Addressing food safety challenges in the African informal sector through innovative strategies & Use Cases

D1.1: Assessment Report

Assessment Report on the policy, legal, technical guidelines, and institutional environment for food safety management, including the private sector

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Executive Summary

Overview and objective:
This report seeks to provide a detailed assessment of the policy, legal, technical guidelines, and institutional environment for food safety management in Africa with an emphasis on food safety issues, including health, food control, and inspection, animal health, and international trade, in Ghana, Egypt, Nigeria, and South Africa through key informant interviews, in-depth literature reviews, and desktop studies, it aims to:

- Analyze current frameworks by evaluating the existing policy legislative and institutional structures at the continental, and regional levels to understand their strengths and limitations,
- Examine enablers and barriers by investigating the factors that either facilitate or hinder the effective implementation of food safety policies and governance structures,
- Review agricultural input policies by studying policies, legislative frameworks, and governance systems to understand their role in food safety, identifying challenges and opportunities for improvement,
- Highlight best practices through synthesizing findings from stakeholder engagement activities, including questionnaires and interviews, to provide practical perspectives on challenges and solutions in food safety management.

The report covers:

- The evaluation of policy, legislative, and governance structures influencing food safety management.
- The identification of systemic gaps and barriers to policy implementation.
- The collection and analysis of data from key stakeholders, including fresh produce markets and other relevant sectors.
- A review of practices and strategies that enable effective food safety management.

Limitations
While this report provides a comprehensive assessment of food safety management systems in Africa (precisely in the cited countries), certain limitations should be acknowledged:

- **Data availability:** The assessment relies on secondary data from literature reviews and stakeholder inputs, which may not fully capture the most recent developments or unpublished information.
- **Geographic coverage:** while the report considers continental, regional, and national frameworks, it does not include detailed analyses of every country, focusing instead on representative case studies mostly in Ghana, Egypt, Nigeria, and South Africa.
- **Stakeholder representation:** The stakeholder engagement process, while thorough, may not have included all relevant actors in food safety management, potentially limiting the diversity of perspectives.
- **Time constraints:** The timeline for conducting interviews, reviewing policies, and analyzing data was limited, which may affect the depth of analysis in some areas.
- **Sector-specific focus:** The focus on agricultural inputs and food safety regulations narrows the scope to specific aspects of food safety, excluding broader issues such as consumer behavior and climate impacts.

These limitations do not undermine the value of the report but highlight areas for further research and continued engagement to enhance understanding of food safety management in Africa.

Food Safety Legislation and Policy

Countries like Ghana, Egypt, Nigeria, and South Africa have ratified numerous international, regional, and European Union conventions, as well as legislation and policy documents addressing food safety, health standards, food control, inspection, animal health, and international trade. At the national level, these countries have established extensive legal frameworks to tackle food safety challenges. Collectively, these ratified conventions and national regulations aim to create a robust foundation for ensuring a safe and sanitary food environment.

However, despite this comprehensive legislative framework, several limitations persist in the regulatory system. Many aspects of the framework require alignment with international standards and principles. Key gaps include the insufficient integration of risk management systems covering the entire food supply chain—from feed and water sources on farms to the adoption of good agricultural, hygiene, and manufacturing practices. Addressing these gaps is critical to enhancing the effectiveness of food safety legislation.

Role of the Private Sector and Informal Economy

The private sector has played a growing role in promoting food safety initiatives. Many private companies have successfully demonstrated that profit-making can align with the production of public goods, particularly in the area of agricultural inputs. Nevertheless, a significant portion of private sector actors operate within the informal economy.

In low-income countries, the informal sector contributes over 50% of GDP, accounts for more than 80% of employment, and generates over 90% of new jobs. As such, it significantly influences employment opportunities, productivity, tax revenues, and overall economic growth. However, food sold in informal markets often contains pathogens or harmful substances, posing serious health risks.

Health Impacts and Challenges

The lack of effective food safety monitoring, particularly for products destined for local consumption, has led to widespread health issues. This is evident in countries like Nigeria, where the death rates from food-borne diseases, including severe diarrhea and debilitating infections, are notably higher compared to South Africa and Ghana. The limited oversight of food safety, despite the presence of multiple stakeholders, remains a critical challenge.

To combat these issues, targeted interventions must focus on improving food safety standards, especially in informal markets, and ensuring better enforcement of existing legislation. Building capacity for risk management systems, enhancing stakeholder collaboration, and promoting public awareness are essential steps toward mitigating the burden of food-borne diseases in Africa.

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Glossary of terms and abbreviations used

List of Abbreviations and Acronyms	
ADC	Aglobe Development Center
AMR	Antimicrobial Resistance
AU	African Union
AUN	African Union Development Agency
AWIA	Africa Women in Agribusiness
BMGF	Bill and Melinda Gates Foundation
CAADP	Comprehensive Africa Agriculture Development Programme
CPHL	Central Public Health Laboratories
CSIR	Council for Scientific and Industrial Research
DALY	Disability-Adjusted Life Year
DWS	Department of Water & Sanitation
EAC	East African Community
ECOWAS	Economic Community of West African States
EFSA	Egyptian Food Safety Authority
EGE	Egerton University
EOS	Egyptian Organisation for Standardisation and Quality
EPA	Environmental Protection Agency
EU	European Union
FAO	Food and Agriculture Organization
FDA	Food and Drugs Authority
FENIP	National Federation of Processing and Upgrading Industries for Fishery Products
FMARD	Federal Ministry of Agriculture and Rural Development
FMITI	Federal Ministry of Industry, Trade and Investment
FMOH	Federal Ministry of Health

FPIS	Federal Product Inspection Services
FS4Africa	Food Safety for Africa
FSTS	Food Systems Transformation Solutions
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHP	Good Hygiene Practices
GMP	Good Manufacturing Practices
GSA	Ghana Standards Authority
GTA	Ghana Tourism Authority
HACCP	Hazard Analysis Critical Control Point
IITA	International Institute of Tropical Agriculture
IoT	Internet of Things
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
ITC	Innovation Technology Cluster
KALRO	Kenya Agricultural and Livestock Research Organisation
KEF	Knowledge Economy Foundation
LGA	Local Government Area
MAG	Modernizing Agriculture in Ghana
MDA	Ministries, Departments and Agencies
MMDA	Metropolitan, Municipal and District Assembly
NAFDAC	National Agency for Food and Drug Administration and Control
NEPAD	New Partnership for Africa's Development
NESREA	National Environmental Standards and Regulations Enforcement Agency
NFSCC	National Food Safety Coordination Committee
NFSA	National Food Safety Authority
NGO	Non-Governmental Organization
NIFSCC	National Intersectoral Food Safety Coordinating Committee
OIE	World Organisation for Animal Health
ONSSA	National Office for Food Safety (Morocco)
PPRSD	Plant Protection and Regulatory Services Directorate
PSI	Pre-shipment Inspection
QCAP	Central Laboratory for the Analysis of Pesticide Residues
RCFF	Regional Food and Feed Centre
SADC	Southern African Development Community
SMS	Short Message Service
SON	Standards Organization of Nigeria
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
UP	University of Pretoria
USAID	United States Agency for International Development
VSD	Veterinary Services Directorate
WHO	World Health Organization
WHOA	World Health Organization Africa
WTO	World Trade Organization
WU	Wageningen University

1 Introduction

1.1 Purpose of the Report

FS4Africa aims to strengthen food safety systems in Africa, with a particular focus on the informal sector. Within this framework, this study focuses on assessing the policy, legal, institutional and economic environment related to food safety in Africa to contribute to improved governance and greater resilience of food safety systems in Africa.
Focusing on the countries where the case studies are being implemented (Nigeria, Ghana, South Africa and Egypt), FS4Africa aims to strengthen food safety systems in Africa, with a particular focus on the informal sector. Within this framework, this study focuses on assessing the policy, legal, institutional and economic environment related to food safety in Africa to contribute to improved governance and greater resilience of food safety systems in Africa.

1.2 Context and justification

Approximately 30% of global food is lost or wasted (UNEP, 2024; FAO, 2015). This is a critical concern as the global population is expected to reach 9.6 billion by 2050 (Gustavsson et al., 2011; UNDESA, 2019). This issue is particularly severe in developing countries, where malnutrition is already widespread (WHO, 2023). Inefficiencies in food value chains and inadequate food safety practices exacerbate the problem. By addressing these inefficiencies, we could potentially provide nourishment to 870 million undernourished people worldwide (WHO, 2021).

The globalization of food supply chains has introduced increased complexity, heightening health risks such as foodborne diseases that impede socio-economic progress. Ensuring the safe production and consumption of food is vital for public health, trade, and economic stability. Achieving this requires collaboration across all stages of the food chain.

In Africa, the informal food sector (IFS) plays a pivotal role in food provision, employing 86% of the workforce in Sub-Saharan Africa and 67.3% in North Africa (ILO, 2018). However, this sector presents distinct challenges, requiring risk-based approaches to ensure food safety. The IFS encompasses all food-related activities outside formal regulatory frameworks and contributes significantly to the economy, particularly in low- and middle-income countries, where it accounts for an average of 35% of GDP (ILO, 2018; Jaffee & Henson, 2024). Key activities include street vending, small-scale production, and local markets, which also hold cultural significance even in developed regions like the EU, where informal markets such as open-air farmers' markets are regulated to meet basic safety standards.

In Africa, the IFS serves as a critical source of income and employment through informal vending, small-scale processing, and local food markets. Despite its importance, the inadequate regulation of the sector and unsafe working conditions pose significant food safety and public health risks. Many informal businesses face barriers such as limited access to resources, education, and training, making compliance with food safety requirements a persistent challenge.

Improving governance in the informal sector necessitates tailored strategies that protect consumers while addressing the needs of vendors. These strategies should include community engagement, education, capacity building, and partnerships involving governments, NGOs, schools, and informal associations. A nuanced understanding of the sector’s diversity, socioeconomic drivers, and cultural context is crucial to bridging the gap between formal regulations and the realities on the ground.

Promoting consumer awareness and fostering a robust food safety culture can complement regulatory measures, empowering people to make informed food choices. Despite its challenges, the IFS demonstrates adaptability and innovation, fulfilling the needs of many. A balanced approach is essential to harness its economic and social benefits while mitigating associated health risks, particularly in areas afflicted by poverty and hunger.

The production of safe food is vital for public health, food security, trade, and economic development. Each stage—from production to consumption—must adhere to appropriate food safety practices. Raising awareness among governments, international organizations, and civil society is essential to collectively address food safety issues in Africa.

Food safety management in Africa is complex, encompassing policies to promote safe food production, equitable resource distribution, and resilience to crises. While the formal food sector has seen improvements, a significant portion of the population, both rural and urban, relies on the informal sector for food. This sector includes numerous small-scale entrepreneurs, local processors, and street vendors, underscoring the need for a risk-based approach to food safety driven by consumer demand.

In this context, a consortium of 16 key food sector stakeholders, including the Food Safety Transformation Solutions (FSTS), has launched FS4Africa, funded by the European Union. This program aims to strengthen food security systems in Africa with a particular focus on the informal sector. FS4Africa is transforming local markets by improving food safety, enhancing regional trade, and reducing environmental, biodiversity, and health impacts. The informal sector remains a cornerstone of the African economy, contributing to 89% of employment in Sub-Saharan Africa and 67.3% in North Africa as of 2018.

As the leader of the work package on "Enabling Policy Environment and Setting a Strategic Agenda," FSTS is developing sustainable solutions for food systems. These efforts include strategic support and innovative financing. FS4Africa is aligned with the 2030 Agenda for Sustainable Development and directly contributes to Sustainable Development Goals (SDGs) 1, 2, 3, 8, 12, 13, and 17, emphasizing the critical role of food security in achieving sustainable development.

1.3 Relationship to Other Deliverables

This report, which focuses on the policy, legal, and institutional environment for food safety management in Africa (Work Package 1), closely aligns with and complements several deliverables in WP 1 and in other work packages, particularly within the Work Package 2 (WP2) deliverables. The connection is as follows:

- **Deliverable 1.2: Gap Analysis**
  This report provides foundational insights into the existing legislative, policy, and governance frameworks at the continental, regional, and national levels. Thus, it provides the framework for the gap analysis (Deliverable 1.2).
- **Deliverable 2.1: Informal sector landscape report**
  This report also directly informs Deliverable 2.1. While this report assesses the broader food safety management landscape, Deliverable 2.1 narrows its focus specifically on the informal sector, analyzing the regulatory and legislative context that affects food safety in these markets. By identifying the gaps in existing frameworks, our report contributes to the understanding of the regulatory landscape that the informal sector operates within, laying the groundwork for the more focused recommendations in Deliverable 2.1.

- **Deliverable 2.2: Informal sector improvement report**
  This report complements Deliverable 2.1 by identifying barriers and opportunities for improving food safety management across Africa. Specifically, our gap analysis highlights areas of policy and institutional weakness that could be addressed through targeted interventions, which will be further explored in Deliverable 2.2. While our report lays the groundwork by identifying regulatory gaps, Deliverable 2.2 will expand upon these findings to propose specific pathways and policy recommendations for improving food safety in the informal sector.
- **Deliverable 2.3: Food safety knowledge platform**
  Our report contributes to Deliverable 2.3 by generating actionable insights that will be critical in developing the online knowledge hub. The best practices, strategies, and policy recommendations identified in our report will serve as valuable content for the platform. By sharing evidence-based findings and case studies, our report will help to populate the platform with practical solutions and knowledge that can be accessed by professionals working on food safety in Africa, thereby supporting the dissemination of knowledge and encouraging the adoption of best practices.

2 Methodology

2.1 Scoping

The scoping phase provided a clear understanding of the expectations of the assignment. This activity was carried out in conjunction with a Steering Committee including all Work package 1 members, which monitored the purpose of the activities. This phase made it possible to update the methodology, the action plan, and the work schedule to meet the expectations of the main stakeholders and to develop the stakeholder consultation strategy.

2.2 Data collection

The data collection was carried out in three phases: a literature review, the collection of secondary data, and interviews with key stakeholders.

