakeholders in the food safety continuum should ideally follow principles governing food safety which seek to prevent food contamination and not cause food poisoning. Furthermore, the actions that ensure food safety therefore include; properly cleaning and sterilizing all surfaces, equipment, and utensils used for handling food; storing, freezing, and heating food appropriately to the right temperature, setting and equipment. Other additional actions include; ensuring personal hygiene by always washing hands, understanding food allergies, food poisoning, and food intolerance and carrying out appropriate pest control to ensure maximum residue limits. DeWaal and Robert (2005) reported that factors responsible for the high levels of foodborne disease in the Africa region is triggered by high rate of poverty which disproportionately affects women and children. Moreover, many women and children engage in street vending of food. Hence, regulatory instruments governing food handling, processing, storage, and transportation are essential in eliminating food contamination and spread of foodborne illnesses.

Food Laws

The FAO and WHO (2019a) consider that food laws embody acts, laws, regulations, and other instruments with legally binding force issued by public authorities,

concerning food in general, and to food safety in particular and covers protection of public health, the protection of consumers including conditions of fair trading. It further covers any stage of production, processing, and distribution of food, and also of feed produced for, or fed to, food producing animals. This definition provided by the international standard setting body on food, refers to the total body of the law created and enforced by national governments to ensure the safety of consumers and enhance fair trade practices in foods among countries around the world. Food laws are supported through regulations, authoritative rules, or directives enforced by administrative bodies under appropriate ministries. For example, the United States (US) Food and Drug Administration (FDA) in the USA and European Food Safety Authority (EFSA) in the EU are the designated bodies to enforce laws, regulations, directives etc. relating to food safety (European Food & Feed Law Review, 2019). The main law that governs food safety in the US is the Food, Drug, and Cosmetics Act (FDCA; Card, 2017). The law enacted in 1938 has been reviewed, amended, and several clauses like the Food Additives Amendment (1958) and the Delaney clause and the Colour Additive Amendment (1960) have been added to manage emerging food safety issues (Leib et al., 2017).

The European Union (EU) boasts of the most effective food safety system globally. The EU has harmonized its sanitary and phytosanitary legislation supported by an extensive body of EU-wide laws governing food production and processing 'from farm to fork' within the Union including imported and exported products (European Commission, 2015). The general food law has been domesticated to various EU member countries and the countries are responsible for implementing these harmonized standards

and to establish robust official controls (European Union, 2017). The European

Commission undertakes regular audits to verify that the controls of all Member States are

effective (European Commission, 2015). The EU maintains high standards of its food

safety systems by providing regular EU-level training events for inspectors ensure that

best practices are used across all Europe (European Food Safety Authority, 2017).

Moreover, the EU food safety policy objectives are aimed at ensuring that food and

animal feed are safe and nutritious; ensuring a high level of animal health, welfare, and

plant protection; and ensuring adequate and transparent information about the origin,

content/labelling and use of food.

Today, the world is more interconnected and food is moved thousands of miles

from where it is produced to where it is consumed. According to the FAO (2018),

national legal frameworks are the basis for an effective food control system. In different

countries, food is governed by a complexity of laws and regulations that determine

individual government's requirements for food chain operators to meet and ensure that

food is safe and of adequate quality. The existence of food laws in all countries protect

the public from risks and hazards arising from consuming contaminated foods. Food laws

inevitably becomes the defining factor in promoting fair trade practices; protecting the

environment, and enhancing awareness of consumers on food fraud since it addresses

food safety, food labeling, health claims, nutritional labeling, and safety of Genetically

Modified Organisms (GMOs), food and color additives, good manufacturing practices

(GMPs), and sanitation requirements (FAO/WHO, 2019). Regulations covering food

labeling, nutrition labeling, health claims, and use-by-dates or expiry dates also enlighten

the public with the right information and protect the consumers against unproven claims.

Food laws help to ensure fair trade practices while laws and regulations addressing

specific concerns such as GMOs and use of pesticides protect both consumers and the

environment Baluka (2015). Therefore, food laws and regulations are crucial in

facilitating the efforts of national governments to ensure the safety of consumers and

enhance fair trade practices in food products between countries.

Effective enforcement of food laws improves the quality of food products

improves, and is indicated in low chemical residues in food and making such products

more acceptable and competitive on the international markets (African Union, 2019a).

Increasingly, food laws have gained significant attention because globally, consumers

demand safe and nutritious food (STDF, 2017). Food laws and regulations therefore play

a key role in the food businesses and operations. As the global trade in food and

agricultural products continues to rise, it also presents a huge challenge for governments

and international organizations to ensure that different stakeholders meet the

requirements of trading in such commodities. All governments require the assurance that

the food imported from other countries is safe and do not expose their citizens, their

animals and plants to undesirable risks. It is in this regard that the World Trade

Organization (WTO) Sanitary and Phytosanitary Agreement (SPS) Agreement grants

countries the right to establish standards and regulations to provide the level of protection

of health and safety considered appropriate for their citizens (WTO, 2019, 2010). The

standards and regulation must however be based on scientifically justifiable principles

and are applied in a non-discriminatory manner.

Governing Food Safety at Global Level

Since 1963, Codex Alimentarius Commission (CAC) was established by the
WHO and the FAO of the United Nations to implement their joint food standards
program and to serve as a platform for facilitating open discussions and decision-making
on food standards and safety (Meulen, 2019). CAC has since established itself as the
world's international food standard-setting body to promote the consumption of safe and
good food for all global citizens (FAO & WHO, 2018). Most consumers and
governments have become more knowledgeable of the food quality and food safety
challenges, and the importance of paying attention to the food consumed at individual
level, or scrutinizing food made available on national markets.

Governments establish legislative and regulatory measures guided by the codex
standards, guidelines, and codes of practice to guarantee that only safe food of good
quality is made available to consumers to minimize foodborne health hazards (Meulen,
2019). By the 40th Session of CAC, the codex scorecard had 78 guidelines, 221
commodity standards, 53 codes of practice, 106 maximum levels (MLs) for contaminants
in food with 18 covering food contaminants, over 4130 MLs covering 224 food additives
or groups of additives, 5231 Maximum Residue Limits (MRLs), for pesticides covering
303 pesticides, 623 MRLs for residue of veterinary drugs in foods, and 12 Risk
Management Recommendations (RMRs) covering 63 veterinary drugs or groups of
veterinary drugs (FAO & WHO, 2018). It is therefore through CAC that food penetrates
the political agendas globally (FAO & WHO, 2019c). CAC works goes beyond food
standard-setting by giving an international focal point and platform for open discourse on

issues relevant to food with a network of experts from member countries and international organizations addressing various aspects of the food chain (STDF, 2018). At national levels, membership and participation in codex processes has progressively resulted into the introduction of food legislations and codex standards.

The rationale for creating a global body to set food standards was based on evidence from historical documentation showing that governing authorities were apprehensive of codifying rules to protect consumers from unscrupulous practices in food vending (FAO & WHO, 2019c). The establishment of codex was also preceded by the rise of science as the basis for food codes; international development notably the Austro-Hungarian empire collection of standards and product description for various foods known as the Codex Alimentarius Austriacus without a legal force; consumer fears due to fast growth in food science and technology; trade concerns as different countries set their independent standards leading to trade barriers; need for international leadership, collaboration and consultations (WHO & FAO, 2018). Since its establishment, Codex has provided a single reference point for food safety related matters, promoted increased national and global awareness on food safety and quality, increased consumer protection and increased collaboration at within countries, at regional, and global levels on food safety.

Nexus Between Food Safety, Food Security, Nutrition, and Trade

Complexities of the interlinkages between trade and food security and nutrition exist and can help to define how different countries position food safety (FAO, 2015). The linkages speak to how the strength observable in one sector can benefit another

sector and how a sector can be safeguarded. Economic theory suggests that free trade will make goods and services available to citizens to purchase and improve their welfare (United Nations Economic Commission for Africa, 2015b). Furthermore, trade allows the global community to access food and to potentially improve their nutrition (African Union Development Agency, 2019). However, trade can also undesirably affect the food environment of the consumer and can be an impediment to healthy diets. FAO (2016) addressed linking food systems, food environments, and diets. Therefore, various fiscal measures and trade policies, particularly nontariff barriers related to technical barriers to trade (TBT), exist and have been used to address diet-related issues such as sugar and fat.

Food safety and other Sanitary and Phytosanitary (SPS) measures constitute fundamental nontariff barriers to trade (Chinyamakobvu, 2017). Food safety plays a fundamental link to food security and nutrition (STDF, 2018). Consumption of unsafe foods negatively affect human health and upholds the undesirable status quo of a vicious cycle of food insecurity, poverty, and various health related challenges making national development objectives unattainable. For example, foodborne diseases account for illness in 600 million people and cause 420,000 premature deaths annually FAO (2015). One-third of this death toll happens in Africa yet the continent accounts for only 16% of the world population. The economic impact of foodborne diseases translates into productivity losses of US$95 billion a year in low, and middle income countries alone, most of it in Africa and Asia (World Bank, 2019).

Food safety has become a key consideration and a precondition to export markets and can determine the level of competitiveness of Africa's agriculture sector. Food safety

within the broad context of SPS standards will influence trade as Africa concretizes its integration agenda through an African Continental Free Trade Area (AfCFTA) implementation (African Union, 2019b). Africa will fall short of the Malabo Declaration, particularly those that seek to end hunger, halve poverty and triple intra-Africa by 2025 if food safety issues are not adequately addressed. It is also evident that the food safety landscape has expanded and has become more complex with changes in production and consumption patterns (FAO, 2016). With longer food supply chains, both spatially and temporally, it is likely that the health of many consumers will be at risk due to possible food contamination.

While multi benefits of trade under the current low, and middle income countries (mostly found in the African continent) is feasible, better quality food that meets international safety and quality standards is exported and their corresponding increase in domestic consumption of produce of lesser quality (United Nations Economic Commission for Africa, 2015b). This scenario can be changed or improved by increasing trade as opposed to restricting it. Robust policies and actions for systemic changes in food safety are the way forward to promote food security and nutrition while increasing market access (United Nations Conference for Trade and Development, 2018). Currently, agriculture accounts for 75% of the trade within Africa. This trend in trade in agricultural goods and services is projected to hold in the coming years.

While considerable gains have been made in improving child and maternal nutrition, stunting remains a big problem in Africa. Paradoxically, Africa is also experiencing an increase in the number of people considered overweight with obesity on

the rise (FAO, 2016). The WHO (2015) indicated that obesity and overweight exerts substantial pressure to Africa's health sector besides communicable diseases. Children who are overweight or obese has increased from 5.4 million in 1990 to 10.6 million in 2014. The same report identifies other factors for increase in obesity to include; increased intake of energy dense and fatty foods and inadequate physical activity because of sedentary nature of work and means of transportation due to more urbanization. Changes in dietary pattern and minimal physical activities is attributed to the environmental and societal influence linked to non-supportive policies from related sectors like agriculture, health, education, urban planning, food processing, distribution, and marketing among others. In addition to these factors, increased animal source foods and fresh vegetables will continue to pose some food safety challenges for Africa, notably those due to foodborne pathogens (FAO, 2019). To ensure consumer health in regions prone to foodborne diseases like Africa, it is imperative that countries concurrently plan for emerging challenges while addressing current problems of public exposure to the risk of foodborne diseases.

Global Agenda and Food Safety

The United Nations SDGs outline the key challenges faced by the global community like poverty, inequality, climate change, environmental degradation, peace, and justice that need to be addressed to achieve a better and more sustainable future (ECA, 2015). The UN developed 17 Goals that are interrelated and the body aims to achieve these goals by 2030 in collaboration with different partners with the noble intention to 'leave no one behind' (FAO, 2018). The UN member countries and regional

bodies align their respective strategies to various SDGs and targets. The SDG Goal 2 seeks to end hunger, achieve food security and improved nutrition and promote sustainable agriculture. One of its targets is to end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant, and lactating women and older persons and countries targeted for this study all undertake annual Voluntary National Reviews (VNR) on SDGs. The Republic of Uganda (2020a) reported that the majority of its population does not consume adequately diversified diet leading to slow progress in realizing the commitment on stemming malnutrition. Kenya Vision 2030 (2020), indicates that Fall Armyworm and desert locusts are the emerging transboundary crop diseases and pests negatively impacting on food production while reemerging livestock diseases are limiting trade in livestock and livestock products. The Federal Democratic Republic of Ethiopia (2017) reports on the integration of Ethiopia's National Development frameworks (priorities) and the SDGs and shows that the agricultural sector development remains a major basis for accelerated economic growth and development.

At the global level, and in response to SDG target 2 and given the economic and climate change challenges that put many people and their livelihoods at risk, the STDF supports safe, inclusive trade and development outcomes in line with the UN's 2030 Agenda (STDF, 2019). The STDF is a global platform that brings together diverse stakeholders from across agriculture, health, trade, and development to promote improved food safety, animal, and plant health capacity in developing countries (STDF,

2018). The STDF strategy 2019-2024 underlies that attaining international food safety, animal, and plant health standards and other trade requirements enables small-scale farmers, producers, traders, and governments in developing and least developed countries to access global and regional markets in food and agriculture products (STDF, 2019).

Regional Priorities and Food Safety

Prioritization of food safety at a continental level can be traced to the Assembly of the African Union of June 2014. Food safety was listed as part of efforts to advance socioeconomic transformation by African leaders (African Union, 2014). The African Union developed a 50-year continental framework known as Agenda 2063 with the goal to have an integrated, prosperous, and peaceful Africa (African Union, 2015). Agenda 2063 and the United Nations Agenda 2030 both reference the need to decrease mortality and morbidity from foodborne illness. The Comprehensive Africa Agriculture Development Program (CAADP) is one of the flagship programs for achieving AU Agenda 2063. CAADP heightened the importance of agriculture sector and food safety respectively through two strategic objectives namely (i) ending hunger in Africa by doubling agricultural productivity and ending malnutrition in all its forms by reducing stunting by 10% and underweight in children by 5% (ii) boosting intra African trade in agricultural commodities and services (African Union, 2014). These CAADP objectives have been elaborated to cover policy and trade regime harmonization; food and trade standards, food safety and compliance; market orientated infrastructure; agricultural growth zones/corridors; and trade negotiation capacity.

In 2019, the continental Sanitary and Phytosanitary (SPS) policy framework for Africa was developed to support the implementation of priorities on food and trade standards, food safety and compliance (African Union, 2019b). A continent-wide food safety strategy is under development to support implementation of the SPS policy framework. At national level, different countries have developed, or aligned their National Agriculture Investment Plans (NAIPs) to Agenda 2063 and CAADP (African Union, 2017a). Through a biennial review process, the African Union tracks progress different countries are making towards achieving Agenda 2063 and CAAPD goals and objectives. In 2019, an Africa food safety index was introduced as part of the biennial review reporting through what is known as Africa agriculture transformation scorecard (African Union, 2017a). In 2021, a more comprehensive SPS index was introduced to adequately report and monitor progress on all three SPS field namely food safety, animal health, and plant health. These processes might become instrumental in future to feeding back into the food safety delivery systems.

Food Safety Challenges in Africa

A scoping study carried out on food safety by the African Union (2019a) outlined numerous food safety challenges facing Africa ranging from; obsolete or outdated food safety legislation and policies to weak enforcement of legislative and regulatory mandates; lack of data, data sharing and other capacity for science- and risk-based standard setting; weak private sector food safety capacity, especially among SMEs, due in part to lack of food safety education and training; inadequate consumer awareness on

food safety; and minimal harmonization of food safety standards and border controls within Africa limiting free movement of food and its traceability.

According to the Global Food Safety Partnership (2019), significant efforts need to be injected toward strengthening Africa's food safety systems at national levels to respectively ensure that public health is protected and trade in safe food is promoted. A position underlined in the World Food Summit Plan of Action (1996) indicating that food safety is an important aspect of life and foodborne illnesses lower economic productivity and the quality of individual lives and increases the burden on health care. The Food Safety Strategy for Africa developed by the African Union in 2021 envisions all people in Africa to have access to safe and nutritious food when effectively implemented, specifically in responding to the domestic market needs, besides export needs.

The African Union (2019a) observed that food insecurity, civil unrests, harsh climate conditions like drought and flooding and outbreaks of communicable diseases among other problems, tend to draw the focus of governments away from prioritizing food safety. As a result, majority of African countries have not been able to develop effective regulatory control systems relating to food safety and they therefore remain weak, fragmented, under-resourced, and not well coordinated. Consequently, they are not robust enough to effectively protect the health of consumers and to enhance the competitiveness of food exports leading to a vicious cycle of considerable opportunity cost to the Africa.