2.3 Literature review

It enabled us to examine documents relating to laws and regulations, public initiatives, development policies, previous studies, scientific articles, working reports, and any other document that could provide precise information on the implementation and results of food safety policies and programs. Thus, we made an overall diagnosis of the legal, political, technical and socio- economic framework for food safety in Africa and the various mechanisms used to implement food safety regulations. Technical reports produced by research institutes, central banks, ministries of finance and health, and other government agencies were also valuable sources of information.

2.4 Macro and microeconomic data collection

Macro and micro-economic data were collected from the websites of international organizations such as the Food and Agriculture Organization of the United Nations (FAO), the World Bank, and regional and national institutions. These data allowed us to understand the trends and key indicators related to the socio-economic impact of food security in Africa. This information was used to analyze food safety indicators in the formal and informal sectors of African countries to identify gaps, inconsistencies, and opportunities for improvement.

2.5 Interview guide for experts

The questions in the interview guide concerned the definition of 'Food Safety', its governance, the structures involved in its management, the challenges and prospects, the consideration of informality and the perception of consumer attention, and the assessment of the state of governance. These questions showed the convergence or divergence of opinions on the governance of food safety.

2.6 Validation of the methodology and sharing of preliminary results

The methodology was validated through meetings with the project teams responsible for WP1. Their feedback helped to improve the methodology used in this work. In addition, the FS4Africa stakeholders' reviews of the preliminary reports detailing the results obtained were incorporated before the report was finalized.

2.7 Ethical considerations

To protect the identities of participants, their names have not been disclosed, and the researchers ensured that responses cannot be traced back to any individual participant. Direct consent for participation was obtained from adults. This consent of the participants were informed, ensuring that they were aware of both the positive and negative aspects or consequences of their participation.

Ethical approval for the project was sought from the relevant Research Ethics Committee to ensure compliance with ethical standards. This application outlined the materials and methods to be used, including key informant interviews and focus groups planned as part of a stakeholder engagement dialogue. The study involved only adults, thereby negating the need for additional parental or guardian consent. In accordance with general ethical principles and regional guidelines, only individuals above the legal age of majority, as defined by local statutes, participated in data collection methods.

The ethics approval was granted following a thorough review process to confirm compliance with the requirements of the Ethics Committee. This approval is valid for the duration of the research and may be extended upon request if necessary. The approval is conditional on the research being conducted as specified in the submitted application documents. Any significant changes to the study, such as modifications to the investigative team or research methods, will require amendment and further approval from the Ethics Committee.

3 Literature Review

3.1 Understanding the Informal Food Sector

3.1.1 Definition

The International Labour Organization (ILO) defines the informal economy as “all activities by workers and economic units that are – in law or practice – not covered or insufficiently covered by formal arrangements”. As a sub-section of the broader informal economy, the informal food sector includes food enterprises that do not fully comply with laws and regulations and are typically unregistered with regulatory agencies. It encompasses activities such as food production (in urban and peri-urban regions), catering and transport, retail sale of fresh or prepared products (street food vending), and small-scale processing (OECD/ILO, 2019).

The ILO reports that about 61 percent of the world’s population is employed in the informal sector, with Africa having higher units of informality (over 80 percent) compared to 60 percent in Asia, and as low as 25 percent in Europe. While the sector predominantly employs men, emerging economies have more women represented in their informal food sector. In emerging economies, the informal food sector plays a significant role in nourishing the majority of the population. Local food traders and street food vendors provide accessible and affordable meals for low-income households (Skinner et al., 2016).

3.1.2 Characteristics of the Informal Food Sector

Some key features characterize the informal food sector. First among them is the lack of regulation and formal oversight. By its definition, the informal food sector exists outside the purview of the formal regulatory structure; hence, influences of formal regulations are limited or mostly non-existent. Businesses like street food vendors often operate without official permits, frequent inspections, or strict adherence to food safety standards (Mitullah, 2004). For instance, a study on the third-largest abattoir in Nigeria revealed highly unsanitary conditions, deteriorated facilities due to lack of inspections, and no inspection of animals before and after slaughtering (Grace et al., 2019).

Another notable characteristic of the informal food sector is the size of the businesses it encompasses. Typically, these operations are small-scale, classified as micro, small, or medium-sized enterprises (SMEs) that are usually run by individuals or families. Often labeled as “survivalists,” these businesses emerge out of necessity, particularly in response to high unemployment rates; as such, they tend to remain small due to limited capital investment (Knox et al., 2019). The low barriers to entry allow individuals to start these ventures with minimal requirements, making entrepreneurship in the sector accessible to many. Moreover, informal food businesses exhibit agility as they develop by diversifying their products rather than specializing. This adaptability enables them to respond to seasonal availability and

changing consumer preferences. While such flexibility contributes to their longevity within the marketplace, it also reinforces their smaller scale, as they prioritize survival and adaptability over expansion (FAO, 2003).

Further, the informal food sector thrives on social innovations. Due to its often proximity to rural communities, the informal food trade can provide raw materials at a lower cost (Weng, 2015). Social networks can also provide virtually free labor in the form of apprentice help or family members who are fed but receive no or little pay (Kiggundu & Pal, 2018). In addition to the innovation, the sector provides a sense of community and social identity. For instance, in Sweden, the presentation of products in informal food businesses with cultural identifiers has been found to attract more consumers as they identify with the cultural heritage of the businesses (Tellstrom et al., 2005). Similarly, Italy has seen a rise in farmers' markets, consisting of small producers who sell directly to consumers. This is facilitated by the culture of hosting entertainment and cultural activities in these market spaces (Butera, 2018).

3.1.3 Food Safety Risks within the Informal Food Sector

Despite the role of the informal food sector in the world economy, the lack of regulatory oversight in the sector results in the dire consequences of food safety risks and concerns. Prominent among these risks are the poor hygiene and sanitation practices with actors in the supply chain. A study on street food vendors in the City of Durban, South Africa, reported some highly unhygienic practices among vendors (Kok, 2014). The authors noted the unsanitary nature of water used to wash cooking utensils repeatedly due to the scarcity of water in the area. A comparable study in Sierra Leone revealed the passive nature of food vendors regarding proper hygiene practices such as covering food, maintaining a clean food handling environment, and proper waste disposal (Kanu & Turay, 2024). The researchers observed vendors cooking beside gutters with heaped-up dirt and selling unhygienic and substandard food (Kanu & Turay, 2024). Other studies have shown that about 76% and 72% of food vendors in Nigeria and Ethiopia, respectively, have poor food hygiene practices (Emmauel et al., 2015; Abdi et al., 2020).

The inadequacy of infrastructure in the sector poses a risk to food safety. Many informal food businesses operate in environments with deficient infrastructure and poor environmental conditions. While agility and the ability to adapt to changing conditions were earlier discussed as characteristics of the sector, they sometimes translate to businesses operating without the proper infrastructure needed to ensure food safety. For instance, many informal food businesses lack refrigeration and cold storage, specifically relating to street food vending. This absence of proper temperature control often leads to the rapid growth of bacteria and spoilage,

particularly in perishable food items like dairy products and meats (Robinson & Yoshida, 2016).

As a result of poor hygiene and sanitation practices and inadequate infrastructure, foodborne diseases are a major threat to public health. Foodborne diseases (FDB) are defined as "illnesses caused by food that is unsafe because it is contaminated or naturally contains hazards" (Grace et al., 2019). The World Health Organization's *Global Burden of Foodborne Diseases Report* states that unsafe food causes 600 million cases of foodborne diseases each year, or almost 1 in 10 people in the world fall ill from consuming contaminated food, out of which 420,000 people die (WHO, 2015). Foodborne diarrheal diseases contribute to more than half of the global burden of foodborne diseases. Diarrhea is often caused by eating raw or undercooked meat, eggs, fresh produce, and dairy products contaminated by norovirus, Campylobacter, non-typhoidal Salmonella, and pathogenic *E. coli* (WHO, 2015). Foodborne diseases are not only a threat to public health and safety alone. They also pose dire consequences on economies. Between $14 billion and $77 billion are lost in the United States due to foodborne diseases (Hoffmann & Anekwe, 2013). In sub-Saharan Africa, it is estimated that foodborne illnesses from unsafe food cost low and middle-income economies about $110 billion in lost productivity (World Bank Group, 2018).

Given the risks posed within the informal sector, governments and policymakers across the globe must strengthen policies affecting the sector to reduce the burden of these risks, if not eradicate them.

3.2 Exploratory overview of food safety management

Food safety management has shifted from reactive to proactive, risk-based frameworks aimed at preventing foodborne illnesses (Ahmad et al., 2023). This transition is essential for maintaining consumer confidence and protecting public health, as noted by the World Health Organisation (WHO, 2020). Global bodies like WHO, FAO, Codex Alimentarius Commission, and WTO play vital roles by setting international standards, sharing information, and addressing trade-related food safety issues, despite disparities in enforcement across nations (FAO/WHO, 2019; Baldwin et al., 2012). Emerging challenges like climate change and new technologies underscore the need for adaptive regulatory frameworks (Mkhwanazi et al., 2024a).

Regional policies, such as the Southern African Development Community's (SADC) Maximum Pesticide Residue Standards, support cross-border trade and harmonised regulations (SADC, 2020). In South Africa, national policies like the Organic Production Policy and the Fertilisers, Farm Feeds, Seeds, and Remedies Act regulate agricultural inputs and promote sustainable

practices (Greenberg & Drimie, 2021). The informal sector, particularly street trade, is significant to the economy but faces challenges like uneven policy enforcement and harsh regulations, which undermine its potential (Skinner & Haysom, 2016; Mills, 2014). A balanced approach is needed to safeguard public health while addressing the needs of informal workers.

This study explores the legislative, institutional, and policy frameworks governing Africa's food industry and informal sector. It examines the role of various actors (governments, non-profits, and food sellers) in shaping food safety, alongside socio-economic and cultural drivers. Specific objectives include analyzing food safety systems from international to national levels, assessing agricultural input policies, and identifying factors affecting policy implementation, such as governance, funding, and capacity building. The review aims to provide insights into improving policy effectiveness for sustainable agriculture, food safety, and economic growth.

Building on global trends in food safety management, Egypt, like South Africa, has moved towards more proactive, risk-based frameworks designed to prevent foodborne illnesses. This shift is essential for ensuring public health and maintaining consumer confidence in food systems. As highlighted by international organizations such as the WHO, FAO, and Codex Alimentarius Commission, Egypt is engaged in efforts to align its food safety standards with global practices while addressing local challenges. These organizations play a key role in establishing international guidelines, promoting information exchange, and addressing trade-related food safety issues, though enforcement remains inconsistent across countries (FAO/WHO, 2019). The growing need for adaptive regulatory frameworks is emphasized by the impact of climate change and technological advancements, like challenges seen in South Africa (Mkhwanazi et al., 2024a).

At the regional level, Egypt benefits from frameworks such as those set by the Arab Organization for Agricultural Development (AOAD), and codex which support the harmonization of food safety technical regulations across member states. Nationally, Egypt’s food safety is governed by the National Food Safety Authority (ENFSA) and laws such as the 2017 and about fifty decrees from the Authority to regulate Food Safety for the Food establishments. In Addition, Egypt regulated the organic agriculture through a joint decree No 12 between Ministry of Agriculture and NFSA in 2020 like the role of South Africa’s National Policy on Organic Production and other agricultural acts. These regulations are vital for promoting sustainable farming practices while ensuring food safety

The informal sector in Egypt, particularly street vendors and small-scale food producers mirrors the challenges seen in South Africa's unregulated sectors.

Ghana has made strides in improving food safety through national initiatives such as the establishment of the Food and Drugs Authority (FDA) by the Public Health Act, 2012 (ACT 851 to provide and enforce food safety standards and other requirements. Both the formal and informal sectors are overseen by various regulatory agencies and competent authorities including the FDA, Plant Protection and Regulatory Services Directorate (PPSRD), which oversees agricultural inputs and agro-produce, Ghana Standards Authority, Veterinary Services Directorate, Fisheries Commission, Environmental Protection Agency and the Public Health and Environmental Health Departments of the Metropolitan, Municipal and District Assemblies (MMDAs), which play a significant role in the regulation of the informal food sector. These regulatory institutions operate with various laws such as the Public Health Act, 2012 (ACT 851), Ghana Standard Authority Act, 2022 (Act 1078), Environmental Protection Agency Act, 1994 (ACT490), the Fisheries Act, 2002 (ACT625), Local Government Act, 2016 (Act 936), Meat Inspection Regulation 2020 (LI 2405), and Technical Regulation, 2020 (L.I. 2428) for aflatoxin control in maize and groundnuts. Furthermore, Ghana recently developed the Food Safety Guidelines for MMDAs, which is expected to be mainstreamed in their operations and by-laws. However, Ghana faces challenges with enforcement, especially in informal food markets where street vendors and small-scale farmers operate outside of formal regulations. Like South Africa, there is a need for more effective integration of the informal sector into formal food safety frameworks to ensure both public health and economic vitality.

Nigeria is also tackling food safety through the National Agency for Food and Drug Administration and Control (NAFDAC) and the Federal Ministry of Agriculture and Rural Development (FMARD), which regulate food safety and agricultural practices. Despite these efforts, Nigeria struggles with inadequate enforcement and widespread non-compliance in informal markets. The informal sector, particularly in urban areas, plays a crucial role in the economy, yet regulatory gaps and inconsistent enforcement often undermine food safety initiatives. As in South Africa, Nigeria faces the dual challenge of ensuring food safety while supporting the livelihoods of informal traders who often lack access to formal regulatory systems.

Kenya, like its African counterparts, is making progress in establishing food safety regulations through the Kenya Bureau of Standards (KEBS) and the Kenya Plant Health Inspectorate Service (KEPHIS). However, Kenya also grapples with enforcement challenges, especially in informal food markets where street food vendors and smallholder farmers operate with minimal regulation. The informal sector is vital to Kenya’s economy, yet it remains largely unregulated, with food safety risks that threaten public health. The country faces similar issues as South Africa, Ghana, and Nigeria, where unclear governance frameworks, market

fragmentation, and inadequate enforcement tools hamper the full potential of food safety regulations.

At the regional level, all four countries—South Africa, Ghana, Nigeria, and Kenya—benefit from frameworks like the African Union's Comprehensive Africa Agriculture Development Programme (CAADP), Sanitary and Phytosanitary (SPS) Policy Framework for Africa and Food Safety Strategy for Africa, which promote food safety, sustainable agriculture, and agricultural productivity. These frameworks aim to harmonize policies and enhance cross-border trade, fostering regional integration for food safety across Africa.

This study expands on the examination of food safety governance by exploring the legislative, institutional, and policy frameworks in Ghana, Nigeria, and Kenya. It investigated the roles of various actors, including government bodies, non-profits, informal sector associations, and food vendors, in shaping food safety outcomes. The research also analyzed the socio-economic and cultural drivers behind food safety practices in the informal sectors of these countries and identified strategies for improving governance. Key objectives include evaluating the development of food safety management systems, assessing the impact of agricultural input policies, and identifying the barriers and facilitators to effective policy implementation. The goal is to offer insights into improving food safety governance, promoting sustainable agriculture, and supporting economic development in Egypt, South Africa, Ghana, Nigeria, and Kenya while contributing to broader African food safety goals.

4 Assessment of the Political and Legal Framework For Food Safety

The effectiveness of food and feed controls depends on the quality and completeness of feed and food safety legislation. Legislation must provide for controls at all stages of production, manufacture, importation, processing, storage, transport, distribution and trade. This sections takes a dive into assessing the political and legal framework supporting food safety across different stages of the food value chain.

4.1 Overview of International instruments and organizations

International instruments play a central role in food safety issues at global, continental and regional levels. States ratify or freely accede to the instruments and their optional protocols. When a State becomes a party to an instrument or protocol, it makes a legal commitment to apply its provisions and to submit periodic reports to a 'treaty body'. Table 1 presents relevant international agreements and instruments used across the selected countries. Further analysis indicates that protecting consumers worldwide requires that competent authorities responsible for animal health, food safety and public health collaborate at global, regional and national levels, in accordance with the “One Health” approach.

Table 1: International agreement and instruments and contributing organization

International agreements and instruments
• **The Sustainable Development Goals (SDGs)** Food safety is essential to achieve several of the Sustainable Development Goals. Safe food contributes to economic prosperity and boosts agriculture, market access, tourism, and sustainable development. **Goal 2:** There is no food security without food safety. Eradicating hunger means that everyone has access to sufficient quantities of safe and nutritious food all year round**.** **Goal 3:** Food safety has a direct impact on people's health and nutritional intake. Foodborne diseases are preventable**.** Goal 12 strengthen their regulatory, scientific, and technological capacities to ensure that food is safe and that quality meets expectations throughout the food chain and move towards more sustainable production and consumption patterns**.** **Goal 17**: A globalized world, where food exports currently represent more than US$1.6 trillion per year and are structured around complex food systems, requires international cooperation across all sectors to ensure that food is safe. Food safety is a shared responsibility of governments, food industries, producers, and consumers.
• **WTO Agreement on Sanitary and Phytosanitary Measures** **Sanitary (human and animal health)** and phytosanitary (plant protection) measures apply to food products of national origin or to local animal and plant diseases, as well as to products from other countries.
• **The International Plant Protection Convention (IPPC)** The International Plant Protection Convention (IPPC) is an intergovernmental treaty that aims to protect plants, agricultural products and natural resources worldwide from pests**.**
• **Codex Alimentarius Commission Guidelines for the Design of Street Food Control Measures in Africa** The Guidelines contain provisions that States should consider when developing street food control measures in the African region, including Codes of Practice. Their objective is to assist authorities in improving street food vending operations to ensure that people have access to safe, wholesome and nutritious food in accessible locations.

- **African Union (AU) Model Law on Food and Nutrition Security in Africa**

This model law governs issues relating to food security and nutrition, including the availability, accessibility, stability and utilization of food and the realization of the right to adequate food. .

- **Regional guidelines for the regulation of food safety (Southern African Development Community (SADC), East African Community (EAC), Economic Community of West African States (ECOWAS) member states)**

These guidelines list the obligations of national governments as described in the International Code of Conduct on the Distribution and Use of Pesticides (FAO, 2003).

International organizations

- **World Health Organizatin (WHO)**

WHO aims to strengthen global and national capacity to prevent, detect and respond to public health threats associated with unsafe food.

- **Food and Agriculture Organization of the United Nations (FAO)**

FAO is the only international organization that oversees all aspects of the food supply chain, providing a unique, 360° view of food safety.

- **World Organisation for Animal Health (OIE)**

It is considered by the World Trade Organization as the authoritative body on animal health and zoonotic diseases (i.e. diseases transmissible from animals to humans).

WHO works closely with FAO.

- **WHOA and Codex**

WHOA is responsible for developing standards in the areas of animal health and veterinary public health, including the safety of food of animal origin during the production phase, in order to manage the risks that arise from the breeding stage to primary processing.

Codex develops standards covering the stages from first primary processing to consumption.

WHOA and Codex Alimentarius are recognized as international standard-setting organizations of reference under the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) of the World Trade Organization (WTO).

4.2 Overview of the national legal framework relating to food safety

The efficient and effective management of food safety requires the establishment of legislative, regulatory and institutional frameworks. Thus, the legislation relating to food safety should provide a solid basis for national food control and inspection systems, which should imperatively meet current requirements. This involves reviewing the legislative, regulatory texts and policies relating to food safety in South Africa, Ghana, Nigeria, and Egypt, as elaborated in Tables 2-5.

4.2.1 The national legal framework for food safety in South Africa

The regulatory and legislative framework and the control system have a number of strengths which contribute to the effective management of food safety. They aim to establish the general principles, organizational arrangements and procedures for ensuring plant, animal and food safety. However, certain aspects are the responsibility of national government departments (DOH, DAFF, DTI, NRCS and SABS). Several non-governmental stakeholders and key players are also involved. At international level, they include FAO, WHO, OIE, Codex Alimentarius and ISO. At national level, they include the South African National Accreditation Service (SABS), ISO and private sector standards used by animal- based food producers and processors. At the local level, there is provincial and municipal legislation enforced to implement national guidelines, in addition to private standards used by supermarkets, butchers, dairies and other retailers of animal products.

As a result, the delineation of responsibilities is not always understood, as they overlap or are applied in contradictory ways.

- South Africa's food safety regulations must meet Codex minimum standards. If they are stricter than these standards without valid scientific justification, they could expose the country to litigation. In some areas, inadequate controls and lax or non-existent regulations can lead to the dumping of unhealthy foods on the market and make the implementation of equivalence difficult. If these requirements are not met, the country risks losing potential export markets worth considerable sums of money.
- All those involved in food control must therefore have the necessary resources, human and otherwise, to operate with maximum efficiency, to define policies and to draft and administer regulations in accordance with international standards and rules.

A list of the legal, regulatory, and institutional framework for food safety in South Africa has been summarized in Table 2.

Table 2: The national legal framework for food safety in South Africa

SOUTH AFRICA	
LEGAL AND REGULATORY FRAMEWORK	
FRAMEWORK	DESCRIPTION
Law n° 54 of 1972 on food products, cosmetics and disinfectants	This act regulates the production, marketing and import of all foodstuffs from the point of view of public health and safety.
Law n° 63 of 1977 on Health	It regulates aspects relating to the hygiene of buildings in contact with foodstuffs (including milking sheds) and their transport.
Law n° 28 of 1974 on international health regulations	It also specifies the hygienic conditions that must be met when handling food.
Law n° 28 of 1974 on international health regulations	It aims to control and promote the safety of agricultural products and to develop quality assurance standards (particularly for meat, dairy products, cereals, certain canned goods, fruit and vegetables) for domestic and export markets.
Law n° 101 of 1965 on drugs and related substances	This law regulates, among other things, the approval of veterinary drugs, as well as foods and dietary supplements that affect health or make health claims.
Law n° 36 of 1947 fertilizers, animal feeds and products used to improve agriculture and livestock farming	This act governs everything to do with animals and animal products, including meat, milk, eggs and products made from them, from an animal health perspective.
Law n° 35 of 1984 on animal diseases	This act governs all aspects relating to animals and animal products, including meat, milk, eggs and products derived from them, from an animal health perspective.

Law n° 36 of 1983 on crop pests	Under this law, any South African citizen may import plants and plant products, provided that such imports do not pose a risk to the agro-industry, forestry or the environment
INSTITUTIONAL FRAMEWORK	
FRAMEWORK	DESCRIPTION
National Codex Committee	Responsible for studying international food standards and developing national standards in accordance with the general principles of the Codex Alimentarius and national realities.
Ministry of Health	The Ministry of Health is responsible for issuing permits for food supplied for consumption in ports and airports, as well as on ships and aircraft.
South African Bureau of Standards (StanSA)	The South African Bureau of Standards is committed to providing standardization services that enhance South African competitiveness through product knowledge and development. and standardization services in South Africa and internationally.
The Animal Health Department of the Ministry of Agriculture	Responsible for the application of legislation relating to standardization in South Africa.
The Food Safety and Quality Assurance Department	Administers the legislation and the Agricultural Food Inspection and Quarantine Services of the enforcer, Department of Agriculture.
Department of Phytosanitary Services	This department is responsible for regulating imports and monitoring factors that may have a negative impact on agro-industry and industry.
Genetic Resources Management Department	This department is in charge of the development of genetic resources.
EUREPGAP (Global Partnership for Safe and Sustainable Agriculture)	Established to monitor food safety aspects at the production level. Organic certification bodies.

4.2.2 The national legal framework for food safety in Ghana

Ghana has several pieces of legislation governing food safety, including Public Health Act 2012 (Act 815), Ghana Standards Authority (GSA) Act 2022 (Act 1078), Plants and Fertilizer Act, 2010 (Act 803), Disease of Animals Act, 1961 (Act 83), Fisheries Act, 2002 (Act 625), Environmental Protection Agency Act, 1994 (ACT490), Local Governance Act, 2016 (Act 936), Biosafety Act, 2011(Act 831), Nuclear Regulatory Authority Act, 2015 (Act 895).
However, analysis of the situation shows that the role of institutions along the food value chain, including production, harvesting, post-harvest storage, processing, distribution, marketing and food service, is not clearly identified.
To address this challenge, the National Food Safety Policy was adopted in 2021. Chapter 5 of the Policy sets out the roles of various institutions including the Judiciary, Parliament, Ministries, Agencies and Departments and the private sector in the implementation of the policy. This has been done to avoid conflicts and duplication of roles. Section 5.4.19 sets out the roles the private sector will play such as building the capacity of their members and contributing to the foodborne disease surveillance system by providing appropriate information.
To strengthen coordination among sectors, the Intersectoral Food Safety Coordinating Committee (NIFSCC) has been established and the Food Safety Technical Working Group of the Committee has been formed to oversee the implementation of the strategic plan of the policy and to develop harmonized guidelines and other operational documents. Already, the Food Safety Technical Working Group, comprising all the regulators and competent authorities, has developed harmonized import and export procedures for implementation. Currently, the Food Safety Technical Working Group of the NIFSCC is assessing competent authorities' institutional mandates in order to streamline them and eliminate duplication of efforts and ensure clear distinctions in mandates.
Another important policy is the National Policy for Aflatoxin Control in Feed and Feed with the vision to improve harmonisation and coordination of activities among all stakeholders for effective management and control of aflatoxins in food and feed. This policy comes along with the Plants and Fertiliser (Aflatoxin Control in Maize Grain) Technical Regulations, 2020 (LI 2428).
Ghana recently developed the Food Safety Guidelines for MMDAs specifically to guide regulatory activities in the informal food sector (MLGDRD, 2022). The guidelines, that has received progressive implementation efforts from the Ministry of Local Government, Decentralization, and Rural Development (MLGDRD), are expected to be mainstream food safety issues in the operations and by-laws of MMDAs (Dittoh & Kandawini, 2023). The Ministry of Health, in collaboration with relevant ministries, departments, agencies and other partners, is working to establish a food safety framework for Ghana, with the ultimate goal of establishing and maintaining an integrated food safety system from farm to fork that ensures consumer health and public safety.

In Ghana's legal landscape, food protection requires a strong regulatory body, and the Food and Drugs Authority ("FDA") certainly plays that role. The key provisions of Part Seven of the Public Health Act 2012 (Act 851) illustrate how Ghanaian law currently ensures food safety: Click on the link for more information: Read more

- FDA registration is required to manufacture, import, export, distribute, sell, deliver, or hold for sale any food.
- It is unlawful to sell or serve food that is unwholesome or unfit for human or animal consumption, and to sell, prepare, pack, transport, store, or hold for sale food to the public under unsanitary condition

Table 3: The National Policy and legal framework for food safety in Ghana

GHANA	
LEGAL AND REGULATORY FRAMEWORK	
FRAMEWORK	DESCRIPTION
Constitution of Ghana 1992	By virtue of the Guiding Principles of State Policy, the State is required by Article 36 (10) to safeguard the health, safety and welfare of all persons
Public Health Act 2012 (Act 815)	The FDA formerly, the Food and Drugs Board was established in 1987 by the Food and Drugs Law 1992 (PNDCL 305B). This law has been integrated in Part Seven of the Public Health Act 2012 for the provision and enforcement of food safety standards and other requirements. Part 5 of the Public Health Act mandates the Public Health and Environmental Health Department of the MMDAs to ensure compliance with food safety and hygiene requirements at the informal sector
Standards decree of 1973 (NRCD 173)	This decree established Ghana Standards Authority (GSA)
Ghana Standards Authority (GSA) Act 2022 (Act 1078)	This Act gives the GSA more power to enforce standards and prosecute companies that do not adhere to them
Plants and Fertilizer Act, 2010 (Act 803)	This Act established the Plant Protection and Regulatory Services Directorate (PPRSD) responsible for crop pest and disease management, plant quarantine, Pesticide and fertilizer regulation, seed inspection and certification

Animals (Control of Importation) Act, 1952 No. 36 and the Disease of Animals Act, 1961 (Act 83)	These Acts mandate the Veterinary Services Directorate of MOFA to be responsible for the prevention and control of the spread of infectious and contagious diseases among animals, conduct autopsy on dead animals
Meat Inspection Regulation 2020 (LI 2405)	This LI is a set of regulations that aim to ensure meat and meat products are processed and slaughtered under sanitary conditions. It is implemented by the VSD.
Fisheries Act, 2002 (Act 625)	This Act established the Fisheries Commission under the Ministry of Fisheries and Aquaculture Development (MoFAD)
Fisheries Regulations, 2010 (L.1. 1968)	These are a set of regulations that prescribe measures for the conservation, management, development, licensing and regulation of fisheries. It is implemented by the Fisheries Commission.
Environmental Protection Agency Act, 1994 (ACT490)	This Act established the Environmental Protection Agency to among others control and monitor the use and management of pesticides and hazardous chemicals in food production and related activities.
Local Governance Act, 2016 (Act 936)	This Act governs the operations of the MMDAs. Among others, the Act prohibits the sale or serving of unwholesome food, sale of food under insanitary conditions, and food unfit for consumption.
Tourism Act, 2011 (Act 817)	This Act established the Ghana Tourism Authority as the main institution responsible for the promotion of sustainable development of the tourism sector. GTA regulates food and beverage enterprises through the Registration and Licensing of Food, Beverage and Entertainment Enterprise Regulations, 2016 (LI 2238)
Import and Export, Food Establishment, Food Labeling and Seaweed Certification Regulations	These regulations set the requirements for the importation of domestic food and drugs. These products must be labeled with information such as type of product, country of origin, ingredients or components, net weight, instructions for use, and expiration date in the case of perishable foods.