The African Continental Free Trade Area and Food Safety

Several socioeconomic challenges facing Africa prompted its Heads of States and Governments to prioritize establishing an Africa Continental Free Trade Area (AfCFTA) as one of the flagship projects of the African Union Agenda 2063. The AfCFTA is expected to lead to a single market for Africa (UNECA et al., 2017). The authors also estimated that food production and processing in Africa could generate $1 trillion a year by 2030. According to World Bank (2015), by enhancing integration in both the movement of people and trade, Africa could potentially increase $20 billion annually in agricultural trade alone. Currently, most of this potential is not optimally harnessed, and Africa is spending over $35 billion annually on importing food (FAO, 2011). For example, of the East Africa Community (EAC) exports only 6% of manufactured products to the European market, while 94% are exports of raw materials (Food Security and Nutrition Working Group, 2017). The EAC manufactures and exports 50% of its commodities within Africa and 60% is traded within member countries of the EAC. AfCFTA is therefore considered to have a great potential for African producers to harness businesses, generate jobs for women, and youth with the potential effect of reducing poverty within Africa.

Africa's economic integration is expected to broadly contribute to the implementation of Agenda 2063. Asia's success is largely attributed to its regional integration that enabled efficient regional value chains to flourish propelling the region to become a key player in global value chains (ECA & AU, 2012). As the world's most fragmented region, it takes almost twice as long to trade across borders in Africa than it

does in other regions such as Latin America and the Caribbean and South-East Asia (UNCTAD, 2015). Developing Regional Value Chains holds the potential to increase transformation of raw materials, create employment, and movement of people and talent (Karingi & Davis, 2017). Relatedly, Annex number 7 of the Agreement establishing the AfCFTA serves to implement the provisions of the Protocol on Trade in Goods concerning Sanitary and Phytosanitary measures, referred to as the SPS measures (African Union, 2018). The Annex applies to SPS measures that directly or indirectly affect trade between the State Parties bound by the AfCFTA Agreement, and as contained in the provisions of the WTO Agreement on the Application of SPS Measures. The Annex will interest African countries who are party to the AfCFTA Agreement to strengthen their food safety systems and making their food commodities competitive within the free trade area.

Some positive examples of AfCFTA potential include the success recorded by Ghana in 2013 by exporting chocolate and cocoa-containing products to the rest of West Africa and beyond, amounting to $ 8 million (UNECA, 2017). The development of value chains in the production of clothing and textiles from cotton grown in Benin, Burkina Faso, Chad, Mali, Uganda, etc. is another example. In the services sector, Tunisia provided higher education to over 6000 students from other African countries in 2015. Rwandair, Kenya Airways, Royal Air Maroc, Egypt Air, South African Airways and Ethiopian Airlines are well known brands proving passenger and air freight services within the continent and beyond while Lesotho has increased exports of automobile components to South Africa in recent years (Infrastructure Consortium for Africa [ICA],

2015). Ethiopia exported shoes within East African market valued at around $ 5 million

in 2015, with strong growth prospects beyond the East African market (UNCTAD, 2017).

The distinguishing feature of some of these countries is their greater participation in intra

African trade. Kenya and Cote d'Ivoire respectively hold 40 and 30% of their intra-

regional trade share (World Bank, 2015). The AfCFTA presents an opportunity to

strengthen food safety systems throughout Africa.

The concepts defined above reveal that while there is increasing evidence that

foodborne diseases have a significant role to play on disease burden in Africa, further

research that allows evidence-based decisions and policy development to be made is

urgently needed. More research focusing on both the current gaps and emerging issues in

the sector, including understanding the role of food safety in value chain development is

important. A research that pays attention to the effectiveness of training and mentoring on

practice and regulation and related measures required for enhancing food safety systems

in Africa. Olayinka (2019) highlighted that lack of empirical literature on food

commodities affects the capability of African countries to access the EU markets.

Furthermore, there is limited research on strategies that can help Africa cope with SPS

measures to enhance the export competitiveness of African producers. Literature

reviewed indicated that more information is required mainly on trade-impeding impact of

the various SPS measures in general, and food safety standards in particular. Although,

there are various findings on the impact of SPS measures and food safety standards on

agricultural trade and public health, they do not adequately cover why Africa as a whole

is reported to continuously have the highest number of deaths and foodborne illnesses

worldwide. The research contributed to insights on the implementation of food laws, regulations, and policies in Uganda, Ethiopia, and Kenya and how it undermines the competitiveness of commodities from these countries on the export markets.

The literature highlighted the need to have adequate information on food safety in Africa (Morse et al., 2018; Olayinka, 2019: Roesel et al., 2015). Most countries lack comprehensive database of commercial food premises as highlighted in the case of Malawi. This presents a challenge for traceability in case of foodborne disease outbreak. Moreover, informal food vendors play a key role in the food value chain notably in servicing the urban markets with food products from the rural areas. Moreover, issues of food safety are handled by various government ministries and departments with minimal interdepartmental or inter-ministerial collaboration despite the overlap in mandates. These authors also noted that the lack of information on food premises at different levels posing inconsistency in enforcing messaging for consumers. They underlined the need for regulatory frameworks that consider the inadequate pool of infrastructure, human resource and skills required to support the development and maintenance of standard systems.

Roesel (2015) noted that informal market is necessary in improving the knowledge on food safety situation in Africa since a substantial amount of meat, milk, fish, and eggs that are the biggest source of food contamination are sold informally in domestic markets. The informal markets are characterized by poor infrastructure and without effective food safety regulations and inspection systems. The informal markets

have been put on the spotlight for abating foodborne diseases, whereas they are also an important source of livelihood for many resource-poor citizens.

All the three countries have consumer protection laws aligned to the East African Community, the Common Market for Eastern, and Southern Africa Community Competition Act 2006. The Competition Act caters for among others, consumer welfare, providing accurate product information, prohibiting false representation, ensuring accountability in the event that unsuitable goods are sold to consumers, ensuring of safety of standards, and trading in safe food like other food safety related laws (Zeija, 2018). However, Kibet (2015) observed that availability of regional laws has not prohibited substandard and unsafe products infiltrating the markets. In Uganda for example, the consumer protection law which is under review is skewed towards the common law of England. Zeija (2018) indicated that while the Uganda National Bureau of Standards (UNBS) has since been established to ensure safety of goods, sub-standard products continue to infiltrate the domestic market due to limited awareness among government officials and policy makers, traders, and consumers, coupled with nondeterrent obsolete laws and insignificant penalties meted on culprits.

In Ethiopia, while the proclamation 661 of 2009 on food, medicine and healthcare exists to ensure the safety of products, government officials and consumers have reported cases of adulteration and alteration of products despite Article 414/39 outlining the illegality of such acts (Kidane et al., 2015). A problem compounded by lack of availability of adequate testing equipment at the health bureau and the Ethiopian Quality and Standards Authority (EQSA) which is mandated to ensure the safety and standards of

commodities. The authors also found that there is limited research in this area despite existence of laws prohibiting such practices (Kidane et al., 2015).

According to Malala (2018), within the auspices of Kenya's Consumer Protection Act, the Kenya Bureau of Standard is mandated to enforce safety standards of commodities and it issues standardization marks for manufactured goods. While the consumer protection regulation is well articulated, its power to regulate the consumer sector is not provided for by law. Malala (2018) made a case for establishing consumer protection and policy to safeguard consumer health and enhance trade. Inadequate implementation of laws is not unique to food laws. It cuts across many areas. In assessing climate change adaptation and women's land rights in Uganda and Kenya, Kabeseke (2020) found that while the laws at various levels were well articulated, implementation was curtailed by discriminatory cultural practices that limit women's capacity in ensuring food security and reducing poverty.

Summary and Conclusion

The literature on food safety in general and in this study area in particular focused on the challenges of addressing food safety and how lack of compliance to international food safety standards impedes international trade. However, the recent AfCFTA Agreement is poised to challenge different countries belonging to the free trade area that have tended to struggle with accessing international markets due to lack of compliance to food safety standards. For example, a study undertaken in Australia demonstrated the benefit of a co-regulatory approach where food businesses are responsible for producing safe food while regulatory bodies ensure that legislative controls are met. It is pertinent to

understand different aspect of food safety from the experiences of public officials for a meaningful interpretation of the food safety status quo. While food safety compliance might be addressed through the national lens, the AfCFTA and the desire to meet the SDGs all bring in new dynamics that require more understanding of the experiences of public officials in providing policy cover for food safety. Public officials are at the center of developing and implementing policies that govern food safety, hence the decision to explore their expert views in this field and understand how they work to contribute to addressing the persistent food safety problems.

I used a generic qualitative research design to explore food safety phenomenon in Uganda, Ethiopia, and Kenya. The approach, executed through individual in depth interviews with public officials allowed me to dig deep into how people perceive the phenomenon and relate it to a particular context and examine how experiences of one group can offer useful lessons to others with similar background. Holding in depth individual interviews enabled public officials to share their expert opinion on food laws, policies, and regulations in the target countries. I pursued issues that stand out and require more attention. The methodology helped to explore the common elements on food laws, regulations, and policies expressed by public official to connect the gap in the literature to the methods detailed in next chapter.

Chapter 3: Research Method

Introduction

The purpose of this generic qualitative study was to examine factors that
contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from
the perspectives of public officials with knowledge of and experience with implementing
food laws, policies, and regulations to inform policy on food security and safety and help
mitigate foodborne diseases and associated trade concerns between countries. The study
examined existing food laws in the different countries with a focus on how the laws are
enforced to promote consumption and trade in safe food. In conducting a qualitative
study, a beneficial example will bring a better understanding of the factors that contribute
to effective food safety delivery systems.

Chapter 3 is presented in five major sections, which are aligned to the respective
facets of the methodology of the study. The first section provides an overview of the
research design and the rationale for the research question, the research tradition, and the
justification for choosing the tradition. This is followed by a section that addresses my
role as the researcher in the study and describes the relationship between me and the
participants with regard to data collection and analysis, including possible biases and
ethical challenges that the research faced. The third section outlines the methodology by
describing the processes for instrumentation, the selection of the site and participants, and
the data collection and analysis choices. The fourth section covers factors around
trustworthiness, including credibility, transferability, dependability, confirmability, and

ethical considerations. To conclude, a chapter summary is presented to recap the overall outlook of the chapter.

Research Design and Rationale

In this case study, I pursued the research question premised on the quest to understand what factors contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya. The research question was the following: What are the perceptions of public officials who are responsible for the implementation of food safety policies on the impact of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya?

The goal of the study was to aid in mitigating the effects of problems resulting from the consumption of unsafe food in Africa, notably deaths, malnourishment, and stunting of children under 5 years of age and trade rejections affecting foreign exchange earnings. The research question addressed the food safety situation in Uganda, Ethiopia, and Kenya and allowed me to investigate what works and what does not work in the respective countries from which data were generated while also paying attention to how each country prioritizes consumption of safe food domestically. I used the generic qualitative study approach to examine and synthesize the similarities, differences, and patterns across the target countries that have a common goal of food safety to produce knowledge that can be generalized about causal questions arising from how and why particular programs or policies work or fail to work (Goodrick, 2014). Using a generic qualitative study approach allowed me to describe the factors that contribute to enhancing the food safety delivery systems. Using this approach, I was able to elucidate policy

decisions or sets of decisions, why they were taken, how they were exercised and the results emanating from their implementation (Yin, 2003; Schramm, 1971) on food safety compliance and trade among these countries. In considering the diversity and range of approaches and techniques that qualitative research offers, I chose a generic qualitative study because it offered a better approach for examining subjective opinions and reflections on the experiences of public officials responsible for the implementation of food safety policies on food safety compliance and trade. Generic qualitative research also allows the researcher to answer a research question with one type of data. To this end, I conducted in-depth interviews with research participants.

Role of the Researcher

Yin (2016) described the role of the researcher in a case study, noting that the responsibility of the researcher is to formulate and ask good questions, be an attentive listener, have an understanding the issues under investigation, and stay objective, adaptive, and flexible while paying attention to rigor. Furthermore, the researcher should have adequate knowledge of why the study is being carried out, the evidence required, and the discrepancy that might occur. Xu and Storr (2012) addressed the concept of the researcher as an instrument in qualitative research. They noted that the quality of data produced from a qualitative study is contingent on the skills of the researcher as the primary instrument of data collection. In this research process, I was responsible for reviewing documents on food laws and conducting the in-depth interviews with the participants. I also transcribed, coded, and analyzed the data using NVivo. During the interview process, I drafted and maintained notes and journals to capture the vocal

impressions, the contexts, the conduct of participants, and other nonverbal signals gleaned when conducting interviews. To clarify and minimize any personal bias, I referred to my notes or journals. The journal or notes also helped to confirm what was contained or missed in the audio-taped interviews.

Qualitative research requires a researcher to identify and declare any relationships that might exist with the participants that might compromise the integrity of data collected from an interview. While I did not have any supervisory responsibility over the participants, I considered the ethical considerations relating to the study and the need to comply with public service guidelines on release of information. To preempt any challenge, I obtained consent from all participants in this study. I sent out a written declaration and clarification in writing that my research study was intended solely for academic purposes at Walden University.

To complement what has been outlined in the previous section, I also used reflexivity to address the potential problem of researcher bias and the threat posed by possible power relations on the quality of data from qualitative research. Reflexivity helps researchers to express their views, including any likely prejudices in carrying out their research. A qualitative researcher analytically considers reflexivity by clearly internalizing, reflecting, and spelling out both their position and subjectivities in the study. Sutton and Zubin (2015) noted that in reflecting and being reflexive, the researcher helps readers understand the screening that the research questions were subjected to; how the questions were structured and posed, including the data analyzed; and how the results of the research are reported. My own background as a social scientist majoring in policy

development, implementation, and analysis in the agriculture domain may have brought

with it some bias in this research. Notes, journals, and memos helped me to take note of

the participants' perceptions, the contexts in which their perspectives were formed, and

nonverbal communication during the interviews. I endeavored to link all the interview

data and pair the data with the audio-taped interviews to minimize personal bias. Upon

completing each interview, I separated my own views and sentiments from what I

received or observed during the interviews by jotting them down. Because this study

involved public officials from the ministries responsible for various aspects of food

safety, I declared no conflict of interest, as I did not directly work with or supervise them.

Methodology

Defining a research methodology involves systematically spelling out the

procedures of investigation of a research study. The principal goal lies in identifying the

approach or a plan for collecting and analyzing information in the research study, as

described by Babbie (2017), Egbert and Sanden (2014), and Ravitch and Carl (2016).

Participant and site selection criteria for this study are addressed in this section.

Participant Selection Logic

Asmiah et al. (2017) explained the importance of population in carrying out

evidence-based research. The authors noted that the researcher's understanding,

definition, and choice of the population are crucial to the credibility of research. My

research relied on the perceptions of public officials from the ministry of agriculture,

health, and trade who were conversant with implementation of food laws, policies, and

regulations in Uganda, Ethiopia, and Kenya. According to the same authors, qualitative

studies focus on relatively few participants, and I used a purposive sampling strategy to identify a total of at least 16 public officials—six from Uganda, three from Ethiopia, and seven from Kenya—from whom data were collected across the sectors mentioned above. The participants were selected on the basis of their experience and knowledge on food safety laws, policies, and regulations in their respective countries.

Public officials working on the implementation of food laws, policies, and regulations from the ministries of agriculture, trade, and health were therefore the main participants in this study, signifying the need to use purposive sampling because not all officers from these ministries were conversant with food safety and related work. Through purposive sampling, I recruited 16 participants with appropriate knowledge and experience to contribute to this study. A purposive sampling technique was preferred on the premise that it allows researchers to select participants who will bring in their expert knowledge to support the goal of the research questions and the context (Ravitch & Karl, 2016). My research was thus guided by the criteria that participants possessed the knowledge and had the requisite experience, occupation, and role.

Purposive sampling further helped in identifying and selecting information-rich cases for this study (Ilker et al., 2016; Patton, 2015). My research used an expert sampling technique to identify public officials with expert knowledge to support the objective of the study (Patton, 1990). The public officials included those who had worked in their respective sectors on food safety, policy, and regulations for at least 5 years. Two participants were selected from each of the sectors that handle specific aspects of food safety—namely, agriculture, trade, and health—to provide in-depth understanding from

the respective sectors. Contact details of potential participants were obtained from the

African Union database of public officials from ministries covering agriculture, trade,

and health who worked on the areas of research interest in Uganda, Ethiopia, and Kenya.

An email was sent to the public officials who met or exceeded the set criteria to request

their participation in the study to share their insights on the inquiry issues. Officials who

had served in their role for at least 5 years and both male and female officers who met the

set criteria were enrolled. Officers not working on implementation of food laws,

regulations, and policies were excluded.

To supplement the data obtained from in-depth interviews with public officials, I

sampled documents relevant to the research objectives for a systematic content analysis

to generate thick descriptions of the food safety delivery system (Bowen, 2009). Merriam

(1988) argued that all types of documents, including nontechnical literature such as

internal organizational reports and memos, are potential sources of empirical data in case

studies. This study included documents that could offer insights on the context that the

research participants worked in, lead to the formulation of new interview questions,

provide complementary research data, have the potential to demonstrate change, and

corroborate findings from interviews.

I applied to Walden University Institutional Review Board (IRB) to obtain

approval to carry out my study. All three research countries have IRBs, from which I also

obtained approval letters. The IRBs included the Makerere University School of Social

Science Research Ethics Committee and the National Council of Science and Technology

of Uganda; the Ethiopian Society of Sociologists, Social Workers, and Anthropologists

(ESSSWA) as one of the National Research Ethics Review Committees; the National Science and Research Council of Ethiopia; and the Maseno University and National Commission of Science, Technology, and Innovation of Kenya. Once approvals were obtained, I generated a list of potential research participants to contact.