1992 General Labelling Standards (n°1541, 1992)	These standards apply to the labeling of all pre-packaged foods or offered as such to the consumer or intended for mass catering, and to certain aspects of their presentation.
Ghana Council Standards on Guidelines for Means of Certification	They set standards for product and system certification, factory inspection, shipping inspection and fish inspection. These are the rules for certification for import and export.
Poisonous Diseases and Plants Act 307, 1965 (L.I. No. 1541, 1992)	Regulates the import and use of agricultural inputs such as seeds, pesticides and fertilizers, and also deals with SPS issues.
Law No. 528, 1997 on Pesticides	This law regulates the control and approval of pesticides
INSTITUTIONAL FRAMEWORK	
FRAMEWORK	DESCRIPTION
The Ministry of Health	The Public Health Act mandates the FDA, which is an agency of the Ministry of Health, to enforce and ensure compliance with provisions on food safety in collaboration with MMDAs and other agencies
Plant Protection and Regulation Directorate (PPRSD) of the Ministry of Food and Agriculture	Plants and Fertilizer Act, 2010 (Act 803) establishes PPRSD) of MOFA and it controls and regulates the import and use of agricultural inputs such as seeds, pesticides and fertilizers, and also deals with issues related to sanitary and phytosanitary measures.
Ghana Standards Authority (GSA)	It is an agency under the Ministry of Trade and Industry mandated to develop, publish and promote standards for food commodities and other products and processes. It does this through standardization, metrology and conformity assessment activities and provides testing, inspection and certification services.

Plant Protection and Regulatory Services Directorate (PPRSD)	PPRSD is a Directorate under the Ministry of Food and Agriculture (MOFA). It is, among others, responsible for safe use of pesticides at production level and for issuing import permits and phytosanitary certificates for exports of plant and plant products.
Veterinary Services Directorate (VSD)	The VSD is a Directorate of the Ministry of Food and Agriculture responsible for meat hygiene control, inspection, animal health (ante mortem and postmortem) and abattoir management. VSD is also responsible for issuing animal health certificate for export and import, regulating movement of animals and animal products during outbreaks, residue monitoring in animal food products, and conducting surveillance in animal and animal food products for local products, imports and exports
Fisheries Commission	The commission is under the Ministry of Fisheries and Aquaculture Development (MoFAD). It is responsible for issuing permits for exports and importation of fish and fishery products and providing technical support for aquaculture and fishery establishments, fish stocks, fish parasites and disease management
Metropolitan, Municipal and District Assemblies (MMDAs)	The MMDAs are under the Ministry of Local Government, Decentralisation and Rural Development. The MMDAs are guided by the Local Government Act, 2016 (Act 936) as well as District Assemblies Bye Laws on food handling including Health screening for all food, meat, water and drink handlers to ascertain their fitness status in respect of communicable diseases such as typhoid fever, hepatitis A, and cholera.
Ghana Tourism Authority (GTA)	GTA is an Agency under the Ministry of Tourism and is responsible for regulating formal or informal food and beverage enterprises including restaurants, traditional eateries, fast food joints and snack bars. GTA licenses and grades fast foods establishment using the Ghana Standard, GS 965-1 that sets the grading criteria.

4.2.3 The national legal framework for food safety in Nigeria

The food safety mandate in Nigeria is spread across 13 Ministries, Departments and Agencies (MDAs). The policy also articulates the roles of State ministries and Local Government Areas (LGAs), which are the lowest levels of government. States and Local government agencies are expected to reach the majority of the country's population, especially those living in the rural areas. The effective implementation of the legal and institutional framework depends on the competence of the responsible structures at each level. At the federal level, more than a dozen ministries, departments and agencies oversee food safety policy. Laws conferring powers on managing authorities often use imprecise terms, leading to overlapping responsibilities. In addition to confusion about roles and responsibilities, the acts and policies are old, which justifies the importance of revising them in line with innovations and best practices. Regulatory efforts should focus on revising outdated policies and clarifying roles and responsibilities among more than a dozen ministries, departments and agencies at the federal level.

Table 4: The national legal framework for food safety in Nigeria

NIGERIA	
LEGAL AND REGULATORY FRAMEWORK	
FRAMEWORK	DESCRIPTION
National Health Act	Provides a framework for the regulation, development and administration of a national health system and sets standards for the provision of health services in the Federation and other related matters.
Animal Disease Control Act	An animal disease control and prevention act aimed at preventing the introduction and spread of infectious and contagious diseases among animals, hatcheries and poultry in Nigeria.
The Milk Substitutes Marketing Act	This Act seeks to promote optimum protection of infants and young children in matters relating to food safety.
Pesticide Registration Regulations 2021	The Regulations provide requirements for the labeling (including instructions for use) of pesticides.
The Food, Drugs and Related Products (Registration, etc.) Act	The Act regulates the manufacture, import, export, advertising, sale or distribution of processed food, drugs and related products and their registration.
INSTITUTIONAL FRAMEWORK	
FRAMEWORK	DESCRIPTION

Federal Ministry of Health (FMOH)	Responsible for formulating national policies, guidelines and regulations on food safety, including monitoring and evaluation.
Federal Ministry of Agriculture and Rural Development (FMARD)	Responsible for formulating policies relating to primary agricultural production and practices, covering crops, animals, pests and diseases.
Federal Ministry of Industry, Trade and Investment (FMITI)	Responsible for formulation of policies, programmes and strategies for efficient, competitive private sector-led industrialization and promotion of trade and investment.
Standards Organization of Nigeria (SON)	Sets the country's standards and codes of hygiene practice for food and food products under the Federal Ministry of Industry, Trade and Investment.
Federal Product Inspection Services (FPIS)	Part of the Federal Ministry of Industry, Trade and Investment.
Federal Ministry of Environment (FME)	Controls food contaminants in the environment.
National Environmental Standards and Regulations Enforcement Agency (NESREA)	Responsible for environmental protection and development.
Federal Ministry of Science and Technology (FMST)	Supports scientific research and development of food safety policies and programs, develops innovative technologies for food processing and handling.
State and Local Government Authorities (LGA)	Responsible for street food, traditional restaurants and markets, sanitation, prevention and monitoring of food handling environments and people, and public water quality.
National Agency for Food and Drug Administration and Control (NAFDAC)	Develops guidelines and regulations on food hygiene, food safety and nutritional value, as well as production of dairy, seafood, water and beverages.

4.2.4 The national legal framework for food safety in Egypt

The role of the Ministry of Health and Population and its agencies in the national food control system is crucial. Food safety laws and regulations are enforced by several ministries: Ministry of Health and Population (MOPH); Ministry of Agriculture (MALR); Ministry of Trade and Industry (MTI); and Ministry of Supply and Internal Trade. The Ministry of Health and Population (MOHP) is responsible for the implementation of Basic Laws 281/94 and 10/1966. In addition, several ministerial decrees have been issued by the Ministry of Health and Population, particularly around food additives. Currently, the issue of food safety has attracted a great deal of interest from the public and has become one of the top priorities for decision-makers in the Egyptian government. The adoption of the Food Safety Law, which followed the adoption of Law N1/2017 establishing the National Food Safety Authority (NFSA) by the Egyptian Parliament, was an important step. It is important that once this authority is in place, the food safety system, the capacity of analytical laboratories and risk analysis based on food inspection are modernised, strengthened and maintained. The NFSA's responsibility for food is defined based on the definition of food outlined in Law 1, which aligns with the Codex Alimentarius definition. According to this definition, food encompasses any product or substance intended for human consumption, whether primary, raw, semi-processed, wholly or partially processed, or unprocessed, including beverages, bottled water, food additives, and any other substances such as water and gum. Excluded from this definition are: Fodder, Plants and crops before harvest, Live animals and birds prior to entry into slaughterhouses, Sea creatures and farmed fish prior to fishing, Pharmaceutical products and cosmetics, Tobacco and its products and Drugs, narcotics, and psychotropic substances. The responsibility of the NFSA extends to all food businesses within the definition stated and covers the following business scope: "any establishment performing activities related to any stage of processing, production, manufacture, storage, preservation, packaging, wrapping, labeling, importation, exportation, transport, delivery, offering, or displaying a product for sale to the final consumer or to another business." The scope of the definition includes fixed, temporary, or mobile establishments, applies to entities regardless of their target (profit or non-profit), covers both public and private establishments, applies to permanent or temporary operations, explicitly includes ruminant and poultry slaughterhouses. This definition also encompasses:

- Fixed, temporary, or mobile establishments.
- Establishments operating for profit or non-profit purposes.
- Public or private entities, whether permanent or temporary.
- Ruminant and poultry slaughterhouses.

Whiles the NFSA is primarily responsible for the enforcement of national food legislation, they can delegate authority to the Department of Food Safety and Control under the Ministry of Health and Population to ensure adequate coverage, in case where facilities are not established in a specific location, it can. This collaborative administration ensures effective supervision, control, and timely follow-up actions.

Challenges in Implementation: Despite progress, challenges remain in the implementation of these regulations, including: (i) *Responsibility overlaps*: Egypt successfully resolved overlaps in responsibilities by designating the Ministry of Agriculture for pre-harvest food safety and the NFSA for post-harvest food safety. (ii) *Conflicts in Authority*: Law No. 92 of 2018 complicates the system by assigning responsibilities to non-specialized entities such as the New Urban Communities Authority (under the Ministry of Housing) and local governments. These entities lack the technical expertise required for effective food safety regulation, hindering the achievement of desired outcomes.

Table 5: The national legal framework for food safety in Egypt

EGYPT	
LEGAL AND REGULATORY FRAMEWORK	
FRAMEWORK	**DESCRIPTION**
Constitution of the Arab Republic of Egypt – Article 79	Guarantees citizens' right to safe food and water; commits state to food sovereignty and agricultural biodiversity. The article 79 states: Every citizen has the right to safe and adequate food and drinking water. The State is committed to ensuring food resources for all citizens, guaranteeing food sovereignty in a sustainable manner, preserving agricultural biodiversity and local flora in order to safeguard the rights of future generations
Law No. 1 of 2017	Establishes National Food Safety Authority (NFSA) as primary food control body; mandated to assume all functions of food control and regulation previously assigned to ministries, public organizations, governmental authorities, and local administration units as stipulated in relevant food safety laws, regulations, and decrees. Additionally, the NFSA is authorized to propose amendments to these laws and is vested with the competencies outlined in the attached legislation. As the regulating and controlling authority, the NFSA has issued several mandatory technical regulations to establish Maximum Residue Levels (MRLs) for key food contaminants, as follows: 1. Decree No. 4 of 2020: Approved MRLs for food additives. 2. Decree No. 13 of 2020: Limits for veterinary drug residues in food. 3. Decree No. 1 of 2021: Limits for microbiological criteria in food. 4. Decree No. 6 of 2021: Permitted levels of pesticide residues in food. 5. Decree No. 6 of 2022: Maximum allowable levels of chemical contaminants in food. 6. Decree No. 18 of 2022: Rules for food-contact materials and tools. 7. Decree No. 19 of 2022: Maximum limits for trans fatty acids in food. Laboratory Responsibilities: ► Microbiological Analysis: Conducted by the CPHL to detect food contamination with pathogenic organisms. ► Chemical Analysis: Performed by the CPHL to assess the organoleptic, chemical, and physical quality of food. ► Toxicological Analysis: Managed by the CPHL's toxicological laboratories to

	quantitatively detect pesticide residues in food. ► Pesticide and Veterinary Drug Résiduels: Tested by the Central Laboratory of Residue Analysis of Pesticides and Heavy Metals in Food (QCAP) under the Ministry of Agriculture.
Ministerial Decree No. 1018 of 2013 on the Registration, Handling and Use of Pesticides	This decree provides information on the registration, trade and use of pesticides in Egypt and is composed of 46 articles. It defines the roles and powers of the Pesticides Committee, which are to review applications for pesticide registration and certify those that are suitable.
Agriculture Act No. 53 of 1966 (as amended by Act No. 116 of 1983)	The Agriculture Act deals with the registration of agricultural plant varieties as decided by the Minister. A Committee for the Registration of Agricultural Plant Varieties is established, which, among other things, examines applications for the registration of new plant varieties, selects their names and cancels registrations.
Regulatory Establishments No. 2 of 2019	Establishes the technical requirements for mobile food units ► Decree No. 11 of 2020: Rules for applying food safety requirements in food establishments. ► Decree No. 12 of 2020: Control system for tourist establishments. ► Decree No. 7 of 2021: Amendment to Decree No. 12 of 2020 on licensing food handling in tourist and hotel establishments. ► Decree No. 4 of 2022: Regulation for storage establishments to obtain food handling licenses. ► Decree No. 10 of 2022: Amendment to Decree No. 4 of 2022 regarding storage establishments' food handling licenses. ► Decree No. 16 of 2022: Requirements for food traceability.
Standards Related to Food Product Types (7 Decrees)	► Decree No. 1 of 2018: Rules for regulating, registering, and handling foods with special nutritional uses.Decree No. 1 of 2019: Mandatory rules for table salt and its handling regulation. ► Decree No. 4 of 2019: Technical rules for laboratory testing of fish consignments. ► Decree No. 2 of 2021: Amendment to Decree No. 1 of 2019 on mandatory rules for table salt. ► Decree No. 13 of 2021: Appendices for Decree No. 1 of 2018 on regulating foods with special nutritional uses. ► Decree No. 1 of 2022: Technical requirements for exporting fish to the EU. ► Decree No. 17 of 2022: Rules for licensing food establishments (stations) exporting peanuts to the EU.

Import Food Strategy Mechanism Standards (10 Decrees	► Decree No. 5 of 2019: Procedures for registering international certificate-granting companies in food safety systems. ► Decree No. 2 of 2020: Registration of entities and certificate-granting companies authorized to issue inspection certificates for imported food consignments. ► Decree No. 3 of 2020: Testing only 25% of specific food consignments. ► Decree No. 6 of 2020: Licensing rules for food imports. ► Decree No. 7 of 2020: Risk-based food import control system ► Decree No. 8 of 2020: Testing only 25% of imported raw food materials. ► Decree No. 14 of 2020: Similar to Decree No. 8 regarding raw food materials. ► Decree No. 3 of 2021: Amendments to Decree No. 2 of 2020 on registration of entities and certificate-granting companies. ► Decree No. 9 of 2021: Regulation of imported food consignments under temporary release. ► Decree No. 10 of 2021: Special rules for recognizing the regulatory performance of competent authorities in exporting countries.
Export Food Strategy Mechanism Standards (3 Decrees):	► Decree No. 3 of 2019: Inspection and review procedures for certification companies for exported food consignments. ► Decree No. 1 of 2020: Mandatory rules for issuing export suitability certificates. ► Decree No. 15 of 2020: Exemption for white-listed factories from labeling certain data on exported food shipments.
Agriculture Act No. 53 of 1966	Deals with registration of agricultural plant varieties, establishes Committee for Registration of Agricultural Plant Varieties.
Decrees No. 2020/2 and 2020/14	According to these decrees, all imported products must undergo conformity assessment in order to protect consumers. As a result, regulated food products now require additional regulatory controls such as sampling, testing, inspection and monitoring.
Decree No. 1647/1997	According to the above-mentioned decree, importers of live animals must submit an import application to the General Organisation of Veterinary Services containing the following information: number and type of animals, country of origin, port of shipment, expected date of arrival, means of transport. The consignment must be accompanied by a veterinary certificate issued by the competent authority of the country of origin and legalised by the Egyptian consulate.
Decree No. 2613/1994 on the shelf life of products	This decree establishes a maximum shelf life for products, defined as the period during which the product retains its basic characteristics and remains edible and marketable under the defined packaging, transport and storage conditions.

Ministerial Decree No. 515 of October 2003 on labelling	This decree states that all goods must be clearly labelled and accompanied by a certificate of origin, and that any error on the label or certificate may justify their return to the country of origin. Self-certification is permitted and generally enforced.
INSTITUTIONAL FRAMEWORK	
FRAMEWORK	DESCRIPTION
Ministry of Health and Population	The role of the Ministry of Health and Population (MOHP) has been streamlined to focus on testing samples collected by the NFSA during market inspections and surveillance. These samples are analyzed in collaboration with the Central Public Health Laboratories (CPHL) and the Ministry of Agriculture laboratories. Only the NFSA sends samples to accredited laboratories.
Central Public Health Laboratories (CPHL)	Conducts microbiological, chemical, and toxicological analyses of food including pesticide residue detection.
Regional Food and Feed Centre (RCFF)	Officially responsible for controlling the quality of animal and poultry feed and its ingredients
General Organisation of Veterinary Services	Protects animal and human health against exotic and epizootic diseases through quarantine and veterinary inspections.
Central Laboratory for Pesticide Residue Analysis (QCAP)	Conducts applied scientific research, particularly analyzing contaminants in various foodstuffs. Plays a key role in implementing the national food safety agenda
National Food Safety Authority (NFSA)	Enforces Pre-shipment Inspection Plan (PSI) to regulate the import of food into Egypt and protect the health of Egyptian consumers. The plan also aims to help traders, exporters, and importers to undergo a streamlines customs clearance process.
Egyptian Organisation for Standardisation and Quality (EOS)	Food Quality Standards in Egypt are developed by the Egyptian Organization for Standardization and Quality (EOS), which is the sole official and competent authority responsible for standardization, quality control, and metrology. Develops national standards for materials, products, test methods, symbols, terminology, quantities, and units. They are also responsible for the calibration and control of measurements and measuring instruments. The EOS plays a critical role in establishing benchmarks for quality across industries, ensuring compliance with both national and international standards.
General Organisation for Export and Import Control	Registers all entities importing goods into Egypt per Law No. 121/1982.

Federal Product Inspection Services (FPIS)	Part of the Federal Ministry of Industry, Trade and Investment.
Federal Ministry of Environment (FME)	Controls food contaminants in the environment.
National Environmental Standards and Regulations Enforcement Agency (NESREA)	Responsible for environmental protection and development.
Federal Ministry of Science and Technology (FMST)	Supports scientific research and development of food safety policies and programs, develops innovative technologies for food processing and handling.
State and Local Government Authorities (LGA)	Responsible for street food, traditional restaurants and markets, sanitation, prevention and monitoring of food handling environments and people, and public water quality.
National Agency for Food and Drug Administration and Control (NAFDAC)	Develops guidelines and regulations on food hygiene, food safety and nutritional value, as well as production of dairy, seafood, water and beverages.
Ministry of Agriculture	The ministry is responsible for the control of food prior to harvest. Their jurisdiction covers Plant Quarantine and Animal Quarantine. These divisions serve distinct but complementary. *Plant Quarantine* is focused on plant sanitary issues to protect agricultural resources from pests and diseases. *Animal Quarantine* is responsible for animal health and the management of quarantine and veterinary inspections. Acts as the first line of defense in protecting animal and human health against exotic and epizootic diseases. The Ministry of Agriculture also maintains advanced laboratory facilities to support its regulatory and research functions.
Animal Health Laboratory	Provides essential diagnostic and research services to safeguard animal health. These laboratories are critical in supporting the Ministry of Agriculture's mission to ensure the safety and quality of agricultural products and maintain robust animal and plant health systems.

4.3 Assessment of Informal Sector Regulation

In most cases, laws and regulations are made for the control of the food sector (formal and informal). However, in practice, more attention seems to be given to the formal sector while the informal sector is rarely regulated due to several challenges including limited regulatory personnel. This section presents some regulations, programmes and other initiatives specifically for the informal sector, as elaborated in Table 6.

4.3.1 Overview of regulations, programmes and initiatives

4.3.1.1 South Africa

Guidelines for the regulation of informal trade within municipalities have been developed and translated into a framework regulation. These regulations are designed to ensure that informal traders operate in accordance with their permits. The responsibilities of the South African Local Government Association (SALGA) include providing critical infrastructure to support informal traders, such as access to clean water and waste disposal facilities.

4.3.1.2 Ghana

Food safety guidelines developed by the Ministry of Local Government, Decentralisation and Rural Development (MLGDRD). District Assembly by-laws on food handling, including health screening for all food, meat, water and beverage handlers to check their health status regarding communicable diseases such as typhoid, hepatitis A, cholera, and issue health certificates. The FDA in 2019 introduced the Progressive Licensing Scheme (PLS), a three-tiered licensing system for informal food processors where pink, yellow and green licenses are issued based on the level of compliance with Good Manufacturing Practices (GMPs). It is a risk-based approach that starts with a pink license issued to a processing facility that is 30-44% compliant with GMPs. The programme comes along with training the small food businesses in GMPs. Other measures include the use of airtight bags, the Ghana Green Label initiative and the electronic traceability platform. The FDA's Code for hygienic practice for foodservice establishment (FDA GL05/FSE01/1-2008) and Guidelines for licensing foodservice establishments (FDA/FSMD/GL-FSE/2013/02) were previously applied to the formal sector. Recently, the Code of Practice has been extended to informal food vendors, who are being trained and those who comply with the Code of Practice are issued with the Food Hygiene Permit to display at their points of sale. The Ghana Tourism Authority (GTA) operates with the Tourism Act, 2011 (Act 817) and the Registration and Licensing of Food, Beverage and Entertainment Enterprise Regulations, 2016 (LI 2238) and registers and licenses formal or informal food and beverage enterprises including restaurants, traditional eateries, fast food joints and snack bars.

4.3.1.3 Nigeria

Regulatory bodies such as NAFDAC and SON play significant roles in regulating and controlling food production, processing, distribution and sale in Nigeria, including the informal markets. They set and enforce food safety standards, NAFDAC conducts inspections and take action against violations. The FMOH works with NAFDAC, State and local government agencies. Local Government Councils have a role in enforcing food safety regulations within their jurisdictions. They often work in collaboration with NAFDAC to provide infrastructure for food safety compliance, conduct inspections, and take action against violations in informal markets and street food vendors. They face challenges in enforcing food safety standards in this sector due to limited resources, inadequate infrastructure and the sheer scale of informal activities. Many informal food vendors may not be aware of existing food safety regulations or may not prioritize them. As a result, the informal sector often operates with minimal oversight, leading to gaps in food safety governance.

4.3.1.4 Egypt

In Egypt, Law No. 92 of 2018, which aims to regulate and encourage the operation of mobile catering units, has delegated administrative authority to local administrative units, the competent authorities of the New Urban Communities Authority and other administrative entities to which this responsibility has been delegated. This law concerns mobile catering units, which include vehicles, carts or mobile platforms equipped for the preparation, cooking or sale of food and meals.
In addition, Decision No. 2 of 2019 issued by the NFSA establishes the technical inspection requirements for mobile food units. These requirements include food safety standards, sanitary conditions for workers and licensing procedures required by the Authority.

4.3.2 Challenges of the Informal Sector

Food safety interventions in the informal sector are relatively limited by several challenges including lack of infrastructure, limited inspection, a high level of informality, inadequate training and education, economic constraints, cultural and social factors, and corruption and inefficiency. With regards to infrastructure, sector often lacks the formal structure, record-keeping practices, and basic infrastructure like potable water, waste disposal systems, and unreliable power supply which makes monitoring and enforcement difficult. In addition, inspection in the informal sector rarely occurs. On the rare occasions that inspections do take place, they tend to be reactive rather than proactive, often triggered by food safety complaints or incidents rather than as part of a regular follow-up process. There is also a high level of informality driven by the lack of proper frameworks for registration and compliance, consequently promoting informal operations by sellers and producers. This informality makes it difficult for regulators to meet and enforce standards. Without proper training, it is difficult to ensure compliance with food safety standards. However, informal market stakeholders largely constitute individuals who lack the training and education in food safety to facilitate interest and compliance with standards. The situation has amalgamated interest in stakeholder sensitization and training to possibly orient and drive mass participation by the informal sector in food safety management. Beyond these, complying with food safety regulations can be costly. This makes it difficult for small sellers and producers in the informal sector to meet the cost requirements of becoming or being compliant, ultimately driving a strong disinterest in complying with these standards. There are diverse cultural and social barriers to food safety compliance. For instance, traditional practices and local customs can sometimes conflict with modern food safety regulations. Thus, enhancing acquaintance and adoption of modern practices would require a behavioral nudge and significant awareness-raising, which is difficult to easily implement among the vast representation of the informal sector in the modern African business ecosystem. There are systemic shortfalls like corruption and inefficiency within regulatory agencies which often undermine efforts to effectively enforce food safety standards.

4.3.3 Prospects of the informal sector

The informal sector often operates with minimal oversight, leading to gaps in food security governance. Based on the challenges discussed, we recommend three top-priority strategies to enhance participation of the informal sector in food safety management and improve regulation and compliance.

- **Adopt tailored strategies** that take into account the unique characteristics of the informal sector, such as education, community engagement and localised enforcement.
- **Enhance community control**: In some cases, local communities or NGOs may take on the role of controlling informal food vendors, although these efforts are usually informal and do not have the authority or resources of government agencies.
- **Improve regulation**: Informal vendors may rely on their own experience and traditional practices to ensure food safety, but this self-regulation is inconsistent and often inadequate to meet appropriate food safety standards. In Ghana, guidelines for food service establishments and guidelines for food manufacturing establishments are being implemented. The national food safety policy has a traceability component. There is also a national electronic traceability system and an early warning mechanism to track product origin, processing methods and distribution channels, particularly for exported agricultural products.In Ghana, the Progressive Licensing Scheme (PLS) for the informal sector aims to improve the quality, safety and wholesomeness and efficacy products regulated by the FDA thereby promoting public health and sustainable development. Since 2020 1,900 facilities and 2,405 food products from the informal sector have been registered. The PLS is being implemented in partnership with the Ghana Enterprises Agency.

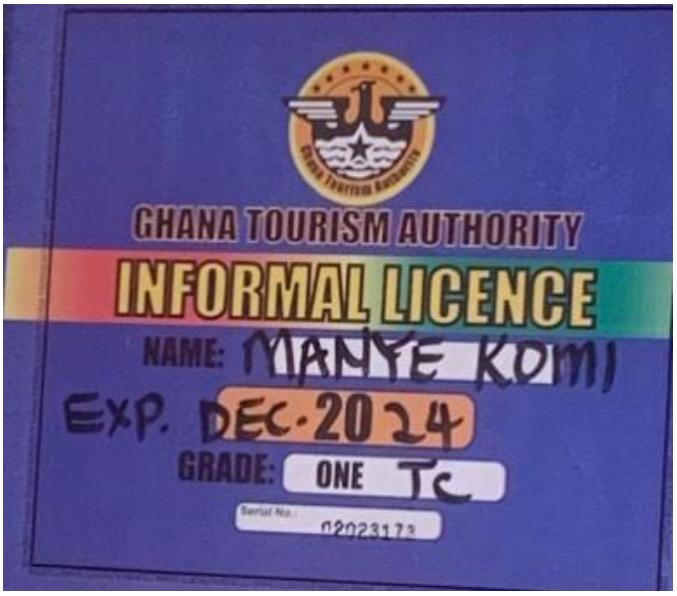

Figure 1: *An example of a license issued to an informal traditional catering establishment. It is renewable every year.*

4.4 SWOT Analysis of political and legal framework

A SWOT (strengths, weaknesses, opportunities, threats) analysis is carried out to better assess the internal strengths and weaknesses, as well as the external opportunities and threats of effective and efficient food safety management, as summarized in Table 7.