To recruit research participants, I initiated formal contact with participants in the list to have their informed consent. The initial contact was to introduce the research and request their participation. Because two thirds of the participants were outside Ethiopia where I was based, initial contacts were through emails and telephone calls. The message dispatched to the officials contained a concise explanation introducing the research guidelines, and a request to participate was extended to them. Obtaining informed consent helped to ensure that the participants became conversant with the nature of research and any related risks so that they would voluntarily accept, sign, and become part of the process, according to Rubin and Rubin (2012). Subject to the response received from each potential participant, I made follow-up calls until at least six public officials in each country willing to participate in the research were identified. I recruited 16 information-rich participants, purposively selected on the basis that they had the capacity to provide the requisite information that was applicable to the objective of the study. I aimed to recruit 18 participants in total, six from each country. I was able to interview six participants from Uganda, seven from Kenya, and only three from Ethiopia and from all the sectors targeted. Once I recruited participants, I scheduled Zoom calls to carry out the in-depth interviews.

Saturation is noted as an iterative process of case sample selection and simultaneous data collection beyond which no new information is generated from the data collection (Lichtman, 2014). Saturation is a key determinant for sample size (Walker, 2012). Saturation was reached when no new data, themes, codes, or categories emerged (Guest et al., 2006). Food safety experts were therefore best placed to address the questions regarding food safety delivery systems in the target countries. In this study, the point of saturation was reached when the participants no longer brought in new ideas or responses to the questions that were specific to interviewees, to individual cases, or across multiple cases for the entire study, or normative questions seeking recommendations, and kept bringing up what they had earlier stated (Yin, 2003). Participants were invited to make conclusions on the topic. Repetitive responses were also reflected in the lack of new codes or themes when categorizing.

Instrumentation

While various forms of qualitative data collection exist, I preferred an in-depth interview on Zoom as the main instrument for interviewing in view of the COVID-19 pandemic (Creswell, 2014). Interviews allow exchanges with participants to generate desirable information that can help to answer the research questions (Canals, 2017). I developed a semistructured interview guide with a focus on the research question and the theoretical framework (Rubin & Rubin, 2012). See Appendix for the complete guide. The interview guide had a list of key questions for the interviews to ensure that all participants were asked the same set of interview questions along with follow-up questions that emerged during the interview process. To operationalize the interview

guide, an interview protocol was prepared, and it contained scripts of introductory and concluding remarks during the interview, as asserted by Jacob and Furgerson (2012). The introductory segment provided comprehensive background knowledge on the subject to participants. It further contained remarks aimed at collecting consent and indications on data to be obtained. I had a standard section for collecting demographic data of individual participants as part of the interview protocol. The protocol contained questions covering five main areas addressed to specific interviewees, individual cases, patterns of findings across the different cases, and the entire case study and had general questions about policy recommendations and conclusions (Yin, 2003). The protocol also had a checklist of types of documents to be obtained to support the study, including administrative documents, published reports on subjects relevant to the study, memoranda, letters, communications, agendas, announcements, and minutes of meetings. The interviews were conducted through Zoom conference calls and recorded directly into my computer. This study ensured validity through appropriate interpretation of data obtained from individual in-depth interviews. Specifically, the study ensured that views obtained from participants reflected the aspects of the food safety phenomenon under study. Furthermore, it was a measure of the convergence between what was obtained in published records and what study participants revealed. The semistructured interviews adopted for the study offered more flexibility and allowed participants to share their own views, which were consistent with the aim of this study of uncovering perceptions of public officials on food laws impacting the food safety delivery system in Uganda, Ethiopia, and Kenya.

Procedures for Data Collection

To investigate the research question, Zoom conference calls were conducted to get detailed information from all the respondents a semistructured interview questions. The method presented the opportunity to obtain accurate data about what people believe and what sustains their interests in particular issues. The procedure for collecting data commenced with the recruitment of 16 participants in total, six from Uganda, three from Ethiopia, and seven from Kenya. The initial plan was to recruit six participants from each of the three countries and one from each of the three ministries that handle food safety namely; agriculture, trade, and health. I initiated discussions to build a connection with each participant and clarify the purpose of the research and secure appointments with them. The interviews took between 45 to 90 minutes. I used Zoom virtual meeting applications. I setup the meetings and I also specified in the consent forms I sent to all participants via email that the interviews would be recorded. I obtained their permission to record the interviews directly to my computer.

I provided for follow up interviews to clarify pending questions, ambiguous ideas, or concepts from an earlier interview after the interviews were transcribed. However, I did not conduct any follow up interviews. I scheduled calls with each participant to have debriefing session and also used these sessions to discuss the exit strategy which detailed when and how they would be consulted after data analysis for further follow up where applicable, and on sharing the outcome of the study with them. The session for debriefing lasted no more than 20 minutes since it was intended to only clarify positions or substantiate any information earlier alluded in the consent form. I saved the recordings of

all interviews in my personal computer under an appropriate file name and I have been

the only one with access to the recording. The recordings will be stored for three years

after the publication of the study when it is deemed that no issue will arise that require

corroborating with the raw data.

Data Analysis

Data were analyzed through the lens of CAS to assign meaning to the data

collected ranging from public documents, notes, journal notes, and interview data to

interview notes to describe how different components of the system interact, adapt, and

learn (Holland, 2005). To facilitate ease of analysis, I used NVivo version 12 software to

locate, code, and annotate results from the raw data to assess their relevance and to

present the relations between the different elements. Data analysis was inductive and

involved application of thick descriptions of the views expressed from participants in the

targeted countries on what constitute effective food safety delivery system. Ravitch and

Carl (2016) provided an account of the strengths of thick descriptions in conducting

qualitative research that this study relied upon to show how data is described, whether the

descriptions are comprehensive and detailed or if the descriptions can allow readers who

do not know the research context to comprehend the context and setting. Thick

descriptions also show whether public officials provided adequate information and

whether their thoughts and experiences provide useful lessons in similar social context.

The data analysis plan involved organizing, compiling, reviewing the data collected,

identifying themes and synthesizing the results, as recommended by Burkholder (2016). I

assigned codes to explain or describe what was going on in the data. The codes helped to

bring together all ideas on a similar topic and also to look at texts likely to change ideas, or show when and how ideas might be true or not (Ravitch & Carl, 2016). Saldana (2016) notes that codes can accumulate fast and changes as analysis advances and recommended that researchers record emerging codes in another file as a codebook. I developed a codebook with the description of codes and saved in both word and excel files for reference. This enabled me to organize and reorganize codes into categories and sub-categories. In addition, the codebook allowed me to have a comparative list since I interviewed multiple participants in different settings. Themes represent important concepts in the data and are often generalizable to a data set and are therefore summary statements, causal explanations, or conclusions (Rubin & Rubin, 2012). I identified and used themes and sub-themes from the codes to explain why certain circumstances prevail regarding food laws, policies, and regulations and what it means. I also used themes to show the relationship between the perceptions of public officials on food laws and the impact on the food safety delivery systems.

I used complex adaptive system (CAS) to support analysis and to show how the different elements within and between the food safety delivery systems link. CAS framework allowed me to describe the food safety delivery systems that involve, and transcend multiple institutions including public and private sector, regional and local governments, and academia and disciplines like agriculture, trade, and health. I organized data for analysis by aligning different components with the fundamental concepts and key characteristics that define the CAS framework including complexity, agents, agent-level versus system level adaptation, feedbacks, endogenous versus exogenous factors,

emergence, and self-organization. Data analysis thus simultaneously began with the data collection process, thematic analysis, verbatim transcription of data, open coding and flexible coding structure, and analysis to support qualitative interpretation (Ravitch & Carl, 2016). The steps of the analysis involved examining, categorizing participants' responses to tease out the various layers within the food safety delivery systems, tabulating, and creating a data display where applicable to build an explanation and show patterns arising from the three target countries (Yin, 2003). I used an emic focus to enable participants provide descriptive in-depth accounts of their expert views from within their respective institutions and ensured that their voices were heard (Merriam, 1998). Through inductive analysis, I summarized findings from the overall data, established a relationship between the research objectives and the summary findings generated from the raw data to develop a perspective about what was emanating from the text data.

The emergent themes were also used to describe the context or setting that influenced how the participants perceive the food safety phenomenon. CAS helped to provide a framework from which an overall explanation emerged from the perspectives of public officials about the complex relationships within the agriculture, trade, and health sectors from the individual perspective, at individual sector level, and across the different countries in which the study was conducted. I analyzed the key patterns that emerged from each country; the key patterns that have existed over time in each country; what are the possible causes of the patterns; what is unique about the patterns; and how similar or different patterns can be described (Goodrick, 2014). In this study, I paid

attention to ensuring trustworthiness of the public officials as experts who know what their respective food safety systems entail.

Issues of Trustworthiness

Ravitch and Carl (2016) provided comprehensive insights in undertaking valid person-centered research. They also provide methodological choices to consider in qualitative research including ethics. According to Shenton (2004), positivists rarely appreciate the trustworthiness of qualitative research since they perceive that its constructs of validity and reliability is not the same as the naturalistic work. Burkholder et al. (2016) suggested that to ensure quality, trustworthiness, and credibility in qualitative research, it is vital to record interviews and collect enough data. For this research, I interviewed each participant only once since there were no specific issues that needed clarification. I also obtained approval from the IRBs who review and approve research proposals. IRB ensures that any research undertaken considers appropriate use of clear language so that respondents or subjects are not deliberately misled, offended or feel coerced. Researchers have to also ensure that they obtain informed consent from participants. I prepared an informed consent form that detailed a clear description of the study including the purpose, methods and timelines and other necessary details regarding the study.

Credibility

According to Lincoln and Guba (1985) one criteria to establish trustworthiness is credibility. Credibility refers to extent to which research findings mirror reality. Researchers can achieve this by using reportable and well established research methods

well established. Often, researchers use different data collection methods so to minimize the shortcomings of individual data collection method. Where necessary, researchers can also do site triangulation. I replayed audio recordings to ensure that the transcribed data reflected participants responses as participant validation strategy and to ensure credibility.

Transferability

Transferability is another way to establish trustworthiness and refers to the extent to which the findings of a research can be used in other contexts. The onus is therefore on researchers to show that their results are generalizable. Researchers have to present evidence that the research study's findings could be applicable to other contexts, situations, times, and populations. However, researchers are not liable to prove that the research study's findings will be applicable but rather show that it is feasible. In this study transferability was addressed by providing rich/thick descriptions of both the data collection process and data analysis. This allows others to judge the transferability of the study findings. Shenton, (2004) stressed that the significance of providing sufficient thick description of the phenomenon being investigated so that the readers can have a better understanding and to be able to compare the phenomenon described with their own situations.

Dependability

Dependability is instrumental to trustworthiness since it confirms the research study's findings as consistent and repeatable. Most researchers attempt to ascertain that their findings reflect their raw data. Often, the objective is to ensure that if other

researchers were to scrutinize their data, they would arrive at similar findings, interpretations, and conclusions about the data. In effect, it refers to the extent to which a study can be replicated with the same methods, participants, and the findings remaining consistent (Ravitch & Carl, 2016l Shenton, 2004). I documented the research procedures linked to the research question to provide room for replication by others.

Confirmability

Confirmability criterion involves the degree of confidence in the findings of research deduced from participants' narratives and words. It minimizes potential researcher biases. Researchers can do this using audit trail which involves spelling out the details of data collection, data analysis, and interpretation of the data (Ravitch &Carl, 2016). The other common technique is reflexivity. In this process, the researcher assesses his or her own background and position to consider how it influence the research process including the topic, methodology, analysis, interpretation of results, and presentation of the conclusions. For this study, I used structured reflexivity process to assess potential biases and prejudices.

Ethical Procedures

Walden University provides clear guidance on ethical procedures. It is mandatory and prerequisite to obtain the Walden University IRB approval. I therefore followed through the process of applying to undertake research to the IRB seeking for approval and authorization to access research participants and collect data. In addition to IRB approval, I sought approval from the government sectors responsible for clearing research studies in Uganda, Ethiopia, and Kenya prior to data collection. I also used the Belmont

ethical principles and guidelines as reference concerning the use of human participants

for research specifically paying attention to the need to uphold the principles of respect

for persons, beneficence, and justice.

As indicated previously, this study did not target vulnerable persons. As a starting

point, I initiated contact with participants and fully explained the purpose of the research

to all participant and I requested their consent. I further ensured that I engage only

participants that have signed up to the study through consent forms as their commitment

and confirmation. Participants were given the opportunity to withdraw at any time during

the course of the study if they so wish. No participant withdrew from the study during

data collection. Neither did the study encounter participant attrition. To maintain

confidentiality and anonymity of research participants, interests, and well-being, this

study ensured accurate data collection, interviewing of participants, and interpretation of

data including presentation and reporting of research findings. Participants were not

identified with their responses or by their names in any of the documents. Moreover, the

research materials were kept and password protected. The audio material was also kept in

a secure place. Participants were asked to approve all quotations prior to including them

in the report.

Summary

The purpose of this generic qualitative study was to examine factors that

contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from

the perspectives of public officials with knowledge and experience of implementing food

laws, policies, and regulations to inform policy on food security and safety, and help

mitigate foodborne diseases and associated trade concerns between countries. Chapter 3

of this dissertation presented the research design for the study and the rationale of

choosing the research design, an articulation of the role of the researcher in this process,

as well as the methodology for the study. The chapter also addressed the matters of

trustworthiness, ethical procedures and presented a summary of the chapter. The

following chapter, Chapter 4 provides results of the study obtained from in-depth

interviews with participants and review of relevant documents on food laws, regulations

and policies.

Chapter 4: Results

Introduction

Chapter 4 of this generic qualitative study comprises the results from the analysis of participants' interviews obtained through individual in-depth interviews using a key informant interview guide among 16 experts across three East African countries: Uganda, Ethiopia, and Kenya. My findings were based on the responses from 16 key informants and supplemented by analysis of selected literature.

The research question was the following: What are the perceptions of public officials responsible for the implementation of food safety policies on the impact of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya?

Setting

I conducted all the semistructured interviews from my home office using Zoom. I requested that the participants choose their most convenient time from the different options I proposed and the place for the Zoom interviews. I also emailed the interview instruments to participants prior to the interview to enable them to familiarize themselves with the tool. I further requested that participants secure a quiet and comfortable environment to have a constructive and uninterrupted interview. I conducted 15 interviews while one participant preferred to record her responses and email her responses in a Microsoft Word document. While I experienced some interruptions with internet connections, there were no unexpected organizational conditions that would have influenced the interpretation of the findings. There were no deviations from the data

collection setting described in Chapter 3. I recorded and transcribed all interviews

verbatim and then began the coding and analysis process.

Demographics

Participants for this study were public officials from the ministry of agriculture,

health, and trade, working on food laws, policies, and regulations in Uganda, Ethiopia,

and Kenya. The participants were selected on the basis of their experience and knowledge

of food safety laws, policies, and regulations in their respective countries. All participants

had worked for their respective sectors for over 5 years and had honed experience in the

various areas of study interests. Table 1 shows the distribution of key informants per

country, sex, and sector.

Table 1

Distribution of Key Informants by Country, Gender, and Sector

		Sociodemographic characteristics						
				Country				
		Uganda		Ethiopia		Kenya		
								Total (sectors/ overall)
	Sector	Males	Females	Males	Females	Males	Females	
1.	Agriculture	1	1	1	0	2	1	6
2.	Trade	1	1	1	0	1	1	6
3.	Health	0	2	1	0	2	0	4
4.	Total (Gender/country)	2	4	3	0	5	2	16

Data Collection

Sixteen key informant interviews were conducted: six in Uganda, seven in Kenya,

and three in Ethiopia. Of the 16 participants interviewed, 10 were male and six were

female. No female was interviewed in Ethiopia, and Uganda contributed four out of the

six females. The participants were from three different sectors, which included six from

agriculture, six from the trade sector, and four from health. I created Zoom meeting links

for the time that each individual participant had proposed, and we had agreed to have the

meeting. I emailed each of the participants the Zoom meeting links in advance of the

interviews. Data collection began in Uganda, continued in Kenya, and concluded in

Uganda. I scheduled at least one interview per day. I collected data from four out of six

participants from Uganda in 1 week but had to wait for the remaining two participants to

find an appropriate time for the interview. I collected data from only two participants in

the first week in Kenya, and it took 2 months to finalize data collection. One of the seven

participants from Kenya provided their responses in written form following the interview

guide I shared with them.

The process took longer in Ethiopia. After I interviewed the one participant, it

took longer to get additional participants due to political sensitivities regarding sharing

public confirmation. I was only able to get three out of six participants required to

participate in the interview. Each interview lasted for an average of 1 hour. The majority

of participants were on schedule for the Zoom interviews, except for one participant who

requested to submit written responses due to poor internet signals. Poor internet signals

interrupted a couple of interviews, but participants were often able to reconnect when

calls dropped. I had to reschedule two interviews; one participant was in the field and in a

noisy place and we couldn't hear each other well, and the other participant had an

emergency in the middle of the interview.