Table 6: SWOT analysis of food safety management

STRENGTHS	THREATS
The legal framework for food safety applies to all stages of production, processing and distribution of plants, animals and marketed food in both formal and informal sectors. In particular, it aims to ► **Regulate and hence protect the health of plants, plant products**	Although significant progress has been made in many countries through improvements in food safety, millions of people fall ill each year after consuming contaminated food. The situation is exacerbated by the increasing antimicrobial resistance of the bacteria responsible for these diseases.

and other regulated articles, including products resulting from modern biotechnology as defined in this Regulation. ▶ **Protect the health animals, animal products, products of animal origin, animal feed and veterinary, public health, including products resulting from modern biotechnology.** ▶ **Regulate food products for the protection of consumer health.** These controls correspond to public health issues such as food safety, nutrition, quality and animal and plant health.	These situations can be explained by ▶ **The lack of a coordinated legal framework for the effective and efficient implementation of food safety policies.** ▶ **Food safety is a shared responsibility between governments, producers and consumers. From farm to fork, everyone has a role to play in ensuring that the food we eat is safe and does not harm our health.** ▶ **Overlapping responsibilities between ministries and agencies responsible for food safety** ▶ **Scattered, outdated and inadequate legislation** ▶ **Lack of consumer involvement**
WEAKNESSES	**OPPORTUNITIES**
▶ **The multiplicity of acts** There is a multiplicity of laws governing food control in Africa, leading to fragmentation of decision-making structures and redundancy of government action. ▶ **The obsolescence and inadequacy of acts** Existing acts and laws are generally outdated, inadequate and fragmented. They date back several decades and generally do not meet new security requirements and/or current scientific knowledge. ▶ **The informal sector** The informal sector, which is often a major producer and distributor of fresh and processed food (including food sold on public streets) for direct consumption, often eludes official control systems and remains the least controlled, except by environmental health authorities. Implementation and enforcement of food safety regulations in the informal sector can be considered poor.	▶ **The development of a single regulatory framework** The adoption of a detailed single act dedicated to food safety in each country will provide the necessary regulatory tool to address food safety issues and give them greater visibility**.** ▶ **The adoption of comprehensive veterinary legislation covering:** (i) the control of animal diseases, the registration and control of veterinary medicinal products (including insecticides produced for use in animals) (ii) food safety and protection (iii) the prevention and eradication of zoonoses, the care of laboratory animals (iv) diagnostic laboratories, and health education and extension. The most consumed animal products such as milk, chicken, liver, eggs, and meat will need to be tested for levels of pesticide residues and veterinary drugs commonly used to treat livestock ▶ **The adoption of the risk analysis approach based on improved scientific understanding of foodborne diseases and their causes. This approach provides a preventive framework for the adoption**

▶ **Inconsistent application of regulations** The application of regulations can vary considerably from one region to another, leading to inconsistencies in the way regulations are applied. This inconsistency can result in stricter regulations in some areas than in others, leading to confusion and potential non-compliance among street food vendors. ▶ **Lack of preventive systems** Most food safety regulatory systems are based on legal definitions of unhealthy foods, enforcement programmes that involve the withdrawal of unsafe foods from the market and subsequent sanctions against those responsible. These traditional systems are unable to respond to current and emerging food safety challenges because they do not promote a preventive approach.	**of food safety regulations at national and international levels.** ▶ **Adherence to international food standards (CODEX)** ▶ **Establishment of effective food regulatory control systems (including emergency preparedness and response)** ▶ **Regulating the informal sector: Significant improvements in regulatory frameworks, resources and community engagement are needed to strengthen food safety in this sector.** ▶ **Provision of access to potable water, application of good agricultural practices (crop, aquaculture, livestock, horticulture)** ▶ **Involvement of consumers in the process in the legal rules**

4.4.1 Develop strengths and address weaknesses

To build on its strengths and overcome the current lack of an institutional coordination framework, it will be better to revise the regulatory and legislative acts, involving the institutional actors, as well as the private sector and civil society, in the reflection and implementation of guiding principles aimed at improving safety, health and food quality. The need for these revisions is linked to the overlap of responsibilities between different authorities. In South Africa, for example, no fewer than four pieces of legislation relate to milk and dairy products, and six different authorities at all levels are involved in their control. Three different bodies control imports. Each is authorized to inspect only the specific aspects under its control and to take samples for this purpose. These samples are sent to several different laboratories for analysis.

Several authorities control food imports. At major ports of entry, officers from the State Veterinary Department, Animal Health, StanSA, and provincial health officials are dedicated full-time to import control. They often inspect the same products from which they take samples under different regulations. Several different laboratories then test these samples. The Food Safety and Quality Assurance Directorate does not inspect imported food at the point of entry, but only after the products have entered the distribution channels.
Several other examples illustrate the multiplicity of formal control mechanisms for a single food product. The dispersal of control structures and the large number of legal provisions involved prevent the adoption of an effective multidisciplinary approach which would allow specialists working in their field of competence to exercise adequate control over many products and reassure consumers about their production, marketing and consumption.
However, the disadvantage of this situation is that it creates confusion among importers, exporters and producers and prevents the implementation of a national food control program or the development of a national database for this purpose.
It is important to put in place a legal framework capable of meeting the current requirements. In Ghana this problem has been partly addressed with the development of harmonized import and export procedures for implementation by relevant competent authorities.

4.4.2 Respond to opportunities and manage threats

The globalization of food trade has many benefits for consumers, as it allows for greater diversification of high quality, affordable and safe food products on the market to meet consumer demand.

For food-exporting countries, the globalization of the food trade offers opportunities to earn foreign exchange, which is a prerequisite for economic development in many countries. However, these same changes also pose new challenges with food production and distribution and have been shown to have significant health implications.

Food safety programs are increasingly focusing on a "farm to fork" approach as an effective way to reduce food hazards. This holistic approach to food-borne risk management considers every link in the chain, from raw material to consumption. Risk factors can enter the food chain at the farm level, but they can also be introduced or exacerbated at any point along the chain.

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5 Socio-Economic Assessment Framework

5.1 Mapping of stakeholder roles, responsibilities and capabilities

Food safety is increasingly becoming a major public health concern worldwide. In the African Region, the situation is exacerbated by limited administrative and regulatory capacity and often weak or non-existent institutional structures. According to the FAO Guidelines for Promoting National Food Safety Systems, a good national food safety system should be supported by a national food safety policy and legislation, national food standards development platform, science-based risk assessment, inspection, laboratory testing services, capacity to implement food safety legislations, training and education in food safety, epidemiological surveillance and alignment with Codex requirements. In line with this, significant progress in food safety in the Region will require integrated and sustainable food safety systems, including national food safety policies and strategic action plans. A food safety policy defines the principles, values, priorities and strategies needed to enable the development of actions to address key concerns in the sector.

In Africa, the following examples are indicators of the lack of effective food safety systems. Many countries have not put in place food safety policies and programmes capable of addressing current challenges. National food safety systems are often made up of multiple agencies with overlapping mandates and little collaboration between them, resulting in misuse of resources due to duplication and gaps in addressing key food safety issues. Food legislation in most countries in the region is often outdated or incomplete and does not provide the basic legal basis for effective food control. In addition, law enforcement agencies do not have the resources to carry out their food control responsibilities. This includes a lack of qualified staff, logistics, technical inspection and laboratory facilities. Stakeholders, including the food industry and consumers, are often not involved in food safety decision-making and do not play their necessary role in improving food safety.

In this context, the need to develop a food safety action plan adapted to the African region was particularly highlighted at the 15th session of the Codex Coordinating Committee for Africa, held in Kampala, Uganda, in November 2002. The FAO/WHO Regional Conference on Food Safety (Harare, Zimbabwe, October 2005) recognised this situation and the need to develop integrated multisectoral systems covering the entire food chain to ensure food safety in the region.

The Strategic Plan for Food Safety in Africa represents a first step towards African solutions to food safety issues, considering the international environment in which the countries of the region must operate. FAO and WHO, in collaboration with the countries of the region, have already undertaken several activities in this regard. These include food safety management system assessments by FAO Regional Office for Africa (November 2004) and WHO Regional Office for Africa (October 2002), covering 20 and 28 countries, respectively. Another initiative being championed by the AU's Partnership for Aflatoxin Control is the assessment of food control systems in selected African countries using the FAO/WHO food control assessment tool and the subsequent development of costed food safety master plan based on the gaps identified. Ghana is one of the beneficiary countries that has developed its food safety master plan that was validated and adopted by stakeholders in June 2024.

In addition, when the 16th session of the Codex Coordinating Committee for Africa, held in Rome in January 2005, FAO and WHO organised a workshop on "Effective Food Control Systems - Practical Approaches for the African Region", which provided an opportunity to

present the situation in the countries of the region and to discuss various issues related to food safety. Several other similar activities have taken place.
On the other hand, during the above-mentioned session, the Codex Regional Coordinating Committee for Africa started to review a draft Codex Strategic Plan for Africa, which will be an important pillar for strengthening Codex activities in the region. The Codex Strategic Plan will play an important complementary role to the African Food Safety Strategic Plan.
The implementation of this strategic plan will not be possible without a strong political commitment from African leaders at the highest levels to ensure that the necessary human and financial resources are mobilised to carry out the proposed activities. Food safety is a shared responsibility between governments, producers and consumers. From farm to fork, everyone has a role to play in ensuring that the food we eat is safe and does not harm our health.
Food safety is a scientific discipline, process or action to prevent the presence of substances in food that are harmful to human health. It aims to ensure that food can be consumed safely (WHO Regional Office for Africa; Brazzaville, 2012). Several actors play various roles that collectively contribute to addressing food safety challenges. The actors can be categorised into global and continental policy and standards setting bodies; national governments and regulators and competent authorities; donors and development partners; national and international research and academic institutions; advocacy institutions including CSOs, NGOs and professional associations; informal and formal value chain actors including industry; media; consumers; and other agencies. However, each stakeholder has specific responsibility, role and capacity in the governance of food safety. The next sections discuss the roles of some of these actors.

5.1.1 Governments

Food legislation sets out the legal requirements for growing, production, harvesting, processing, and marketing of foods. Effective food control programs must be based on an appropriate legislative framework that emphasizes food safety and consumer protection. These laws must be flexible enough to meet the changing needs of the food industry and to support the introduction of modern technologies and the development of new food products. While food legislation has traditionally focused on establishing control systems to address problems related to food quality and contamination, and to protect consumers from food fraud, there is now broad agreement that consumer safety deserves greater attention.
The main responsibilities of public authorities in food legislation are depicted in Figure 2.

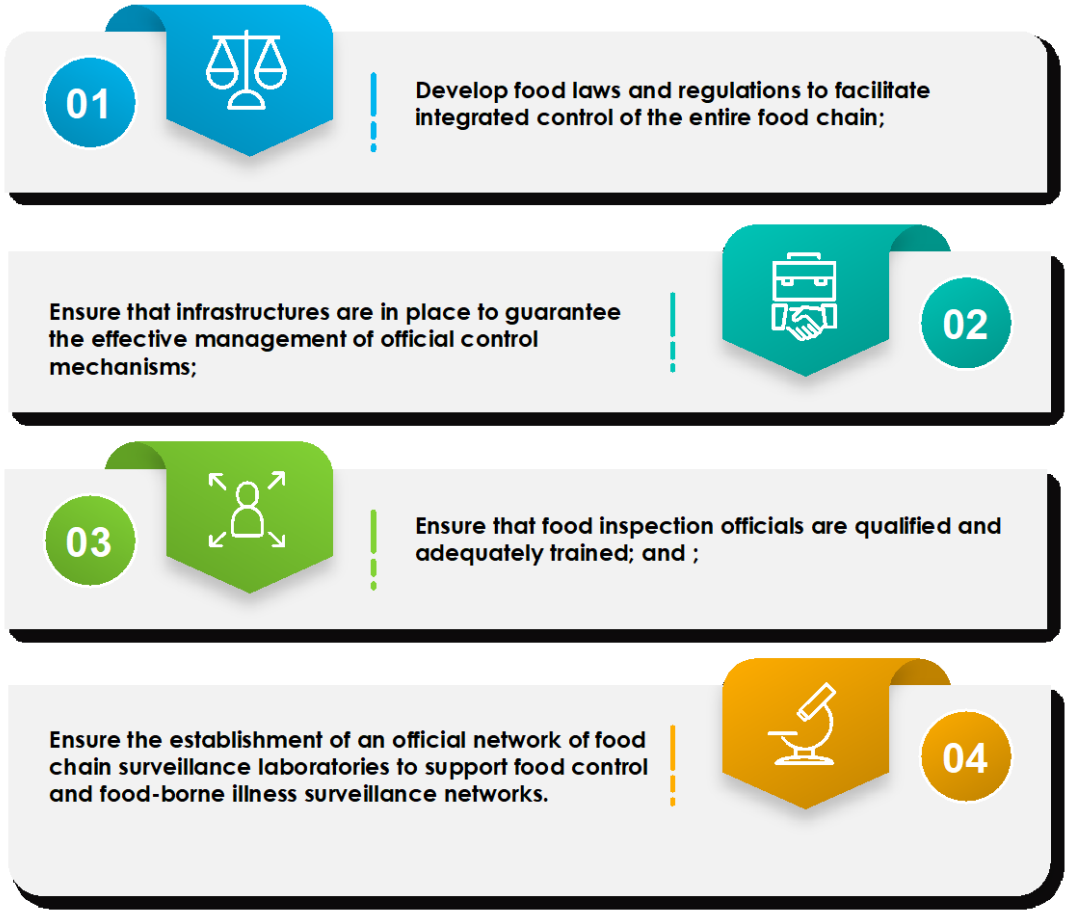

Figure 2: Responsibilities of public authorities in food legislation

5.1.2 Food inspection services

The administration and enforcement of food laws require inspection services to be staffed by qualified, well-trained, efficient and honest personnel. Food hygiene inspectors play a key role as they are in direct daily contact with food producers, traders and often the public. The reputation and reliability of the system depends largely on their honesty and competence. The role of the inspection services is to enforce food laws and to check that operators in the agri-food sector are acting in accordance with the relevant provisions of the legislation(s) in force at all stages of the production, processing, distribution, and marketing of products.

5.1.3 The Agro-industries

The production of safe food is primarily the responsibility of the food industry. It must ensure that control systems are in place at all stages of the food value chain and that they are capable of preventing, eliminating, or reducing to acceptable levels the risks that the products may present to the consumer. To complement and support the efforts of the agri-food industry, public authorities must develop and implement official control systems that are both sufficient and effective. It is therefore imperative that the agri-food industry, at all levels, engages in a preventive dialogue with the regulatory authorities with a view to the concerted adoption of food safety standards and the effective and rational integration of public and private control systems.

5.1.4 The primary producers

Farmers (peasants and pastoralists) must ensure the safety and quality of their raw materials and the reliability of their production methods and be aware of their potential impact on the health, safety, and quality of the final product, whether of animal or plant origin. Contamination of feed or the production environment will inevitably lead to contamination of the final product and therefore pose a risk to consumer health. Farmers must therefore consider the downstream stages of the food chain and control all inputs used on their farms. They must keep detailed records of their raw materials, husbandry practices, and movements of animals and customers to facilitate the control of the health, safety, and quality of their products and to ensure their traceability, to inform consumers, and possibly recall products. These principles must be applied in all circumstances, although exceptions may be made for small farmers in developing countries (Resolution of the Conference on Food Safety for Africa, 2005).

5.1.5 The retailers

The retail sale of food to the public includes both general grocery stores and food service outlets. However, the distinction between general and catering is now becoming blurred as more and more retail outlets also sell hot takeaway foods and have a catering department. Caterers now offer more traditional food products and generally use homemade ingredients in the preparation of meals.
Retailers, like the agri-food industry, must therefore have a food safety management system in place to ensure that their products are safe. Companies that only sell pre-packed food must also follow good hygiene practices and use HACCP to identify and manage health risks in advance.

5.1.6 International organizations

International organizations can make an important contribution to international dialogue, consensus building on a science-based approach to risk analysis, and harmonization of food safety standards. Their activities to this end must be open and transparent and involve both developing and developed countries. Technical assistance to strengthen food control systems in developing countries is a recognized need. FAO and WHO are the two main United Nations specialized agencies working with developing countries to implement technical cooperation programs on food quality and safety. The SPS Agreement formally recognizes the joint food safety standards, guidelines, and recommendations of FAO and WHO under Codex. Recognition of Codex standards saves countries from having to carry out individual risk assessments for which specific standards, recommendations, or guidelines already exist. When countries adopt national food safety standards based on Codex standards and implement control mechanisms to ensure that food producers' operations comply with the applicable standards, their food safety measures are considered to comply with the provisions of the SPS Agreement.

5.1.7 The consumers

Consumers are responsible for checking the health status and wholesomeness of the food they purchase. At least, they should rely on the visual aspects and the label information on the package before making a purchase. They must also denounce sellers of products whose health and safety are not guaranteed and choose to consume only safe food, whatever the circumstances.

In summary, the responsibility for food safety is shared by all stakeholders involved in the production, processing, marketing, and consumption of food. The way forward is to implement integrated food control mechanisms at all stages of production and in all sectors involved, following the "farm to fork" principle, the application of which can only promote the creation of a systematic and comprehensive mechanism covering all food products and all sectors, instead of the sectoral and disparate rules currently in force. Communication and consultation between all stakeholders on all aspects of food safety and at all stages of the decision-making process are essential for the establishment of credible, open, transparent, and verifiable food safety and control systems.

5.1.8 The Consumers organization

An important aspect of food safety is ensuring that countries have adequate laws in place and, perhaps more importantly, that these laws are effectively enforced. According to the WHO, every year one in ten people fall ill and 420,000 die from eating contaminated food.

Consumer organizations can work together on a particular issue by developing guidelines or toolkits that are then shared with other consumer organizations. Tools that are then used by members at the national level. An international example of this kind of collaboration is Safe Food International. The Guidelines for Promoting National Food Safety Systems are an initiative with partners such as FAO and several consumer organisations that are members of Consumers International. Although in need of updating, Consumers International provides a useful picture of what is required for food safety at the national level from the perspective of the consumer movement.

The guidelines identify eight essential elements for an effective national food safety program: Food laws and regulations; Foodborne disease surveillance and investigation systems; Food control management; Inspection services; Food recall and monitoring; Food control laboratories; Information, education, communication, and training; and Funding and affordability of the national food safety program.

Most, if not all, consumer organizations are active in these areas. They also use food testing to detect contaminants or fraud and to hold governments accountable for food safety. Some organizations even have specialized laboratories. Other tools include campaigning and lobbying governments to adopt and enforce food safety standards, inspecting food facilities, and raising awareness among food handlers and consumers themselves. Despite the importance of consumer organizations in supporting the realization of safer foods for all, their role in most African countries have been minimal. Consumer organisations specifically addressing food safety issues are few in Africa. Notable ones are Consent based in Uganda, EatSafe International (formally EatSafe Ghana) based in Ghana. Both Consent and EatSafe International are members of the International Association of Consumer Food Organizations (IACFO).

Box 1

The success of two consumer organizations: Which? and YACP

Which? UK

Which? is a United Kingdom brand name that promotes informed consumer choice in the purchase of goods and services. Following the horse meat scandal in 2013, Which? conducted UK consumer engagement exercises to understand consumer attitudes towards the full range of challenges facing the food system, from climate change to obesity. Which? held a national debate on the future of food to better understand how people perceive the many competing pressures impacting the food chain - and what they thought were the priorities. The debate included four in-depth citizen juries over two days. These juries were supported by a representative survey of the UK population and a traveling video to complete the engagement exercises.

Which? worked with the Government Office for Science. They reported that people wanted an independent consumer champion to identify the best way to address sustainability issues, take account of consumer priorities, and monitor long-term impacts. A report published in 2013 looked at possible solutions - behavioral change, promoting best practices and innovations - and alternatives - promoting existing best practice and innovation - and highlighted the importance of independent monitoring and an integrated food policy.

The Yemen Association of Consumer Protection (YACP)

YACP has recently demonstrated that even in war situations, consumer protection has a role to play. Leveraging years of experience on training students and workers in the agricultural, health, food, and social sectors, and advocating for better consumer protection laws, YACP continues to work despite the current blockade. Over the past three years, YACP has run projects to raise awareness of pesticide use and to improve consumers' access to clean and safe water.

In February 2018, it hosted a seminar on avian flu, consumer protection, and the national economy under blockade during wartime. YACP is seeking funding to set up a series of awareness conferences for women’s associations and committees on food safety and rationalization of consumption during the war, as well as quality assessment of food provided by donor organizations and countries.

5.2 Assessment of private sector involvement in food safety governance

The transformation of African agriculture to ensure food safety on the continent has become imperative following the surge in world commodity prices in 2007-2015 the resulting financial crisis, and its impact on official development assistance policies.

5.2.1 Context of private sector involvement

Since the 2007-2008 crisis, the need to reduce food import dependency has become imperative, especially as agriculture remains a key sector influencing many development indicators (gross domestic product, employment, natural resource management, food, and nutrition security). Based on these indicators, the African continent has a very important potential. However, it is also a question of ensuring future global food security at a time when a group of countries (China and the Gulf States) do not have sufficient resources to meet their needs in the long term and when productivity gains in Western agriculture are reaching a plateau. Given its natural resource potential (land, water) and its potential for increased productivity, Africa is still the "continent of all possibilities" capable of meeting these two challenges: producing to meet the food needs of a fast-growing Africa and contributing, through exports, to solving the global food and energy crises.

The crisis is also forcing African countries to make drastic fiscal adjustments. In recent years, the fall in the prices of energy, mining, and sometimes agricultural commodities (cocoa) has led to a sharp increase in debt. This is despite a new consensus on the need to revive public financing for African agriculture, as reflected in the Maputo commitment to devote at least 10% of public expenditure to the agricultural sector, reiterated in the Malabo Declaration (Blein, R., 2017).

This is compounded by the economic context, as well as social and climate issues. Indeed, the current economic context is characterized by the cumulative phenomena of inflation, recession, debt, and unemployment, which affect the purchasing power of the population. The global food market is experiencing strong inflationary pressures. Food prices rose by more than 33% between March 2021 and March 2022 following Russia's invasion of Ukraine. In this context, 38% of sub-Saharan African countries are at risk of stagflation (the combined effect of very low or no economic growth and high inflation). On the continent, inflation is on the rise, reaching more than 9% in 2022 in several sub-Saharan countries, up from 4.5% in 2021 (IRES, 2023).

In terms of social issues, food insecurity causes social and human deficits due to its impact on health: aggravation of diseases, malnutrition, infant mortality, etc. It is also a political issue in the event of social tensions caused by rising food prices.

The social issues related to food security raise the issue of increasing poverty in rural communities. This precariousness hinders access to equipment and production tools that enable small farmers to improve the quantity and quality of their agricultural production (fertilizers, irrigation, equipment, and tools).

Concerning climate issues, according to the FAO, 23.5 million people are in food crises as a direct result of the climate crisis in countries such as the Democratic Republic of Congo, Ethiopia, Nigeria, Sudan, and South Sudan. In East Africa (northern Kenya, and southern Ethiopia) and Somalia, 90% of wells have dried up, (IRES 2023). In this context, private financing is often proposed as a solution. It would allow the mobilization of skills, knowledge,

and technologies capable of closing the productivity gaps in African agriculture, and the mobilization of the capital necessary for their development.

5.2.2 Private sector actions

The private sector plays crucial roles in promoting food safety in African agriculture. These roles include actions by private organizations toward ensuring safe practices that reposition agricultural system transformation beyond environmental and socioeconomic benefits. Yara[1] is already promoting the concept of "agricultural growth corridors" at the 2008 UN General Assembly Private Sector Forum. Specifically, the aim is to build infrastructure to attract investment and facilitate the development of commercial agriculture to boost the agricultural sector, by opening and connecting high-potential agricultural areas to ports (Binet, 2014). This idea of agricultural corridors is part of the project "A new vision of agriculture" launched by several large multinational companies such as Yara, Bayer, Cargill, Monsanto, Nestlé, Syngenta, and Unilever at the World Economic Forum in 2009 (Hur, M. & L. Stührenberg, 2020.)

These signs of commitment to the common good go beyond limiting a company's potentially negative social and environmental impacts. The responsibility of companies no longer lies in philanthropic actions outside the logic of the market, but in the exercise of their economic activity (Binet, 2014). Private companies have thus succeeded in convincing people of the convergence between the pursuit of profit and the production of global public goods. This supposed reconciliation between 'public goods' and private interests is evident in many sectors, such as health, climate, and education. In the area of food security and climate change, it is particularly evident in terms of inputs. For example, intensification is promoted by fertilizer companies as a means of limiting the constant expansion of cultivated land and its impact on deforestation, biodiversity loss, climate change, etc. The same applies to certified seeds, which are presented by some companies as one of the best ways to sustain productivity, limiting the growth of cultivated areas and the use of certain inputs. Some agribusiness multinationals now have a goal to fight hunger, poverty, or climate change. For example, Yara's stated goal is to be "a global leader in sustainable agriculture, contributing to green growth and sustainable development" (https://www.yara.com/).

It should be noted, however, that international companies have different approaches. While for some the positioning of "community service" means a communication strategy that sometimes seems completely disconnected from real practices, others are concerned about their links with local sectors and agriculture. The social and environmental responsibility strategies of Monsanto, Yara, Syngenta, Danone, and Cargill are not the same. Within the same group, the strategy is not always clear (Blein, 2017). The Syngenta Foundation aims to improve the livelihoods of 'pre-commercial farmers, i.e. smallholders in developing countries', while Syngenta itself targets large and medium-sized farms (Syngenta, 2014). A more detailed analysis of the strategies and practices of companies and related foundations would be needed to distinguish what is covered by the communication strategy from actual changes in practices (Inter-réseaux Développement rural, Bureau Issala, SOS Faim Belgium, 2019).

Paradoxically, while the financing of African agriculture relies overwhelmingly on the self-financing of family farms (in the order of $200 billion for sub-Saharan Africa), the private sector referred to in agricultural policy debates are mainly international corporations, commercial banks, and telecommunications. Family farms, which generally have no legal status, operate informally, and are therefore not formally recognized as economic actors, are thus seen as

[1] **Yara International ASA** is a chemical company based in Norway. It is the largest distributor of nutrients for plants in the form of crystallized fertilizers. Its main activities are the manufacture and marketing of nitrogen fertilizers, such as urea and nitrates. It also synthesizes and sells ammonia, which is essential for the manufacture of synthetic nitrogen fertilizers.

"clients" of the European Commission, rather than as parties to the debate on the modernization of agriculture and the development models that underpin it. Ignoring all the ongoing debates, the large multinationals deny their necessity and envisage the transformation of African agriculture only through the adoption by family farmers of their products: technical packages "first generation green revolution", selected seeds and hybrids, fertilizers, pesticides (Blein, 2017).
This situation has led to a resurgence of unhealthy foods on the market, which can be the cause of various diseases. These foods are often produced with excessive use of chemicals and sometimes genetically modified organisms and are marketed without rigorous quality control. Their consumption is therefore linked to public health problems. The quest for food security must consider the sustainability of ecosystems as well as food safety.