Data Analysis

Interviews were recorded on Zoom, and I transcribed the data verbatim. I revised the transcripts and edited them for grammar. I reviewed the transcripts and developed codes inductively with guidance from the key research question; this reduced bias as compared to deductive coding and analysis using thematic content analysis techniques (Saldana, 2016). To further the analysis, I used NVivo version 12 to locate, code, and annotate results from the raw data to evaluate their relevance and to describe the relations between the various factors. Moreover, I analyzed through the lens of CAS to assign meaning to the data collected to describe how different components of the system interact, adapt, and learn (Holland, 2005). My data analysis was inductive and involved application of thick descriptions of participants' views regarding what makes an effective food safety delivery system. Thick descriptions allow data to be described in detail and reveal the context and setting to readers who may not know the phenomenon of research (Ravitch & Carl, 2016). I therefore used thick description to show whether public officials gave enough information and whether their perceptions and experiences provided useful lessons for other (social) context.

The study identified seven parent themes according to the research and related interview questions: food laws, relevance of the standards and regulations, functions and roles of public officials, contributions from stakeholders, challenges in promoting food safety, enablers of food safety, and recommendations on how to enhance food safety. These parent themes were further broken into subthemes, as will be further discussed below.

Evidence of Trustworthiness

Credibility

To ensure the trustworthiness of the data, I upheld credibility in the entire process of data collection and analysis. I devoted adequate time, resources, and momentum throughout the data collection process. Likewise, l selected participants who showed keen interest in the study area and were able to provide accurate and truthful responses (Shenton, 2004). I further ensured that the key findings from participants' interviews were carefully analyzed to support the development of various themes.

Transferability

Transferability is part of trustworthiness, and it defines the applicability of the research findings (Creswell, 2009). I followed the research guidelines by clearly detailing the data collection process and data analysis to allow the research process to be understood and replicated. I used the right coding approaches. In addition, the data collection techniques used were expected to encourage sound, consistent, and valid research findings.

Dependability

Dependability is also desirable in qualitative research because it allows other researchers to confirm the accurateness of the findings of the study and also confirm that the findings are reinforced by the data collected (Shenton, 2004). To attain dependability, l ensured that the research process was practical, traceable, and well documented.

Confirmability

Confirmability is another element of trustworthiness that implies the extent of neutrality of the research findings resulting from a qualitative study (Nowell et al., 2017). For this research study, I ensured that the findings were deciphered from participants' responses and that no exterior or personal interests prejudiced the study. I used complex adaptive theory to guide the development of the interview questions. Complex adaptive theory also helped in developing data codes.

Results

I applied CAS to the interview data, coding, and thematic analysis of the data. This allowed me to acquire relevant information from the participants regarding their perception of the food laws, regulations, and policies and required interventions from a diverse system that entails a myriad of stakeholders ranging from food safety policy makers to implementers of food safety policies, laws, and regulations; enforcers of food safety; and ultimate beneficiaries of food safety policies, laws, and regulations. I also organized the themes by using the research questions. As l mentioned earlier, I coded the transcripts manually following participants' individual responses to each interview question. The research participants were asked to describe existing food laws, regulations, and policies of their respective countries, the sector strategic plans, the relationship between food availability and food safety challenges, and recommendations. Below are the themes and codes that emerged from participants' responses.

Theme 1: Food Laws and Food Safety

This parent theme had two subthemes: food safety systems and existing food laws and regulations.

Food Safety Systems

This subtheme addressed the existing food safety systems and the level and structure of the food regulatory system of the country. For example, food safety structures are still developing—some are still under development—and regulations exist, but there are no proper implementation structures.

The majority of participants (15/16) reported that their countries had food safety systems and also discussed the level of maturity of these systems. In all three countries, the food safety systems were reported to be young and in their formative stages. In Ethiopia, it was reported that the food safety regulations were still in their draft forms and yet to be approved. Uganda and Kenya had better developed food safety and regulatory systems. In Ethiopia, it was reported that the growth of the food safety system had been slow, with all the ministries involved in driving the process slowing down the progress of food safety due to their restrictive inherent structure. Three out of six participants in Kenya reported that their food laws were effective but could perform better if implemented according to the structure and system in place because they already had well-defined systems to manage food safety issues. On the other hand, Uganda was reported to have very old laws and policies relating to food safety.

Excerpts elucidate the identified themes. Participant 1-ETH stated that "The issue of food safety has been slow in Ethiopia and in Africa as a whole, the agriculture, the

trade, the heads of education have been slow." In line with the above, Participant 2-ETH noted,

> Ethiopia didn't have a food safety strategy until maybe 2 years back, which was food and nutrition policy, and after that, there was a food and nutrition strategy. And this strategy for food safety is included as a direction in the strategy but I personally strongly believe that food safety requires its own strategy.

These perceptions are also aligned with the existing literature showing that Ethiopia does not have a comprehensive national food law. In addition, the expansion in food processing industries is not commensurate with the improvement of the food quality and safety regulatory system to effectively support the production, supply, and distribution of safe and quality food to domestic consumers and to the export market. Moreover, food control activities are spread across the health and agriculture sectors and rural development and Quality and Standards Authority of Ethiopia (Desalegn, 2017).

Participant 1-UG observed, "I believe the existing structure in Uganda is still developing in terms of food laws and regulations towards achieving the food safety aspects, health, and consumer protection." This view was also alluded to by Participant 2-UG, who stated that "Uganda has a very old law or legislation that points towards food safety." Existing literature also showed that the UNBS legislative framework is inadequate, with outdated laws and regulations that do not align with meeting the existing regulatory challenges, mainly the rise in counterfeit products. In addition, UNBS has inadequate physical facilities and staff capacities and limited funding, negatively impacting service delivery (Republic of Uganda, 2012).

Expressing similar sentiments, Participant 3-KE stated, "I'm positive that the structure is good. The structure is all-encompassing, but I think so far maybe what I would point out is the issue of enforcement … there is a need to strengthen that particular area." However, Participant 4-KE described the working system and indicated,

Kenya has a well-structured system of Codex, and the secretariat is based in the Kenya Bureau of Standards. And we have a National Technical Committee which discusses all these issues. They are also members of the task force for the food safety bill. So, it is well grounded and we feel that it is the way to go. And we hope in the East African community the food standard body takes charge of most of these and contributes to the implementation of food safety activities. And also influence the policy change or shifting the outcome in the countries.

Existing Food Laws and Regulations

This subtheme included discussions on the existence of food laws, regulations, standards, and policies, and it included examples of these laws in each country. I also looked at the similarities and differences in food laws in the three countries.

All the participants (16/16) at the three study sites reported that they had existing food laws and regulations. They also reported that they had policies as well as food standards that were used to regulate food safety, and they were easily managed according to the different food sectors such as dairy, nutrition policies, and meat policies. Ethiopia, for instance, has national food laws that are implemented alongside several standards that have been developed over the years. Similarly, Uganda and Kenya have laws, and some are in the form of food laws, policies, regulations, as well as standards. However, it is

important to note that in all three countries, these food laws and policies were reported as

not effective, and this was associated with the limited information about food safety in

the communities and the fact that food safety is housed in three-line sectors in each of the

countries. Participant 1-ETH recalled that, "There are around 11,000 standards on food

that we have developed. I am a member of the Technical Committee of Food and

Agriculture under the Ethiopian Standards Agency, and most of our standards are

adopted from codex." While many food standards exist in Ethiopia, Participant 3-ETH

pointed out that "The laws are old, some of them are not updated, some of them are not

comprehensive enough to really deal with food safety regulation ... one challenge is, it's

not context-specific." According to Desalegn (2017), food control activities are scattered

among various regulatory bodies such as the ministry of health, ministry of agriculture,

and rural development and Quality and Standards Authority of Ethiopia. However, the

responsibilities and mandates given to these regulatory bodies are not adequately defined

or demarcated to avoid overlap and duplication of functions. He also noted that

regulatory bodies tend to take a reactive approach in responding to reported food safety

risks, and they often depend on the end product inspection and testing, which does not

lead to satisfactory reduction of food safety risks. Ayalew et al. (2013) also observed that

these are factors indicating that food safety systems are unable to effectively deal with the

full range of complex, persistent, and evolving challenges confronting different parts of

the food chain in Ethiopia. Participant 1-UG stated,

> We have existing food laws and they constitute policies, acts, specific regulations
>
> that are developed by mandates in the acts, and then we also have a number of

standards. They are structured in that way and some of them that are very crucial

that is noted for the study; is the UNBS Act CAP327. But through the various

established laws and then also the other regulations and standards are part of it,

they help in making sure that food that is produced is safe and healthy for

consumption and also in facilitating trade at the same time.

The above submission was also supported by literature showing that in undertaking the

functions outlined in UNBS Act (Cap 327), UNBS is tasked with promoting

harmonization, adoption, and use of standards (The Republic of Uganda, 2012).

Accordingly, UNBS has issued at least 2581 national standards and has certified over 52

companies to international standards including ISO 9001- for Quality Management

Systems, ISO 14001 for Environmental Management Systems, ISO 22000- for Food

Safety Management Systems, and Hazard Analysis Critical Control Point (HACCP)"

(The Republic of Uganda, 2015a). However, Participant 1-UG further noted that some of

the existing laws are being reviewed and elaborated,

For example, the Public Health Act and the Food and Drug Act of 1959 …

although by law, the existing or the current still serves the purpose until the other

is ready or enters enforcement. The Food and Drug Act is the main Act with the

provision for preventing the adulteration of food and also drug and also other

matters. So, this is the mother Act under revision. It is at a drafting stage to make

it Food and Drug law and it went through cabinet oversight and is pending other

subsequent stages then it will be approved as the Food and Drug law in Uganda.

So currently we do not have a food law in Uganda but we have other acts and

other provisions that help to protect us, as the full law is being drafted.

That notwithstanding, one Participant 4-UG expressed that, "The food laws and policies

are structured in such a way that it really makes it a bit difficult because if you look at the

competent authority handling food safety issues, you find that they are all in different

ministries."

Theme 2: Relationship Between Food Availability and Food Safety

This theme defined the relationship between food availability and safety as

generally wanting. The majority of participants (13/16) mentioned that there was plenty

of food in all three countries but food safety was not a priority. All the participants from

Ethiopia reported that food safety was a very big challenge in Ethiopia. In all three

countries, it was reported that emphasis is put on food security which is automatically

assumed to denote availability. However, a few participants (4/16) expressed that even if

food is available but not safe, this renders the food unavailable since it may not be

consumed and if it is, it will become a health hazard to the consumers. The excerpts

below further explain the relationship between food availability and food safety.

Responding to the relationship between food availability and food safety,

Participant 5-KE emphasized,

There is a relationship [between food safety and availability] because for me

when I'm looking at availability, I am thinking of, is it affordable? Can people

access it? Meaning, at the end of the day, if food is available, we'll talk about food

security, because security is all about availability. And with food safety, there are

issues to do with how food is being handled. How is it really prepared? Are we

getting diseases? They are related. They are closely related. We cannot talk of

food safety and leave out availability.

Participant 4-UG echoed similar sentiments noting that, "When we talk of food nutrition

and security, that means, the food must be available and also be safe for people to

consume."

For Ethiopia, Participant 2-ETH noted that, "These two concepts are interrelated.

Whenever you are ensuring food security, you have to also ensure its safety." Yet

Participant 3-ETH asserted,

Policymakers are quite sensitive about food security and ignoring food safety

issues. By definition, food safety is part of food security because unsafe food is

not food. But often there is a saying that let us get more surplus food first, and

then after, let's think about the safety aspects which is a very wrong perception.

And yet this is the view at the national level. Even top officials of government

share this view. It is a very dangerous way of dealing with food in general

because anything, even if we have enough quantity; it should be very safe. It is

important to first focus on food safety and then subsequently food security.

The Government of Kenya has committed to provide universal health coverage

under its "Big Four" agenda (along with increased manufacturing, food security, and

affordable housing) as part of efforts to balance food availability and food safety

(Republic of Kenya, 2018a).

Theme 3: Consideration of Food Safety Under Various Ministries

This includes discussions on the line and mother ministry in charge of food safety, and insights on the other ministries, and entities like the National Codex Committee that play a key role in ensuring food safety. It also discusses how the other ministries liaise with the line ministry to implement and ensure food safety. This theme described the line ministries that are managing the different food safety aspects and the policies for business operators in order to promote trade in safe food. Under this theme, three sub-themes were identified which included; the line ministry in charge of food safety and trade, the roles of the line ministry, and other existing ministries and entities/regulatory bodies.

Line Ministry

The majority of participants reported on the line ministry in charge of food safety in each study country (14/16). In Ethiopia, the line ministry role is shared between two Ministries and these are; the Ministry of Health and the Ministry of Agriculture, whereas in Uganda and Kenya they are mainly hosted in the Ministry of Health. Participant 2-ETH stated that, "Ethiopia food safety regulation is a multi-agency type and the regulation is conducted mainly in two ministries, the Ministry of Health, and the Ministry of Agriculture." Ministry of Health – Ethiopia, (2020) reported that most of these activities are fragmented and poorly coordinated, thus contribute little in addressing the holistic needs of young children in Ethiopia. Recommendations contained in the same report underlined that fragmentation and poor coordination should be addressed by revising policy frameworks and developing sector-specific strategic plans.

For Kenya, policy frameworks exist and they are working well. The intergovernmental coordination structure was defined in the draft Kenya Health Sector Partnership and Coordination Framework 2018–2030 to bring together all key partners at different levels to collaborate in improving the health of the population (Republic of Kenya, 2018a).

Participant 6-UG explained that, "Food safety is anchored in the Ministry of Health. The other ministries are complementary." This view was similarly expressed by Participant 1-UG who further noted,

Food safety is under the ministry of health and is prioritized as one. But the ministry of trade is the mother ministry but it is mainly responsible for developing policies, laws, acts, and regulations in terms of trade. But then it works with other ministries for example the ministry of health, ministry of agriculture in drafting the policies and laws. It is like you are aware that all these have to engage stakeholders at one point or another. So, the safety concern is now mainly put on UNBS. So, the UNBS is the one that represents the ministry of trade in food safety aspects.

Additionally, available publications showed that the Ministries of Health (MOH) and the ministry of Agriculture, Animal Industries and Fisheries (MAAIF) are the lead ministries in food security and nutrition issues. The national Constitution mandates the two ministries to set minimum standards, assure quality and develop relevant policies. MAAIF is mandated to support, promote, and guide in crop production, livestock, and fish to ensure the improved quality and quantity of agricultural produce and products for domestic consumption, nutrition, food security, and exports. MAAIF and MOH are also

promoting diet diversification as well as other food-based strategies for a healthy and

productive population (The Republic of Uganda, 2003). Participant 4-UG provided an

account of how food safety is handled under relevant ministries and explained,

> Food laws and policies are structured in a way that it really makes it a bit difficult
>
> to coordinate because the National Bureau of Standards [Regulatory body under
>
> Ministry Trade] have been in the forefront on issues of food safety. At the same
>
> time, there is also MAAIF, which is the actual Notification Center, because
>
> whenever there are issues to do with the interceptions due to food safety issues, it
>
> is the Ministry of Agriculture that is notified. There are also other ministries like
>
> the MOH that handles other aspect. Food safety issues are in a gray area, because
>
> sometimes you may think it is MAAIF responsible, others may think it is MOH
>
> which should be in charge, and others think it should be Ministry of Trade. It is
>
> confusing.

Roles of the Line Ministry

Majority of participants (15/16) reported on the roles of line ministries and these

include; developing and providing oversight to the development of food laws, policies,

standards, and regulations, as well as reviewing old policies and strategies. The line

ministries are also responsible for enforcing food safety in the country mainly through

inspection of food products in the market, and inspection of production units such as

factories and farms. However, owing to the fact that the sector is housed in several

ministries, each ministry ought to have specific roles but these are not well defined and

therefore negatively impacting the enforcement of food safety laws. In Uganda, some

respondents expressed that the food safety sector should be housed in the Ministry of trade whereas others feel it should be under the MOH and the ministry should be resourced with technical experts like food scientists who are adequately trained on issues pertaining to food safety.

Participant 3-ETH listed some of these roles in Ethiopia noting that it includes, "To check whether the food on the market qualifies or complies with national standards or not, or whether it is risky for public health or not." Supporting this notion, Temesgen and Abdisa (2015) showed that enforcement activities cover inspection and audits of establishments that process, handle, and store food to ensure that they meet required sanitary measures. Enforcement also include inspection and analysis of food for harmful substances to ensure that there is conformance to established limits and tolerance. The authors further note that for effective inspection, samples are analyzed to determine whether the food product conforms to standards and prescribed regulation or not. Participant 1-KE expressed similar views pertaining to Kenya and stated,

> Within the health sector, food safety is considered as a key element in the Ministry.… we have also the Food Safety Division, which is like the regulator within the ministry, which does the enforcement of whatever the regulation requires. we also have the public health officers who are like the inspectors, they go around collecting samples.

Participant 6-KE also observed,

> The Public Health Act itself speaks more about the public health officers and their roles and comes with rules on hygiene at different points of the value chain, and

mostly speak about dairy rules for hygiene and in other sensitive sectors. It gives

powers to the public health officers to enforce the rules. It points to prohibitions

in food handling at the household level. But that is as far as it goes because in

public places where there is an interface, where people eat, it does not address the

issue of food safety along the value chain as required.

Participant 2-UG stated,

We also have to ensure that the trade that happens is fair. So this comes back to

UNBS. It is UNBS, under the ministry of trade that has to make sure that it

regulates the different stakeholders like the manufacturers or the importers and all

those involved in the food business comply with the relevant food standards so

that the food that is produced is safe for human consumption and trade at national,

regional, or international markets.

Existing literature supported the notion by indicating that, while UNBS is the

government agency responsible for standardization, several other agencies such as the

ministry of agriculture, the National Drugs Authority, the National Environment

Authority, and the ministry of health among others, have specific mandates on

standardization leading to certain overlaps in delivery of services (Republic of Uganda,

2015a).

Similarly, regarding the role of line ministries in Kenya, Participant 3-ETH stated

that, "They have to check whether the food on the market qualifies or complies to

national standards or not, or whether it is risky for public health or not. So that is the

responsibility of regulators."

Other Ministries and Entities

Much as participants mentioned that each country had a line ministry that was in charge of food safety, almost of them (15/16) emphasized that food safety was handled using a multi-sectoral approach and there were other ministries working together as well as other regulatory entities. Examples of other ministries include; the Ministry of Trade, the Ministry of Agriculture, and regulatory bodies such as Uganda National Bureau of Standards in Uganda, the Ethiopian Standard Agency and Ethiopian Conformity Assessment in Ethiopia, and the Kenya Bureau of Standards (KEBS). Other entities involved and mentioned were the respective Food Drug Authorities in each country.

In terms of the roles of other ministries and agencies in Uganda, Participant 3-UG remarked:

From the trade perspective in Uganda, most of the food safety related aspects have been delegated to UNBS. Besides trade policy [providing] oversight policy … the ministry works with micro, small, and medium scale enterprises in ensuring that they engage the food industry in meeting hygiene and food safety requirements.

This view was complemented by existing literature showing that over the last three years, UNBS improved its performance considering the number of standards developed, quantities of samples analyzed, equipment calibrated, weighing instruments verified, product certification permits issued, imported consignments inspected, and marketing outlet inspected (The Republic of Uganda, 2015a).

Participant 6-KE asserted,

It should be about removing the emotions on who should control food safety. It should be about the whole chain arrangement and being able to identify what the issues are along the food chain and who can address them best at the point where they occur. While the Ministry of Health wants to have overall control of food safety, it should be addressed along the food chain. which means that once we know the risk to public health, we need to say what is the source of that risk and then allow agriculture agencies to address it along the point of production or supply. I think the ministry of trade should be at the forefront in driving the agenda of food safety.

Theme 4: Relevance of the Standards and Regulations

This theme described the importance of standards and regulations in promoting food safety in the three study countries. Four sub-themes were identified and this included; a mandate to monitor product certification, provide avenues to reduce stunting, guide the country in terms of food security, and to promote the quality of food products.

Mandate to Monitor Product Certification

Averagely 8/16 participants reported that standards play a key role in granting the line ministries and other regulatory bodies the mandate to manage product certification in a bid to ensure the quality of these food products. These regulations are a guide to monitor product certification and they are managed mainly by regulatory bodies such as the Uganda National Bureau of Standards (UNBS) in Uganda, the Ethiopian Standard Agency and Ethiopian Conformity Assessment in Ethiopia, and the Kenya Bureau of Standards (KEBS) in Kenya. Standards regulate product measurements, the chemical

content of the products, the microbiological content of food, as well as the physical

properties of the food. These excerpts obtained from participants describe the sub-theme

in detail.

Participant 1-KE explained that in Kenya, "Food safety is considered as a key element

within the Ministry of Health and the Food Safety Division does the enforcement of

whatever the regulation requires and the public health officers do the inspection."

Available literature on monitoring product certification showed that the ministry of

agriculture supports measures to ensure food safety of all agricultural products along the

value chain (Republic of Kenya, 2018b). Monitoring product certification also includes;

interrogating for safe use of drugs and chemicals in control of pests, and diseases as well

minimizing residues and contaminants in agricultural products, improving traceability of

crops, fisheries, and livestock products, food inspection services, enforcement of

standards for food handling certification of products, and improve Laboratory services.

Regarding monitoring in Uganda, Participant 1-UG Uganda underlined,

> The main action is to improve awareness on the existing laws, policies, acts, and
>
> standards … encourage certification or mandatory certification of food products
>
> which were already existing before the 2018 new regulation of UNBS, specifying
>
> that all food products, or goods with mandatory standards are supposed to be
>
> certified. Food products cannot be certified unless they have been tested for safety
>
> to ensure that it complies with the standards.

Participant 1-UG also identified the Act and instrument of monitoring and commented,

There is the Weights and Measures Act. It helps in protecting the consumers from

being cheated in terms of food trade and it also gives provisions for packaging of

food, grading of eggs, so that you can receive food in the right quantity. The Act

helps in facilitating trade as well.

However, existing reports showed that the importance of standardization is not

consistently considered in Uganda and stakeholders do not fully appreciate the its role

and importance of UNBS to the economic development of Uganda (The Republic of

Uganda, 2012). The same publication recommends the establishment Public Private

Partnerships (PPP) at all levels (local, regional and international) to enable UNBS thrive.

There have been successful attempts by many governments to enhance uptake of

agricultural innovations by working with private companies to scale up distribution of

research and knowledge products (Akullo et al., 2018).

Provides Avenues to Reduce Stunting

A few participants (5/16) mentioned that existing food regulations and standards

are key in reducing stunting. Efforts to reduce stunting are informed by policies that

target promoting nutrition and providing guidance on how best to feed, and any other

nutrition related issues, as well as food security. Uganda and Kenya have strategies in

place that are used to guide the nutrition plan and actions in the country and both are

housed at the Ministry of Health.

Elaborating this point, Participant 6-KE observed,

The Government of Kenya developed a Food and Nutrition Security Policy under

the Ministry of Agriculture. This framework entrenched nutrition in all four

dimensions of food security and it brings in the role of nutrition, and emphasizes

the need to have a food safety system that aligns itself with the international

requirements under Codex. It recognizes also regional frameworks under the

EAC, COMESA, and the African Union.

In Kenya, the Food and Nutrition Security Policy (FNSP) was developed as an

overarching framework that covers multiple dimensions of food security and nutrition

improvement to add value and create synergy with existing sectoral and other

government and partner initiatives. It is framed in the context of basic human rights, child

rights and women's rights, including the universal 'Right to Food'" (Republic of Kenya,

2017).

On the other hand, Participant 1-UG stated,

The Uganda Food and Nutrition Strategy and investment plan helps in reducing or

providing avenues or aspects that (…) will help in reducing stunting and wasting

in children under 5years of age and also implementation of good nutritional

practices within the country and elevation of breastfeeding (…) by mothers to the

babies and the use of vitamin A, since it is one of the deficiencies (…) in most of

the Ugandan diets.

Literature reviewed substantiated the submission above and indicated that the

government of Uganda is targeting to improve and promote the nutritional status of the

population including encouraging women to exclusively breast-feed their babies for at

least 6 months to minimize micro-nutrient deficiency disorders with particular emphasis

on Vitamin A deficiency (The Republic of Uganda, 2003).

Guides the Country in Terms of Food Security

A handful (5/16) of participants reported that food regulations and standards are key in promoting food security in the different countries. Due to the emphasis on the food standards available and implemented, nutrition security is promoted in the long run. This relationship was majorly discussed in Ethiopia and Kenya. Some key informants reported that affordability of food, was a key factor in its availability too. Hence, there is need for the government to ensure that food is available, accessible, affordable, and safe for consumption.

To describe the sub theme in detail, Participant 2-ETH from Ethiopia narrated that, "It is clear that for many years, the main focus was ensuring food security or food availability. However, ensuring food safety has recently come into the picture and we strongly believe that foods which are unsafe are not fit for consumption."

Literature reviewed showed that the government through its arm, the ministry of agriculture ensures accreditation of the food safety quality laboratories, implementation of Residue Monitoring Plans, and enforcement of sanitary and phytosanitary standards (Republic of Kenya, 2018a). The same publication also showed that the ministry further ensures that safe and high-quality food is available to all Kenyans at all times by creating public awareness on relevant issues and by setting, promoting, and enforcing appropriate guidelines, code of practice, standards, and regulatory frameworks.

Promote Quality of Food Products

The majority of participants (10/16) reported that standards and regulations provide guidance and these enable regulatory bodies and line ministries to ensure

originality and quality of food without adding substances which are not part of the product formula. For example, preventing adulteration, ensuring production and supply of good quality foods. They also ensure that food products are safe for consumption with no harmful chemicals and are free of microorganisms through conducting appropriate laboratory tests. The standards and regulations when implemented and enforced also protect consumers against being cheated, ensuring that products of sub-standard measurements don't circulate on the market.

Participant 1-ETH shared some experiences from Ethiopia stated,

> The first project that we implemented is in aflatoxin control in the country in terms of complementary foods, the food that's developed for children. We collaborated with Micronutrient Initiative to reduce micronutrient deficiency in foods. Complementary food is important, but if the safety of that complementary food is not ensured, then that would be another loss.

For Kenya, Participant 1-KE explained,

> We come up with the food standards. The food standards are what guides us in our laboratory. When food is tested for compliance, you test it with reference to the Kenyan standard or the East African Standard, or even the Codex standard. If the food type does not have any of those standards, you refer to any other regulatory, internationally recognized regulatory document.

Additionally, Participant 4-KE indicated,

> When someone adds an extra amount of additive to a food to dupe clients that the food is still fresh and they are arrested and taken in for interrogation, you find that

some of them are aware that it is a malpractice but they are just tinkering with the
law.

Existing publication revealed that the Kenya Bureau of Standards (KEBS) developed the
Kenyan Standard as a guiding document for products and services. The Kenya Standard
contains terminologies, symbols, packaging, marking, or labelling requirements as they
apply to a product, process, or production method (Kenya Bureau of Standards, 2020).
Standards, therefore, help to make sure that products and services are fit for their purpose
and are comparable, and compatible, and covers food technologies, food safety,
fertilizers, agricultural produce, livestock and livestock products, and poultry and poultry
products.

In terms of promoting the quality of products, Participant 1-UG highlighted,

> The Food and Drug Act is the main Act with the provision for preventing the
> adulteration of food and drug as well as other matters. So, this is the mother Act
> and law in Uganda. So currently we do not have a food law in Uganda but we
> have other acts and other provisions that help to protect us, as the law specific to
> food is being drafted.

Theme 5: Roles and Functions of Public Officials

This theme explored the roles and contributions of public officials to the promotion
of food safety in the study countries. The study identified three sub-themes and these were;
developing food laws, creating awareness of food safety, and enforcement of standards.

Develop Food Laws

Most of the key informants across the three study countries (12/16); 2 in Ethiopia,

4 in Kenya, and 6 in Uganda reported that public officials play a vital role in drafting,

reviewing, and amending regulations, standards, and policies governing food safety.

Since they are the technical experts in this field, they are entrusted to ensure that the

regulations, standards, and policies are updated in order to achieve food safety. These are

drafted in consultation with other entities and stakeholders often through consultative

meetings and workshops. In Kenya, this responsibility is led by KEBS and by UNBS in

Uganda in consultation with other relevant stakeholders.

In explaining the Ethiopia context, Participant 2-ETH from stated that, "Public

officials have a key role in the formulation of laws, policies, and regulations. And they

have a responsibility to consult the government to develop the laws, regulations, and

policies that are required to ensure the safety of food."

Participant 1-KE also mentioned that, "The Development of food standards is not

only done by KEBS, but the Bureau forms technical committees, national technical

committees, and from the institutions like ours, other institutions and even from the

private sector, the manufacturers." Additionally, Participant 6-KE commented,

> Public officials come out with (…) a robust, good policy that is coherent between
>
> agriculture, health, and trade to ensure the food safety obligations of public
>
> health, and the food safety objective of facilitating trade. So that is a role for
>
> public officials, to come up with a very good policy that aligns those three sectors
>
> of agriculture, health, and trade that looks at the whole chain approach, end to

end, and that ensures that the country chooses which system to implement;

whether it is a single agency system or multiple agency systems.

Participant 2-UG noted,

Their key role is to formulate these instruments, laws, policies, regulations, and

standards. They should take the forefront in formulating let's say the regulations,

legislations, and policies. And then once these are formulated and it's a working

document, they should lead the coordination processes and see how each sector is

implementing either the regulation or policy or the legislation itself.

Create Awareness of Food Safety

Many participants (13/16) indicated that their roles included creating awareness

about food safety with clients. They were able to achieve this through conducting training

in food safety, holding sensitization sessions, as well as sharing information on food

safety across different platforms. In Ethiopia, social media platforms such as Facebook

and Twitter are being used to reach out to a number of people. However, participants

from Ethiopia explained that it is difficult to get proper buy-in from the government to

make food safety an important issue, hence less attention is given to it. The reported

further that women appreciated the concept of food safety much better and are embracing

it more than their male counterparts. In discussing various attempts to create awareness,

Participant 6-KE explained,

There are also many … training conducted by consultants contracted by

ministries or firms from the private sector who are in the food business industry,

doing business to business support services whenever industries seek for

certification on various food safety standards. Public institutions like the Kenya

Bureau of Standards also provide training on food safety, especially for food

business operators for processed foods, or at the primary production level with the

family producers, farmers in the dairy sector or fisheries.

Expressing a related view, another Participant 1-KE underlined,

The most important role of the public officials is to make the citizens aware of the

food laws because if they're not aware, they cannot follow them. So, sensitizing

the citizenry and facilitating the operationalization and enforcement of the food

laws, policies, and regulations is key. Sensitization is broad because you have to

make them stakeholders aware of the advantages of having or implementing food

laws. So, I would consider the sensitization and enforcement as the most

important role of the public officials

Participant 6-KE shared what they do in supporting awareness creation and explained,

I have done public messaging in the print media, national newspapers, on national

television, speaking about food safety on any major events like The World Food

Safety Day, normally on the June 7th, providing generally what needs to be done

around food safety.

Participant 1-ETH explained:

We are trying to have a communication, a risk-communication with the milk

stakeholders and at the same time the government actors. We give them our

findings and we have created a steering committee so that this can be taken at a

higher level. So, what has been easy for us is to do the science is, but it is difficult

to convince policymakers to make food safety a serious agenda, take this and

make it sustainable and make changes into policy and the regulations mandatory.

I can tell you that because of our efforts, we made the milk standard mandatory

starting from 2021.

The same participant suggested,

Maybe in one of your stakeholder meetings you should highlight this and make

the businesses part of it. To say that, if you are adulterating [if your products are

adulterated], you will not be able to export. You have to lay out the costs of

adulteration to them.

Participant 2-ETH remarked,

What we have observed from our women training is that the mothers were really

appreciative that they can make a significant change with simple hygienic

practices like proper handwashing and proper equipment washing. So that is what

keeps us going also. However, despite the many efforts to create awareness about

food safety, many are still not aware of food safety and this applies both to the

consumers and the policy makers/stakeholders.

Participant 5-UG stated,

The model that we are using is that the consumers are not aware, the

policymakers are not making the best effort to ensure that they provide that

awareness to ensure that everyone knows what is supposed to be done. So, I

believe that it is a fundamental, cross-cutting area which should be critical for

policymakers to undertake in terms of ensuring that regulations are met.

Enforcement of Standards

Some participants (9/16) mentioned that public officials are entrusted with the role of enforcing the implementation of standards and food laws in order to promote food safety. They are able to achieve this through inspecting food products at selling points, ordering for recall of substandard products and uncertified products as well as undertaking inspection visits at manufacturing points. Some participants from Ethiopia for instance discussed that stringent penalties should be attached to, and served for failure to ensure food safety. They indicated that there should be no export of products if there is no conformity to food safety measures. The responsible departments should be involved in the enforcement of food safety standards such as the standards bureau, the laboratories, and public health inspectors.

Literature reviewed showed that the major drawbacks to food regulation in Ethiopia include; lack of enforcement of existing regulation due to poorly defined responsibilities of regulatory bodies and inspection authorities (Temesgen & Abdisa, 2015). They further showed that the regulatory bodies are poorly coordinated and under-resourced and are unable to effectively respond to current food regulatory demands or cope with fast-growing science of food regulation. Moreover, these authors also showed that the basic food hygiene education is not adequately addressed by the education system from the elementary level.

Participant 4-KE observed that, "Kenya is training official control officers, to enforce and ensure compliance of business operators to those requirements so that they

bear the responsibility of making sure that the food they trade or provide is safe."

Participant 6-KE stated,

> Enforcement is very critical … and it is important to get rid of the notion that the
> food business operators are being policed … they should change this mentality of,
> oh, these people are policing me. So, I think enforcement is very critical to ensure
> that we are trading in safe food.

Theme 6: Challenges in Promoting Food Safety

Challenges as a theme expounded on the difficulties and hindrances that public
officials encounter as they perform their duties and deter them from achieving the
objective of ensuring food safety. The following five sub-themes were identified and are
further discussed below; implementation strategies, limited understanding of the laws and
policies, human resource challenges, limited financial support, and neglect of roles by
line ministries and other entities.

Implementation Strategies

The majority of participants (12/16) discussed that there are few well-defined
enforcement laws and plans and the systems barely exist. This is exacerbated by the
limited laws that inform the implementation of food safety strategies. The excerpts below
describe the theme further and offer plausible explanation of the challenge. Some
participants reported the need to engage the judiciary and police during inspections and
enforcement of the standards and policies. They also mentioned that during the
formulation and development of policies, the entities or people expected to implement
these policies should be directly involved in the process. The need to employ several

strategies in communication is very relevant, and so is the need to conduct frequent

assessments of the enforcement progress and on the standards used to enforce food

safety.

Participant 3-ETH described their strategy,

We have introduced a combined procedure where we are trying to create a kind

of food safety demand. We call it a pull approach by creating a demand or need

for more safe food. And then after that, we create a communication campaign

recommending the kind of food to buy.

A report of consultation with stakeholders showed that those who participated in the

exercise highlighted some of the implementation strategies noting that reliable data on

foodborne diseases is very important for designing evidence-based food safety

interventions (Dinede et al., 2021). The report contained a recommendation that

foodborne disease surveillance should be established at the national level to collect food

safety related data. Furthermore, the report showed that more attention is paid to

managing food safety risks related to animal-source foods as opposed to the minimal

focus on regulating food safety risks in vegetables and fruits. Sharing their view on

implementation strategies, Temesgen and Abdisa (2015) observed that the Ethiopian food

inspection and control system is assigned to the health sector to oversee food processing

to protect the health of consumers, whereas the agriculture sector focuses on the animal

and plant health dimension. Participant 4-KE stated,

We cannot enforce the law as an institution or as an agricultural institution

without the police and without the judiciary. So, we are putting much effort in

terms of sensitizing the judiciary, and sensitizing the police on the new way of

thinking to help with enforcement. And I think that effort has been going on very

well.

Participant 6-UG indicated that, "We are trying to use the One Health approach to see

how to report these diseases."

Limited Understanding of the Laws, Policies

Some participants (6/16) expressed discontent with the inadequate knowledge

about the law within communities and some food manufacturers. These discussions were

more dominant in Kenya and Ethiopia where participants perceived that most

stakeholders neither know about, nor understand the existing food laws and regulations.

The limited knowledge on food laws and regulations was partly attributed to the legal

language in which the laws are written, which is barely understood by the majority of

people, especially the illiterates. Participants also pointed to limited dissemination of

knowledge and information on food policies and laws. The quotes below explain the sub-

theme. Participant 1-UG asserted,

You find that these laws are mainly known by the public officials for example

when you are developing standards. You at least have to know which laws are

there that the standards are going to rely on because you are not supposed to

develop a standard that conflicts with the mother-law. So, they are mainly known

by the public officials but then the people that we developed the acts and policies

for, do not know that much about it.

Participant 3-KE highlighted the plight of small scale and stated,

Small-scale traders, especially women who are in the workforce, the 'mama mbogas' [women who sell vegetables in the market] that is those who sell small quantities of vegetables, for lack of a better word, are ignorant about the laws, policies, and regulations. They are not even interested in involving themselves in such things and are only striving to make a living from petty trade.

Human Resource Challenges (Technical and Numbers)

An average number of participants (6/16) mentioned that they are unable to perform effectively due to the limited human resource capacity to promote food safety and enforce the law. The limited human resource capacity undermines their ability to adequately cover a wide area and perform the required monitoring and inspection functions. In Uganda, it was reported that there was limited technical expertise. Participants across the three countries reported that there are not enough experts in food safety field and they have had limited training and skills thus, creating a vicious circle of low numbers of experts in the field. Participant 2-ETH described the human resource challenges in Ethiopia and noted,

It is very difficult for the countries to ensure food safety because regulation requires resources. It is very challenging for these countries as they are low-income countries. They can harmonize their regulation and reduce the costs associated with regulating these products so that when the safety and quality of a given food product are ensured in one East African country, it can be accepted without subjecting it to further detailed regulation in other countries. So, what I

believe is, there must be harmonization of regulations among these East African

countries.

Participant 1-UG suggested,

There is a need for UNBS to employ more technical staff in all this what we have

said. And then UNBS should also construct other national food safety laboratories

in other regions for example in the Eastern, Western, and in Northern regiona of

the country so that they are not only centered in Kampala given that the food trade

happens within the entire country. The number of samples that come in the

national food safety laboratory of the UNBS is a lot and also alarming.

The above perception was corroborated by existing literature which underlined that the

staffing level at UNBS is inadequate although the existing staff are competent, and have

adequate knowledge on standardization (Republic of Uganda, 2012). The publication

recommended the recruitment of at least 233 staff and establish a clear retention plan to

align with the national economic growth and development objectives. Participant 1-UG

highlighted the human resource challenge from the food business operator side and

commented,

Those who have food establishments do not always employ adequate number of

technical people. They find it challenging to employ a quality assurance manager

or have a supervisor who is qualified in the food science discipline. So, they still

have those challenges in understanding the basics…it is not uncommon to find

industries that are operated by personnel without training in requisite field of food

safety. Going forward, before a food processing unit is established, whether it is a

restaurant or hotel, we need to check for the technical expertise of the people

employed to deal with human life.

Limited Financial Support

Many participants referred to lack of financial resources as one of the stumbling

blocks that has made it difficult to implement food safety strategies. Financial resources

are needed for recruiting and retaining technical staff, supporting public education,

disseminate information, and communication materials, and conducting research, and

field inspections. Some of the quotes below better explain the problem.

Participant 3-ETH focused on the economically underprivileged in Ethiopia and

explained that, "The poor people are affected by unsafe food, further deepening their

poverty situation. They cannot, or they do not have many choices or options for safe

food. So, in the absence of choices, you cannot really do much." Elaborating on the

financial resource in Kenya, Participant 3-KE observed,

 Mobilization of enough resources is key to achieving desirable outcomes. I hope

the National Treasury will be able to focus more on allocating more funds

towards food safety to build effective food delivery systems and also to build the

right infrastructure as well.

Participant 4-KE spoke about the responsibility that Kenya handed over to Uganda in

terms of coordinating food safety work and underlined,

Uganda needs to prioritize and fund the activities of codex so that they can be

able to deliver and upscale the codex activities not only in East Africa but in

entire Africa because Uganda is the current coordinator for the Codex

Coordinating Committee for Africa. So, the government needs to be sensitized

that there is need to allocate adequate funding for Uganda to be able to coordinate

this important aspect of food safety.

Re-echoing the sentiments expressed above, Participant 4-UG recalled,

In most cases, we find resources are limiting given the fact these jobs are

scattered among various ministries i.e. health, national council of higher

education handling GMO issues and bio-technology, ministry of agriculture and

the local authorities, like the Kampala Capital City Authority among others. It is

not uncommon to find each and every agency or department doing only a

piecemeal. The limited resources are channeled to various ministries and agencies

making it difficult to achieve what is the strategy intends.

Furthermore, Participant 2-UG noted,

Money should be provided to facilitate the public officials, to do their work

because in most cases doing surveillance is an expensive exercise. We often

respond to calamities for example when our exports are rejected in other markets

perhaps due to capsicum or because of MRLs (maximum residue limits). After

such, a lot of money is used to try to save the market, to hold workshops etc. and

yet prior to such developments or incidences, resources are not easily made

available. But once we are losing the market, we begin to see many remedial

interventions to try and save the market.

Limited funding had ripple effects on food safety infrastructure and the report published

by the Republic of Uganda (2015a) revealed that UNBS laboratories have largely been

funded through Development Partners. The report contained the recommendation that there is need for increased public funding and support from more Development Partners for infrastructure development to sustain, enhance, and spread out this critical service delivery across the country. The report further noted that whereas funding for UNBS activities has over time slightly improved from 5.3bn in 2005/6 to 13bn in 2010/11, it only covers about 50% of the total resources required by the Bureau to effectively cover its operations. This is a significant contrast between the budget required and what is disbursed.

Neglected Roles by Line Ministries and Regulatory Bodies

Some participants mentioned that some roles and duties are inadvertently neglected by some officials due to lack of adequate funds. However, some of the roles are cross-cutting between different line ministries and regulatory bodies. Participants also reported that some regulatory entities do not perform some tasks assuming that another ministry will perform the duty. Neglect of duties also seem to be enhanced by the conflict of interests both at individual, and ministry levels as well as at the country level where other activities are given priority more than food safety.

Theme 7: Enablers of Food Safety

This theme identified the different factors that facilitated the implementation of regulations that promoted food safety in the study countries.

Existing Food Safety Regulation Structures

The existence of food safety regulation structures as a sub-theme encompassed the existence of laws relating to food safety, as well as the regulatory bodies in each of

the study country and was reported by many participants. The existence of laws at

national, regional, and global levels has enhanced the implementation of food safety-

related activities. They have provided guidance to the technical officers on what to do

and how to implement it through the existing line ministries and regulatory bodies whose

role is important in implementing the activities. These laws also played a key role in

creating awareness with part of the three countries. Participant 1-KE stated,

> In Cap 245, that is the Food, Drugs, and Chemical Substances Act, they give
>
> provisions for all food business operators, how they should carry out their
>
> operations and businesses considering hygiene and safety. The ministry of health
>
> provides advise to the food business operators on how best to establish their
>
> structures, the construction, the design, and the hygiene. So, my sector really
>
> takes care of business operators for the well-being of their business and for the
>
> well-being of the health of the Kenyan citizens.

Monitoring Visits and Inspections

Some key informants reported that monitoring visits and inspections have enabled

the regulatory bodies to identify defaulters and offer guidance to correct their actions

hence promoting food safety in the three countries. In all three countries, monitoring and

inspection visits were mentioned as key in implementing food safety activities.

Participant 1-ETH described this process stating that, "They go around checking on the

premises, the hygiene, and again, everything about public health. And the public health

officers are the ones who bring samples to a national public health laboratory for testing."

Similarly, Participant 4-KE elaborated,

Whenever there is a request for permits for inspections, they are always available.
And we have also placed staff strategically at the border posts or ports of entry
where food is likely to pass and every agency that has a responsibility to control
food is based at the airports or at the ports of entry.

Participant 6-KE stated,

From a public sector perspective, we work with the private sector in the area of
testing as part of residual monitoring and surveillance plan. So, we need to have
good surveillance mechanisms for food safety issues in the country. Surveillance
which is supported by testing, supported by monitoring of the hazard, that sort of
monitoring of the risks which might be in the food. The last area is public
awareness.

Equally, Participant 2-UG recounted,

My contributions include; getting involved in implementing the regulations and
regulations, plant health regulations, some of them were agricultural chemical
regulations. I participate in undertaking inspections; field inspections for
agrochemicals stockists to ensure that they are … handling the chemical products
properly and safely.

Training and Knowledge of Technical Experts

Some participants attributed their success in implementing food safety to the
training technical officers have received training which gives them the confidence to
carry out their duties. Uganda and Kenya had better training facilities at institutions of

higher learning for technical experts in food safety with courses such as the Bachelor of

Food Science and Technology among other training opportunities offered at universities.

Insights from one Participant 6-KE showed that, "The private sector firms who

are in the food industry provide business to business support services where industries

seek for certification on various food safety standards." Participant 3-UG asserted,

> We have a robust communications strategy that we use for reaching out to the
>
> different stakeholders within the different regions in the country. And this we do
>
> by providing information through, for example, market days, through ongoing
>
> activities within the regions, as well as using all the other communication
>
> channels; mass media and related channels … to have the information reach out to
>
> everyone.

Recommendations to Strengthen Food Safety Delivery Systems

Improve Enforcement and Implementation of the Guidelines

The majority of participants discussed the need to improve food safety

enforcement strategies. This would be made possible by conducting several activities that

promote food safety such as more industrial visits, inspections, and monitoring of food

business sites. Participants perceived that consistent follow up and close monitoring of

the food handlers and manufacturers improves food safety delivery systems. Participants

suggested that such interventions should be adopted at both individual and institutional

levels. Participant 1-UG observed,

The first actions should be to develop structures and the different strategies by

different institutions to use the existing policies and laws relating to food, then ensure the

operationalization of the different laws, policies, and acts that are developed. That is

ensuring that the people who are supposed to follow up on the ground are given the

mandate to ensure that everything that is supposed to be done is ok.

Harmonize Food Safety Policies and Laws

Some participants expressed the relevance of harmonizing the food safety policies

and laws across the different trade levels namely; national, regional (East Africa), and

global. They discussed the need for countries to consult and agree on cross-cutting food

safety policies that will enable them to promote trade especially when the different

countries have notified each other about the existing food laws, including the

international community since food safety policies from the other countries affect food

export and trade as a whole. Participant 1-ETH commented,

> Another paradox in Ethiopia is that when it comes to export markets, the
>
> government has a strong push to ensure food safety across the sector, that there is
>
> a certification system or safety management system in place. For example,
>
> because they export meat to Gulf countries and Arab countries, our abattoirs, all
>
> of them have been certified and the food safety has been assured.

Corroborating this perception, Temesgen and Abdisa (2015) reported that the

federal/central government officials undertake inspection of animals, animal products and

plants and plant products for export while the regional/local agricultural bureaus and the

Woreda agricultural offices inspect animals, animal products and plants for the domestic

markets.

Increase Awareness About Food Safety Laws

Most participants discussed the relevance of increasing sensitization about laws that relate to food safety among all stakeholders. Participants perceived that enhanced awareness among all stakeholders will ease the work of technical experts when they are enforcing the regulations. It will also provide guidance to the manufacturers to conform to the standards as per the laws. Participant 6-KE stated,

> The perception is that the government is not doing enough. Everybody is thinking that the government … should do something about the many malpractices that are happening. Now there is increased awareness about unsafe food and its impact and it is featured regularly in Kenya on social and the mainstream media and many incidences are now being reported. Increased awareness also leads to increased reporting on food incidences, which was not the case in the past.

Literature reviewed also underscored the importance of awareness outlining the role that the Kenya Bureau of Standards play in the process including conducting training programs for the industry, and linking various organizations to support implementation of standards (Kenya Bureau of Standards, 2020). These sentiments were also reflected in Uganda where Participant 3-UG observed,

> On implementation of food policies, the laws, and regulations for public officials, … awareness is the first thing that I would consider important in the implementation of these laws, primarily because once all the consumers are aware of what is supposed to be done or what we expect in terms of the safety of the food that they actually consume, they will easily comply.

The above perception is supported by the recommendation contained in the publication by the Republic of Uganda (2015a), that there is a need for continuous and consistent efforts to bring relevant stakeholders to engage with the UNBS processes. The same publication also recommended that there is need to encourage collaboration under Public Private Partnerships (PPP) mode at all levels (local, regional and international).

Need for a Multisectoral Approach and Stakeholder Engagement

Majority of participants discussed the broad scope of food safety and suggested the need to adopt a multi-sectoral approach and engage professionals and technical people from different fields. Such an approach will however require more vigilance in terms of the defining the roles of the different entities and follow up on the implementation and execution of the roles. Participants also underscored the need for better collaboration among the line ministries responsible for food safety and other stakeholders. Furthermore, participants noted that policies should be known to all stakeholders and aligned with the trade and export guidelines and requirements.

Engage Academia in Food Safety

Some participants reported that there is the need to enhance knowledge on food safety and this will be achieved through promoting research in food safety as well as training more experts on food safety. They, therefore, emphasized the need to invest in improved laboratories. They further recommended that line ministries should work with universities and technical institutions where most of the research takes place to promote generation and dissemination of knowledge on food safety.

Enabling Environment

Some participants noted that promotion of safety requires an enabling environment that constitutes; a strong policy, adequate funding, the right political will, and infrastructure such as laboratories. Adequate funding is key in the implementation of various activities including paying for the required human resource, and facilitating inspection and monitoring activities. Elaborating on the enabling environment, Participant 6-KE stated,

> We have a myriad of laboratories, many in the public sector and many also in the private sector. I think Kenya is doing very well now in terms of laboratory capacities. For testing, there is a big investment … in public institutions through different donor funding support. But also, in the private sector, we have very strong private laboratories under SGS doing very many tasks. We have many other private labs … and they are doing a good job.

Participant 5-UG underscored,

> Laboratory analysis requires various levels of competencies depending on the institutions. Not all institutions may have the necessary laboratory infrastructure. UNBS and maybe a few others within the various agencies have laboratories. So these are the major ones; inspection of food establishments, market surveillance, and also conducting laboratory analysis.

Similarly, Participant 3-ETH highlighted,

> There should be resources in terms of finance and infrastructure to create awareness about food safety, including in the informal market so that all actors

involved are aware of the danger of pathogens, toxins, and everything. Then

ensure capacity building of stakeholders and infrastructure. All these are issues

which really need high attention. So, integrating such aspects from governance, to

creating awareness, and building capacity in an integrated manner could really

bring substantial impact.

Summary

The study was undertaken by conducting 16 key informant interviews; six (6) in

Uganda, seven (7) in Kenya, and three (3) in Ethiopia with public officials from the

ministries responsible for agriculture, trade and health. The participants described their

perceptions on the impact of food laws on the food safety delivery systems in Uganda,

Ethiopia, and Kenya.

An overview of the results provides some significant insights from participants on

food laws, regulations, and policies and indicates similarities and some differences in the

three countries studied. Research participants acknowledged that the food safety systems

in their respective countries are still developing and can still be improved. According to

the themes that emerged from exploring the perceptions of public officials on the impact

of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya,

participants listed food laws; the relevance of the standards and regulations; functions and

roles of public officials; contributions from stakeholders; challenges in promoting food

safety, enablers of food safety and finally the recommendations on how to enhance food

safety. Overall, participants expressed positivity that there is increased awareness on the

importance of food safety and strong political will towards addressing limited knowledge

and action to address the underlying problems of food safety. Chapter 5, discusses the interpretation of the study findings, limitations of the study, implication for social change, and recommendations for future research and how to strengthen the food safety delivery system in the study countries.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this generic qualitative study was to examine factors that contribute to effective food safety delivery systems in Uganda, Ethiopia, and Kenya from the perspectives of public officials with knowledge of, and experience with implementing food laws, policies, and regulations to inform policy on food security and safety and help mitigate foodborne diseases and associated trade concerns between countries. I used the CAS framework to assess the fundamental relations and pathways resulting from policy interventions, and the effectiveness and existing gaps in the delivery mechanisms, and provide insights on why a particular strategy was working or preferred over the other. I also used the framework to analyze how different components interface, adapt, and learn to have effective food safety delivery systems in Uganda, Ethiopia, and Kenya.

In this concluding chapter, I provide a comprehensive discussion of the interpretation of the findings based on the research question and in the context of the theoretical framework that guided this study and the themes related to participants' responses to the interview questions. I further relate the results the findings of the literature review in Chapter 2 to tease out whether this study added or failed to add new knowledge to the body of knowledge already existing on the phenomenon under study. I also provide recommendations for future research, limitations, implications for positive social change, information on dissemination of the findings, and conclusions of the study.

Interpretation of the Findings

This section of the study presents the conclusions from the findings of this descriptive comparative study that answered one main research question and how findings from the interview questions substantiate the theoretical framework for this study. In answering the research questions, l constructed open-ended questions in my interview protocol to respond to the research question. The analysis of the data led to identification of themes, which included food laws, relevance of standards and regulations, functions and roles of public officials responsible for the implementation of food safety policies, contributions from stakeholders, challenges in promoting food safety, enablers of food safety, and finally recommendations on how to enhance food safety. The parent themes were further broken into subthemes.

Food Laws and Food Safety

Food Safety Systems

For this subtheme, participants were engaged to answer the interview questions on their knowledge about the way the food laws, regulations, and policies of their countries were structured/set up. Information was sought to understand the existing food systems and the level and structure of the food regulatory system of the country. This probing revealed that food safety structures are still growing and at different levels of development, with Uganda and Kenya exhibiting more robust systems compared to Ethiopia. The results showed that food safety regulations have been established in all the three countries but implementation is inadequate. In terms of laws, the study showed that they exist and can optimally support adherence to the required food safety standards

when established guidelines and structures are followed. All countries, however, signaled the need for a review of laws, policies, regulations, and strategies relating to food safety, and all countries confirmed being at various stages of review or development of these various instruments. Participants perceived that a review of these instruments would consider the dynamics of the rapid rise in food processing while also prioritizing safety of products sold on the domestic markets, as is always the case with the export markets. Moreover, it was evident that multiple agencies are responsible for handling various aspects of food control activities and food safety, leading to overlap or duplication of mandate and inefficiency in the system. All the countries highlighted the need to invest in food safety infrastructure and human resources to bolster the food safety delivery systems. That notwithstanding, the study showed that all the countries are well aligned to the international food safety systems and are grounded within the Codex system and using standards developed by the international food safety standards governing body (FAO, 2019).

Existing Food Laws and Regulations

Under this subtheme, the interview question was used to enable participants to give an account of how food safety is considered within the three sectors, agriculture, trade, and health. In relation to the way food laws, policies, and regulations are structured, this question zoomed into the sector-specific setup to include discussions on the actual existence of food laws, regulations, standards, and policies in all the countries, including their similarities and differences. The study revealed that Uganda, Ethiopia, and Kenya have laws relating to food, and they constitute policies, acts, specific regulations

that are developed by mandates in the acts, and food standards that were applied to regulate food safety and implemented according to the various food sectors such as dairy, nutrition policies, and meat policies. It was reported that for Ethiopia, the national laws are implemented alongside several standards that have been developed over the years, while Uganda and Kenya have laws, and some are in the form of food laws, policies, and regulations as well as standards. Nevertheless, these laws and policies relating to food in all three countries were considered inadequate due to limited information about food safety within communities and the scenario that food safety is housed in three-line sectors in all three countries. One participant noted that there are at least 11,000 standards on food. However, the laws are old laws and not updated or context specific, and some of them are not robust enough to adequately deal with food safety regulations established to implement the standards. The food safety mandate spread to various regulatory bodies are not well defined, making it difficult for the private sector or food business operator to seek information or support whenever the need arises or to hold any of the regulators accountable. Moreover, the study revealed that the laws and regulations, reactive by default, do not provide for a structured risk analysis and are dependent on end product inspection. Testing the risk reduction outcome is not always satisfactory, signifying the need to develop comprehensive food laws, as also proposed by Temesgen and Abdisa (2015). The food safety systems currently do not enable public officials to identify and resolve many problems or effectively respond to the full range of complex, persistent, and evolving challenges confronting different parts of the food chain. Concretely, all three countries have a food and drugs act and well-established agencies responsible for

the development of standards and certification of products. The agencies also help the industries or individuals adopting standards in their respective countries to do so.

Relationship Between Food Availability and Food Safety

Participants shared their understanding of the relationship between food availability and food safety. Most of them (13/16) perceived that all three countries had sufficient food supplies but food safety was not a priority. They noted that in most cases, policymakers focus on ensuring food security and ignoring food safety issues, yet by definition, food safety is part of food security because unsafe food is not food. Participants further revealed that governments have taken slow steps in investing in food safety for domestic consumers. This perception was illustrated in Ethiopia, where the abattoir for export beef is fully equipped to international and export standards, while the ones supplying the domestic market are poorly resourced.

Accessibility of food for the ever-increasing urban population was also highlighted as a factor undermining efforts to ensure food safety that was specifically linked to street foods, which are seemingly accessible and affordable yet pose major public health risks due to poor food hygiene and sanitation in handling of such food. Moreover, street foods are not subjected to formal inspection by regulatory authorities in all these countries due to the informal nature of this business segment. Mutua et al. (2020) recommended the adoption of the concept of traceability to improve food safety and market access. However, it was also evident that Kenya has, for example, taken a more proactive approach with its "Big Four" agenda to ensure socioeconomic transformation through access to safe food, among others.

Consideration of Food Safety Under Various Ministries

Participants shared their perspectives on how their respective sector strategies cater to food business operators. The discussions focused on the line ministries that are managing the different food sectors and the policies for business operators to promote trade in safe food. Three subthemes emerged covering the line ministry in charge of food safety and trade, roles of the line ministry and other existing ministries, and entities/ regulatory bodies. Most participants (14/16) shared their views on the line ministry responsible for coordinating food safety work, noting that in Ethiopia, food safety regulation is a multiagency type of function and the line ministry role is shared between the Ministry of Health and Ministry of Agriculture, whereas in Uganda and Kenya, the Ministry of Health is the responsible line ministry. The different ministries then endeavor to deliberately work together in developing policies, laws, acts, and regulations to enhance food safety and facilitate trade. For Uganda, the national constitution obligates the Ministry of Health (MOH) and Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) to work together to set minimum standards, assure quality, and develop relevant policies for food security and nutrition to ensure the improved quality and quantity of agricultural produce and products for domestic consumption, nutrition, food security, and exports (Republic of Uganda, 2020b). According to Wilkinson and Marmot (1998), poor nutrition and physical development adversely affect a child's cognitive development when the quality and quantity of food products are is poor and inadequate.

In addition to the mandate of the different line ministries in coordinating food safety responsibility, some of the summary activities linked to this role are to provide trade policy oversight and enforce food safety standards through inspection of food products in the market. The Uganda National Bureau of Standards, the Ethiopian Standard Agency and Ethiopian Conformity Assessment, and the Kenya Bureau of Standards (KEBS) support micro-, small-, and medium-scale enterprises to help them meet hygiene and food safety requirements as the mandated regulatory bodies. Participants also considered it important to address the notion that public officials, police their businesses.

Relevance of the Standards and Regulations

Mandate to Monitor Product Certification

Standards and regulations emerged as an important factor in promoting food safety across the three countries. All the countries have specific organizations established to oversee matters related to standards. In monitoring product certification, standards are used to regulate product measurements, chemical content of products, microbiological content of food, as well as physical properties of the food. Monitoring of product certification embodies safe use of drugs and chemicals to control pests and diseases and to minimize residues and contaminants in agricultural products. It includes improving traceability of crops, fisheries, and livestock products. The relevance of standards and regulations was linked to ensuring awareness on the existing laws, policies, acts, as well as standards.

Participants observed that the enforcement of the Weights and Measures Act minimizes malpractices and protects consumers from being cheated and ensures that they obtain the correct quantity of food that they purchase. While standards are considered important, participants indicated that stakeholders seemed not to have a full grasp of the role and importance of standardization services in economic development. They proposed a public–private partnerships (PPP) approach as a way of creating positive impact through streamlined collaboration between the public and the private sectors.

Furthermore, participants observed the need to establish an integrated consumer protection law that minimizes exposure to adulterated food products using unauthorized substances and sometimes sale of expired food items and medicines.

Provides Avenues to Reduce Stunting

This subtheme resonated with the United Nations SDG on ending hunger. The SDG's aim is to end all forms of malnutrition and to achieve internationally agreed targets on stunting and wasting in children under 5 years of age by 2025. Standards emerged as a mechanism for addressing problems related to stunting in children because they promote practices that enhance nutrition. For example, Uganda and Kenya have nutrition strategies and plans that align with the international requirements under Codex (Republic of Kenya, 2017; The Republic of Uganda, 2003). The national food and nutrition security policies provide frameworks addressing nutrition improvement within the context of basic human rights, children's rights, women's rights, and the right to food. These frameworks address efforts by the WHO (1998) in addressing social determinants of health, in that poor nutrition (and physical development) adversely affect a child's

cognitive development. Uyttendaele et al. (2015) also underlined that food safety should encompass food and nutrition security. The policies also provide insights into the objectives of the governments to improve and promote the nutritional status of the population using all methods, including encouraging and enhancing awareness on health benefits associated with women exclusively breastfeeding their babies and eliminating micronutrient deficiency disorders. The Micronutrient Initiative (MI) implemented in Ethiopia also elaborates the objective of reducing micronutrient deficiency in foods.

Guides the Country in Terms of Food Security

The benefits associated with regulations and standards as a catalyst to food security cut across the three countries. While this was raised by only five of 16 participants, it stood out in Ethiopia and Kenya and was also linked to nutrition security. The study also underscored the need for the government to ensure that food is affordable, accessible, and safe and corroborated the IPPC (2019) report that outlined the four pillars of food security as availability, access, utilization, and stability. It was, however, evident that the policy narrative of prioritizing food security more than food safety is progressively changing and both facets are getting adequate attention.

Promote Quality of Food Products

Many participants (10/16) viewed standards and regulations as means through which regulatory bodies and line ministries ensure the originality and quality of food. This perception is aligned with the view that food laws are the defining factor in enhancing awareness of consumers on food fraud (FAO/WHO, 2018). Standards are also used as a cornerstone for regulating chemical components of food, with the ripple benefit

of protecting consumers, addressing concerns that consumers have about reported cases of adulteration and alteration of products. For example, adulteration and altering of food has increased in Ethiopia despite t the illegality of such punishable acts (Kidane et al., 2015). There are also some deliberate government efforts to promote the quality of food products, which are sometimes in the form of projects such as the aflatoxin control program and the MI mentioned earlier in Ethiopia. Promoting the quality of food products also takes the form of the conventional enforcement approach, where business operators found to be adulterating food are arrested and interrogated as the case is Kenya. For the latter, the study revealed that food adulteration is a conscious act by some food businesses motivated by unorthodox economic interests.

Roles and Contributions of Public Officials to the Promotion of Food Safety

Participants shared their understanding of the roles and contributions of public officials to the promotion of food safety in the study countries, and it covered three broad ideas: developing food laws, creating awareness on food safety, and enforcement of standards.

Develop Food Laws

Firstly, it emerged that public officials lead in providing technical insights in drafting, reviewing, and amending regulations, standards, and policies governing food safety. This is a role they play in close collaboration with various and relevant stakeholders who drive the various segments of the standards and policies governing food safety. All three countries follow a relatively well-defined process in which their national bureaus of standards form national technical committees and identify representatives

from other institutions, including the private sector, to develop and review food regulations and standards to ensure alignment among the agriculture, trade, and health sectors. They consult government officials from the ministry of justice, who are the custodians of the mother law—the constitution. The above role was described in depth for Kenya.

Create Awareness on Food Safety

Most participants identified with the role of creating awareness. The role of public officials in creating awareness with various target groups takes many dimensions like training on food safety, sensitization programs, and sharing information on food safety across different platforms including with customs/border officials. Moreover, increased access to smart telephones have made it easier to reach many citizens on social media platforms including Facebook and Twitter to supplement conventional channels like print and broadcast media. All the three countries have strategic documents that guide the execution of this role. While this role is often performed by government agencies, some nongovernment actors including the private sector also conduct awareness programs on food safety. Perhaps not surprisingly, women embraced the concept of food safety more than men since they are mostly the ones responsible for sourcing and preparing food for their families. The study also revealed that mainstream government, notably policy makers were not doing enough to create awareness on food safety and this supports the notion of Roesel and Delia (2015) that Africa records minimal public awareness on the importance of food safety.

Enforcement of Standards

Another key role performed by public officials is enforcement of standards. They ensure compliance through inspection and audits of establishments that process, handle, and store food to ensure that the required sanitary and controlled conditions are met or followed. Enforcement also includes inspection and analysis of food for harmful substances to ensure that there is conformity to established limits and tolerance. To do these, public officials obtain and analyze samples to determine whether a particular food product conforms to standards and prescribed regulations or not. Furthermore, public officials inspect food sale points and recall or withdraw substandard products and uncertified products from the market. In all the three study countries, inadequate enforcement and compliance with set standards was considered a major challenge. The problem is associated with some underlying issues like lack of social awareness on food safety issues, minimal basic food hygiene education and un-streamlined responsibilities of regulatory bodies, and weak coordination among inspection authorities. Moreover, the regulatory agencies are ill equipped and understaffed to meet the dynamic international food regulation demands. Most participants therefore considered enforcement as a key function. To address this, Kenya is for example, training official control officers to enforce and ensure compliance to various measures by the business operators. They are also seeking to ensure that the business operators understand their responsibilities to comply with standards to ensure they provide safe food to the public. The public officials are approaching this from a collaborative perspective to systematically break the barrier of being perceived as policing food business operators. The approach aligns with the

African Union (2019a) report that highlights the need for more to be done to bolster some of the outdated and weak enforcement of food safety legislations and policies. The study also revealed the need for stringent penalties for non-compliance with food safety standards for both exported products, and those sold in the domestic markets.

Challenges in Promoting Food Safety

Some constraining factors that public officials face in their work span from implementation strategies, limited understanding of the laws and policies, human resource challenges, limited financial resources, to neglect of roles by line ministries and other entities.

Implementation Strategies

Majority of implementation strategies are perceived to be unstructured in Uganda, Ethiopia, and Kenya. While few well defined enforcements laws, plans, and systems relating to food safety exist, the law is unclear on strategies of enforcing them. Public officials endeavor to involve the judiciary and police in inspections and enforcement of the standards and policies as well as in the formulation and development of policies to ensure that all agencies responsible for implementing the policies are part of the process. For example, working with the judiciary and police is mandatory in Kenya whereas in Uganda, the One Health approach is preferred in reporting various food safety risks. Participants highlighted that it is vital to deploy several strategies including establishing effective communication and strengthening institutional capacity for effective implementation of food laws. Walker (2013) also underscored the need to use different strategies in the implementation of food laws. A pull approach was mentioned as a

strategy used to create a demand, or need for more safe food coupled with conducting frequent assessments to monitor progress with frequent enforcement of standards used to enforce food safety. In addition, the study revealed the need to establish foodborne diseases surveillance system at the national level to collect food safety related data to help with concrete decision making to address food safety in all the three countries. While participants appreciated the efforts and investments that governments make towards managing safety risks related to animal source foods, they observed the need for equal focus for food safety risks in vegetables and fruits. In Ethiopia food inspection and control system is mandated to the health sector to ensure safety of food products, and strongly oriented towards food processing factories. Agriculture sector is responsible for ensuring animal health and plant health.

Limited Understanding of the Laws, Policies

Limited understanding of laws and policies related to food safety within communities and among some food manufacturers emerged as a key issue, although it was highlighted by only a few participants from Kenya and Ethiopia. The lack of understanding about the existing food laws and regulations was partly attributed to the fact that laws are written in official language and in technical terms that are not easy to internalize by the masses. The study revealed that dissemination of knowledge and information on food policies and laws is minimal. The laws are perceived as a preserve of the public officials, but not necessarily for the intended beneficiaries of the acts and policies. Moreover, the small-scale businesses are not keen on details of laws, policies, or regulations, but rather interested in ensuring their source of livelihoods. A number of

instruments have been put in place to support AfCFTA implementation and to ease intra African trade. For example, the AfCFTA NTB online mechanism was developed and commissioned for identifying, monitoring and reporting NTBs and facilitate intra African trade (https://tradebarriers.africa). The tool is used by economic operators to register complaints whenever they encounter technical barriers to trade, or challenges pertaining to compliance with sanitary and phytosanitary measures along any segment of the regional trade routes and is bound to help small-scale businesses.

Human Resource Challenges (Technical and Numbers)

Whereas only a third of participants mentioned inadequate human resource as a challenge to ensuring food safety, it is a constraint that limits promotion and enforcement of laws and regulations including monitoring and conducting inspections. For example, in Uganda, this limitation is linked to the education curriculum that does not address food safety before university graduate level studies. The study showed that there is adequate critical mass of food safety experts, a problem also highlighted in the African Union (2019a) publication. It shows that inadequate private sector capacities to ensure food safety and the placement of food safety management across various government institutions often lead to inadequate food safety oversight required to protect consumers and facilitate trade.

Human resource challenges are heightened by inadequate financial resources required to build laboratory infrastructure, equip, train experts, and to enforce regulations. The study revealed the need for a staff planning, recruitment, and retention policy. In addition, the study indicated that some food business operators do not employ

personnel with food science expertise yet it is a key requirement in industrial production or processing of the food. It is not only important to hire personnel with the right expertise, but it is also important that they have access to the standards, laws, and policies. Moreover, the functions of public officials do not explicitly include auditing businesses to ascertain that they have the requisite technical expertise to operate food businesses for the protection of human life.

Limited Financial Support

Inadequate financial resources emerged as the main obstacle to implementing food safety strategies. Financial resources are required to train and recruit staff, generate and disseminate information, conduct research, and carry out site inspections among others. Governments remain the main source of funding for food safety work including ensuring participation in international standard setting processes and promoting use of standards, guidelines, and codes of practice adopted by the Codex Alimentarius Commission. The need for resources was specifically highlighted for Uganda because of its new role as the coordinator of the Codex Coordinating Committee for Africa. Participants in the study also noted that resources available for carrying food safety related work is spread thin among the different government ministries and agencies with food safety mandate. These include the ministries responsible for agriculture, trade, and health, national council of higher education handling GMO issues and bio-technology, and the local authorities. This, they believe, undermine efforts intended to achieve objectives outlined in the different strategies as observed by Walker (2013). Specifically, Walker noted that resources required for strengthening institutional capacity for effective

implementation of food laws and policies in Africa are limited. Whereas, all the governments of Uganda, Ethiopia and Kenya appear reactionary in responding to food safety crises, the study revealed that they responded better in raising and allocating financial resources to address export rejections on the international markets when their products do non-comply with food safety standards in place. In Uganda for example, there is discrepancy between the budget required under the Medium Term Expenditure Framework (MTEF) ceilings, what is earmarked, and what is eventually disbursed for food safety work to the respective ministries. Whereas there are signs of increased funding for food safety work, the necessary infrastructure, notably the laboratories have largely been funded through Development Partners.

Neglected Roles by Line Ministries and Regulatory Bodies

In all the countries, various functions relating to food safety are performed by at least three agencies. Participants indicated that this often leads to some functions not being performed. The reasons for not carrying out some of the tasks range from lack of financial resources, to duplication of food safety work, or it is sometimes not given high priority in the respective ministries.

Enablers of Food Safety

Amidst the challenges highlighted, participants also mentioned some of the factors that contribute to a conducive environment for the implementation of regulations which in turn, promoted food safety in Uganda, Ethiopia, and Kenya.

Existing Food Safety Regulation Structures

Most participants indicated that they have established structures for regulating food safety encompassing laws that address food safety with corresponding regulatory bodies in each of the study country. They further noted that the laws help public officials to facilitate implementation of food safety related activities. The FAO & WHO (2019a) publication also show that food laws include acts, laws, regulations, and other instruments with legally binding force issued by public authorities on food as a whole, and on food safety in particular, to protect public health, the consumers, and the environment for fair trading. The laws serve as the reference guidance for public officials in performing their tasks within the mandate of their line ministries and regulatory bodies. The laws also play a key role in enhancing awareness among different stakeholders on the relevance of the regulations. For example, laws are the main source of provisions for food business operators, stipulating how they should carry out their businesses while considering hygiene and safety. The advice provided by the ministry of health and other regulatory bodies to food business operators on the construction of their premises and internal layout are all in line with existing laws and regulations.

Monitoring Visits and Inspections

Participants also indicated that monitoring and inspection of food processing premises was another key factor in the implementation of food laws, policies, and regulations. Through this function and following what is specified in their monitoring and surveillance plan, public officials interact with the private sector, specifically the food business operators, intercept counterfeit products, and also provide advice and

training to ensure and encourage compliance to set food safety standards in all the three countries. Food business operators sometimes request for inspection of their facilities so that they can obtain permits to operate. In addition, some public officials are posted at border posts or ports to inspect all food products entering a territory. These perceptions are in tandem with the view of Smith et al. (2016) that clear communication, monitoring and feedback processes between policy formulators and policy implementers strengthens food safety regulatory systems.

Training and Knowledge of Technical Experts

Participants underscored the importance of training in enhancing the work of technical experts and enabling them to be effective in the implementation of laws, policies, and regulations relating to food safety. The European Food Safety Authority (2017) noted that training empowers and gives public officials the confidence to implement their duties with various stakeholders. The EU maintains high standards of its food safety systems through regular training of its staff to promote mainstreaming of best practices in Europe. This study revealed that Uganda and Kenya had better training facilities in food safety and run courses at universities level on Food Science and Technology including tailor-made courses and business support services. In addition, Uganda has a communications strategy for guiding the work of public officials with stakeholders and sharing relevant information through mass media and various platforms including market days in both rural, and urban areas to ensure effective outreach. Wainaia et al (2017) underscored that training on better hygiene practices enhance awareness on transmission of foodborne diseases.

Limitations of the Study

This study was limited to public official from the ministries responsible for agriculture, trade, and health and with at least 5-year working experience in the food safety domain because they represented the group that develop, implement and enforce food laws, policies, and regulations in Uganda, Ethiopia and Kenya. The study results may not, therefore, be generalizable to other public officials playing related roles from other ministries like education, environment, internal affairs, local and regional governments, consumer association, the private sector, and the media among others, whose mandate cover certain aspects of food safety. The study was also limited to three out of 11 countries in East Africa, thereby excluding other countries in the region. Moreover, the sample size for the study was 16 participants, hence does not reflect the entire population of public officials with working experience on food safety for over 5 years. In addition, there was the probability that some participants might be reluctant to fully express their honest views comprehensively on questions posed to them and could be a limitation to the study due of non-disclosure of all information sought.

I used purposive sampling technique to recruit participants that were within the inclusion criteria with regards to the government ministry, knowledge and experience and number of years spent working on food safety. While I had intended to interview 18 participants, I received responses from 16 participants for the study, which is considered as an appropriate sample size for qualitative study by Creswell (2014). Given the limited time allocated for the Zoom interviews, there was not much room to probe and get additional information from participants. To eliminate any possible bias, I recorded

responses from participants verbatim. I reviewed some strategic documents to complement the data collected from participants.

Recommendations

Food is one of the key social determinants of health when there is useful information about food, (diet) and health. Food poverty co-exists with food plenty, considering that availability and access to healthy, nutritious food is an important public health issue (Wilkinson and Marmot, 1998). This study was undertaken to bridge the gap in literature available on the implementation of food laws, policies, and regulations in Uganda, Ethiopia, and Kenya. Africans experiences high incidences of foodborne diseases especially among the vulnerable groups which are the children under 5 years of age and pregnant women (WHO, 2015), but Uganda, Ethiopia, and Kenya lack information on where the actual food safety risks are. Foodborne illnesses are caused by eating unsafe food or contaminated food. The study intended to provide information on the different areas of the food safety continuum that need to be strengthened to protect public health and facilitate trade. Studies carried out in this field highlighted these challenges, suggesting the need to examine how food laws are placed in this context from the perspective of public officials.

The study provided an overview of the impact of food laws, policies, and regulations on the food safety delivery systems in Uganda, Ethiopia, and Kenya which could help inform policy practices in other countries in East, and the rest of Africa beleaguered with the high burden of foodborne illnesses. Whereas Uganda, Ethiopia, and Kenya were chosen for maximum variation, future studies may seek to examine the

context of the other countries in East, and the entire Africa as trading under the African Continental Free Trade Area (AfCFTA) regime rolls out. While conducting the study, I obtained the perceptions of participants based at the headquarters of the ministries of agriculture, trade, and health. These views might not be the same as the ones for the public officials working in other districts beyond the headquarters of the three ministries. Future studies might be directed towards looking into how public officials working at district levels, experience the impact of food laws, policies, and regulations, on the food safety delivery system to get a complete picture and decipher best practices.

I set out to gain insights on how food safety is considered within the agriculture, trade, and the health sectors. I learned that all the countries have laws, policies, acts, and regulations used to regulate food safety. However, there was no information on how to understand about food safety in the communities. Future work should focus on reporting of food safety risks in communities.

The current study also sought to understand how public officials advance food safety agenda and found that developing food laws, creating awareness on food safety, and enforcement of standards were some of the key roles they play. In discussing how they advance food safety, participants indicated that there is need for stringent penalties for non-compliance with food safety standards both for exported products and those sold in the domestic markets. Future work should explore why existing measures do not deter unscrupulous food business operators or vendors from committing various food fraud and malpractices.

This study also explored some of the constraints for public officials which brought out challenges on implementation strategies, limited understanding of the laws and policies, human resource challenges, limited financial support, and neglect of roles by line ministries and other entities. The study indicated the need to establish foodborne diseases surveillance systems. Future studies should seek to find out what surveillance mechanisms or systems are in place to support food safety data collection, and how it is used to inform resource allocation and actions within countries. Furthermore, future studies should endeavor to understand the types of roles neglected by line ministries and why that is the case to inform how it can be addressed.

Implications for Positive Social Change

To impact positive social change, adopting the suggested recommendations would lead to a better implementation of food laws, policies, and regulations in Uganda, Ethiopia, and Kenya. According to participants' responses, food laws exist and can be used to comply with food safety standards when established guidelines and structures are appropriately used. However, participants recognize that the existing food laws and regulations are too old to cope with the current food safety dynamics or mitigate the human and economic losses associated with consumption of unsafe food by citizens, mostly the resource poor. Presently, laws relating to food do not provide robust information about food safety in the communities. There is need to build both the hard, and soft infrastructure to bridge the information gap on food safety information from all communities. The study findings have highlighted the placement of food safety under various ministries and regulatory bodies. The recommendation to put in place better

coordination mechanism to enhance the capacity of the various agencies can lead to more effective food safety delivery systems for the benefit of consumers. The positive social change will reverberate with citizens as they would consider the public officials as more responsive to their needs by ensuring that the food laws they implement bring about compliance with appropriate food standards. The citizens would also be more alert to food safety risks with increased awareness from public officials that promote building a better public health system.

Conclusion

The generic qualitative study was conducted to gain the perspective of public officials responsible for the implementation of food safety policies, on the impact of food laws, policies, and regulations on food safety delivery system. Foodborne diseases present several challenges ranging from loss of lives, poor growth and development of children, economic losses in treatment of the sick to lost productivity among others, for many African countries (WHO, 2015). There is significant political will to address the problem at the highest level with both the frameworks of the United Nations SDGs, the African Union's Agenda 2063 and its flagship projects the African Continental Free Trade Area (AfCFTA) and the Comprehensive Africa Agriculture Development Program (CAADP) highlighting the need to have food systems that preserve human dignity. Moreover, food safety is an important factor in accessing export markets and undermines efforts of many African countries. Specifically, consideration given to food safety will be key for trading under the AfCFTA. Despite many African countries taking positive steps to capacitate and reinforce their food safety systems, they still struggle with outdated and

weak enforcement of food safety legislation and policies (African Union, 2019b). In pursuing the objective of this study, I obtained rich responses from 16 participants from agriculture, trade, and health sectors given the crosscutting nature of food safety. I found that governments are perceived to prioritizes food security more than food safety. I also found that food safety structures are increasingly improving in all the three countries, regulations are in place but enforcement is still inadequate. Furthermore, food laws exist as Food and Drugs Act, but would benefit from a thorough review and all the three countries are at various stages of reviewing or establishing standalone food laws. In addition, the mandate for regulating food safety cuts across various ministries and there have been efforts to establish national coordination mechanisms that feed into the Codex systems. The three countries all have specialized agencies with the mandate to work on standards including on food. This study shows that standards are key in determining the quality of food products or commodities with related health benefits. Through these structures, public officials are actively involved in developing food laws, policies, standards, and regulations and enforcing regulations and implementation of standards and food laws to promote food safety as well as creating awareness on food safety.

Some of the challenges encountered by public officials in undertaking their tasks include, undefined or poorly structured food safety enforcement laws, inadequate implementation strategies, limited understanding of the food laws since they are written in technical terms that are hard to interpret by all stakeholders, notably food businesses, inadequate human resource – lack of critical mass to cover the different aspects of food safety on the ground including monitoring and inspections, and limited financial

resources to recruit enough staff and to implement food safety strategies. That notwithstanding, several opportunities exist to enhance the food safety delivery system including; available laws relating to food safety and regulatory bodies in each of the study country, monitoring and inspection visits that enhances interactions between the regulators and food processors and businesses, and availability of trained technical experts.

Last but not least, I found that public officials are keen to change the narrative of their national food safety delivery systems which are (perceived as) weak and they proposed ways of strengthening it. Uganda, Ethiopia, and Kenya and all relevant bodies have a responsibility to improve policy practice on food safety by improving enforcement and implementation of food safety, harmonizing food safety policies and laws to facilitate trade in the East African region and within the AfCFTA context and implementing activities to enhance awareness of laws relating to food safety. The study findings could contribute to the knowledge base on the various factors that influence the decision to strengthen food safety delivery systems. The results of this study could trigger, and catalyze future research on policy interventions that contribute to mitigating the high incidences of foodborne illnesses leading to improved livelihoods.

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Appendix: Interview Guide

Research Question	Corresponding interview questions and probes	
RQ #1. What are the perceptions of public officials on the impact of food laws on the food safety delivery systems in Uganda, Ethiopia, and Kenya?		
Broad question	**Interview questions**	
1. How do the Kenya agriculture/trade/health strategies reflect the importance of food safety?	I.	Describe the way the food laws, regulations and policies of your country are structured/set up?
	II.	How is food safety considered within your sector (agriculture, trade or health)?
	III.	How would you describe the relationship between food availability and food safety?
	IV.	How does your sector (agriculture, trade or health) strategy provide for food business operators to promote trade in safe food?
2. How do public officials advance food safety agenda?	I.	What are the functions of public officials in the areas food laws, policies and regulations?
	II.	What do you consider important in the role of public officials on the implementation of the food laws, policies and regulations?
	III.	Describe the ways you have contributed to the implementation of the food laws, regulations and policies.
	IV.	As a public official, what is easy for you to do? What is not so easy to do (challenges)?
	V.	What activities do you engage in with various stakeholders to have effective food safety delivery system?
	VI.	How often do you do that?
	VII.	How effective are your national food laws, policies and regulations policies in addressing the food safety concerns?

3. What is the relationship between food safety and trade in East Africa?	I.	What actions are necessary at individual level to improve implementation of food laws, policies and regulations for enhanced food safety and free trade in East Africa?
	II.	What actions at your sector (agriculture, trade or health) level can improve implementations of food laws, policies and regulations for enhanced food safety and free trade in East Africa?
	III.	What actions should Kenya take to improve implementation of food laws, policies and regulations for enhanced food safety and free trade in East Africa?
	IV.	What actions should the East African Community take to strengthen implementation of food laws, policies and regulations for enhanced food safety and free trade in the region?
4. What recommendations would be appropriate in strengthening food safety delivery system for future actions?	I.	What recommendations do you propose to public officials to have effective food safety delivery systems?
	II.	What recommendations do you propose for your ministry (agriculture, trade or health to have effective food safety delivery systems?
	III.	What recommendations do you propose for the Kenyan government to have effective food safety delivery systems?
	IV.	What recommendations do you propose for the East African Community to strengthen its regional food safety delivery system?
	V.	What would you like to do differently in your area of work as public official?