5.3 Assessment of informal sector involvement in food safety governance

The informal economy operates in relation to the formal economy: "The modern private sector cannot exist without the informal sector" (Igue, 2009).
The informal economy must be understood as a whole: primary, secondary, tertiary; rural, and urban (Léonidas Hitimana, 2011).

5.3.1 Food safety and informal market

According to Kristina Roesel and Delia Grace (2016), foods sold in informal markets are generally cheaper than those sold in formal markets and are closer and more accessible to consumers. They have other desirable characteristics such as freshness, and taste, being produced from local breeds, sellers are known and reliable, and consumers can buy on credit or benefit from other services.
With population growth, urbanization, and changing food preferences, livestock markets are multiplying. This growth represents an opportunity for smallholder farmers, who are the main producers of animal products consumed in domestic markets, and for all those who sell food in informal markets. However, smallholder farmers and informal vendors face increasing demands for safety and quality.
Food sold in informal markets may contain pathogens or substances that are potentially harmful (hazards). However, the presence of hazards does not necessarily mean that these foods pose a risk to human health. For example, studies in Kenya show that milk often has biological (bacterial) hazards, but as most consumers boil milk before consumption, the risk to human health is reduced.

Figure 3: A local trader in an informal market

Informal markets are neither regulated nor transparent. These can lead to activities that can compromise food safety. However, they are not necessarily dangerous, nor are formal markets safe, just because they are formal. Food sold informally is often safe for human consumption. The real challenge is poor post-handling activities. These depend mostly on the preconditions, such as profit motive, which is one of the main risks to food safety in informal markets.

In both formal and informal markets, some risks are underestimated because they do not cause immediate harm.
Understanding values and culture is also essential to managing food safety in informal markets. For example, local knowledge often contributes to food safety. Food consumption is often linked to cultural values. Some cultural beliefs may be associated with food and how it is handled or prepared.
In addition, greater stakeholder participation improves food safety in informal markets. The participatory approach is effective in generating data for risk analysis at prices that are affordable for countries with limited resources.

5.3.2 Notions and concepts

The informal sector is diverse. It includes small production companies as well as small traders or service providers, legal or illegal activities, and small trades. The activities themselves are very diverse: construction, car repair, transport, crafts, agro-food, etc.
The informal sector accounts for more than 50% of the total value added to the GDP of low-income countries, more than 80% of total employment, and more than 90% of new jobs created in these countries. It therefore has a major impact on employment opportunities, productivity, tax revenues, and economic growth. At the same time, the informal sector poses enormous knowledge challenges because, by definition, some, if not most, aspects of the informal sector are undocumented or poorly documented. Understanding the dynamics of the informal sector is critical to achieving structural transformation in less advanced economies, moving them away from subsistence and informal agricultural activities towards more productive activities, growth, and better jobs (Omar THIAM, 2018).
The most visible activities of informal food are depicted in Figure 3:

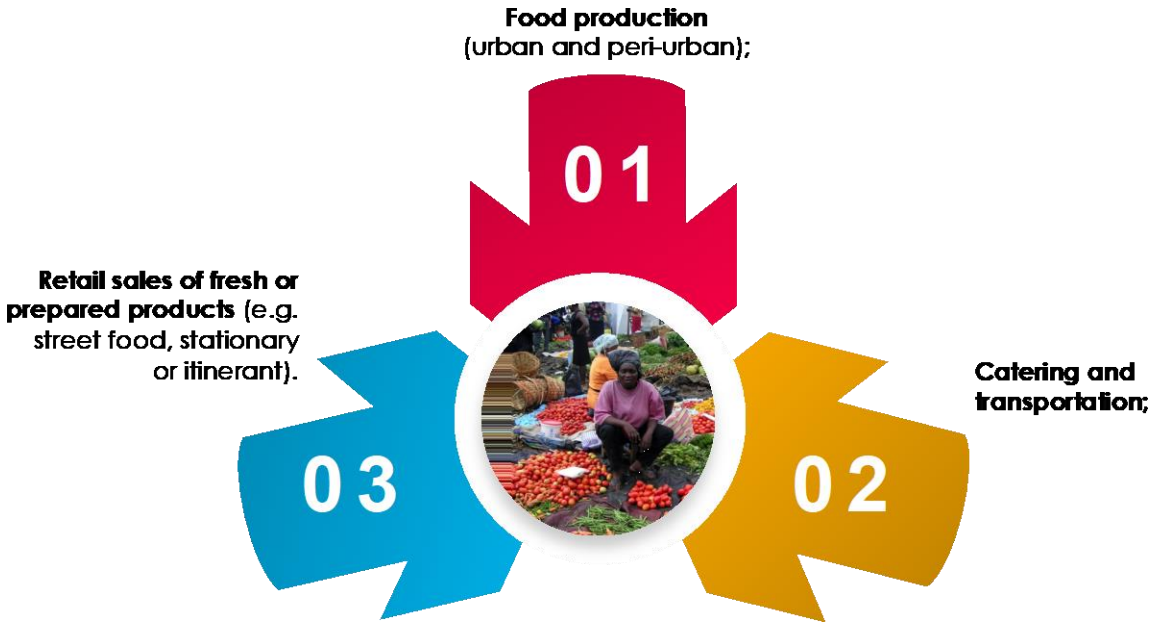

Figure 4: Activities of informal food sector

In most cities, all these activities are present, although the importance of each varies, whether in terms of the city's food supply and distribution or total employment, and even from one neighbourhood to another.

The informal food sector is characterised by lack of specialization, very low investment capital, articulation of production and consumption units, amongst other challenges depicted in Figure 4.

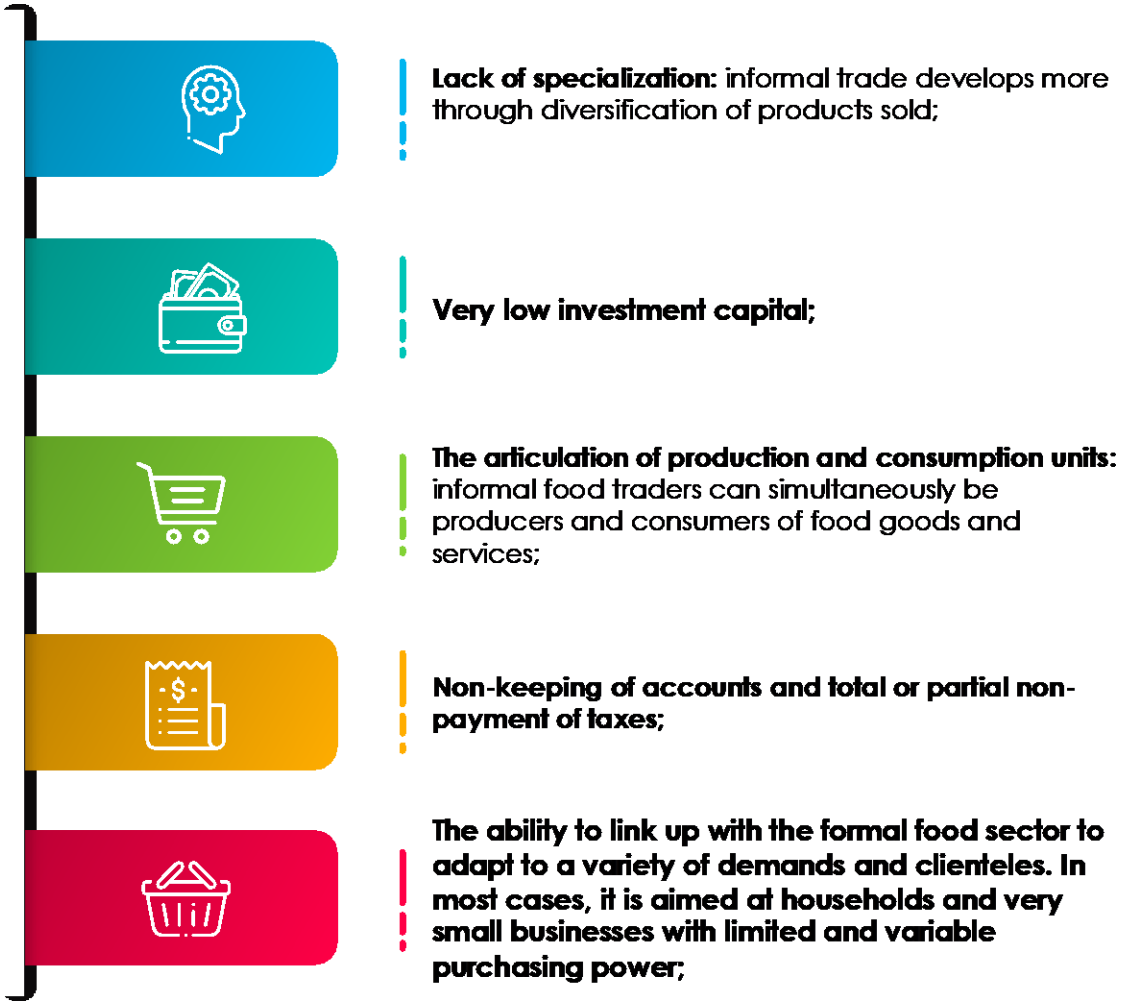

Figure 5: Challenges of the informal food sector

Informal cross-border traders bypass formalities for more legitimate reasons, such as the higher costs associated with formal trade or a lack of skills or knowledge to comply with trade regulations. A distinction should also be made between informal cross-border trade and unofficial trade.

By its very nature, informal trade is not recorded in official statistics and is difficult to quantify, especially when it consists of small-scale activities. Although estimates vary, studies show that it accounts for a significant share of official imports and exports, both in terms of value and volume (Bensassi et al., 2017; Brenton and Işık, 2012; FAO, 2017; Lesser and Moisé-

Leeman, 2009). Informal cross-border trade can account for up to 90 percent of official trade flows in some African countries (Economic Commission for Africa, 2013) and contributes between 30 and 40 percent of all trade within the Southern African Development Community and about 40 percent of trade in the Common Market for Eastern and Southern Africa (Afrika and Ajumbo, 2012; Moyo, 2018).

Informal distribution systems in Africa are often seen as ineffective in the face of growing food demand. However, their accessibility to disadvantaged consumers and resilience to supply and demand instability are highlighted, explaining their importance in urban diets (Vorley, 2013). It is noteworthy that in 2017, the IMF recognised for the first time the importance of the informal sector in sub-Saharan Africa, which accounts for 25-65% of GDP and 30-60% of non-agricultural employment. This report highlights the low productivity of the informal sector and the need to increase it through better access to credit and infrastructure (FAO, 2021).

Box 2

EXPLORING CONSUMER NOTIONS AROUND FOOD SAFETY: NATIONAL CASES

THE CASE OF SOUTH AFRICA:

In South Africa, local authorities and health ministries are taking steps to train informal traders in food safety and issue certificates for safe food handling. This approach is helping to raise awareness among traders of good hygiene practices, such as hand washing, clean utensils and storage standards.

Although training and regulations exist, their application remains a challenge in the informal sector, where resources may be limited, and not all traders necessarily follow the rules. Perceptions of hygiene in this sector can be negative, requiring additional efforts to raise consumer awareness and enhance the credibility of food safety practices.

The informal restaurant sector in South Africa contributes significantly to the local economy by providing employment and affordable food. This economic contribution highlights the need to integrate the informal sector into the country's food security strategies and to provide more training and resource support.

THE CASE OF GHANA:

Where do consumers fit in?

The Consumer Protection Agency and the Ghana Industry Association are part of the National Food Safety Policy Technical Working Group. Their input is sought in the development of food safety guidelines. They provide funding and work with government agencies to implement food safety initiatives.

Consumer demand and preference can be factors that encourage informal sector actors to comply with hygiene standards. Market competition is also an important factor in encouraging the informal sector to comply with health regulations and standards.

Consumer perception

In most cases, the hygienic environment and the cleanliness of the vendor are of concern. Consumer confidence could be enhanced by providing informal sector actors with adequate training on, for example, good agricultural practices, good manufacturing practices, technologies, and incentives to ensure food safety. A study found that urban Ghanaian consumers were concerned about food safety hazards such as pesticide residue in vegetables, excessive use of artificial flavours and colours, bacterial contamination, food adulteration (Sudan IV dye in palm oil) and leaked harmful substances from plastic packages. However, the level of concern about unhygienic selling, cooking and serving environments was significantly more severe than concern for all other risks (Omari & Frempong, 2016; Omari et al. 2018). The degree of concern about food safety risks was influenced by gender and possibly people's level of knowledge and awareness about the risks.

THE CASE OF NIGERIA:

The role of consumers

In Nigeria, the focus on food safety by a certain segment of the population is driven by health concerns, increased education and awareness, higher economic status, urbanisation, global influence, consumer protection and access to safe food options. These factors contribute to the growing number of people prioritising and demanding higher food safety standards.

Food safety governance in Nigeria faces significant challenges, including weak enforcement of regulations, inadequate funding, poor coordination between agencies, the predominance of the informal sector, low public awareness, supply chain issues and political instability.

Level of knowledge in the informal sector

In Nigeria, informal food safety operators often have limited knowledge of food safety and face several challenges in applying good practices. Many informal food vendors have a basic knowledge of food safety, often gained through experience or informal community knowledge. They understand the importance of cleanliness, avoiding spoiled food and basic hygiene practices such as hand washing.

THE CASE OF EGYPT

What is the role of the informal sector in food safety?

The National Food Safety Authority (NFSA) operates with an ex-farm mandate, focusing on responsibilities toward the local market, including imported and exported food. In its first priority responsibilities, the authority focused on: developing and implementing robust systems to ensure food safety compliance; establishing and updating regulations to align with national and international standards; ensuring compliance with food safety requirements in licensed food establishments; preparing and responding to food safety emergencies; conducting scientific assessments to identify and mitigate food safety risks.

While in second priority responsibilities: initiatives to bring informal food producers and vendors into compliance with food safety practices and licensing; regulating and monitoring the safety of genetically modified organisms in food; overseeing the safety and standards for irradiated and specialized food products. This phased prioritization ensures a structured approach to food safety, addressing critical areas first while progressively integrating other key sectors. The informal sector is generally not adequately addressed in food safety governance in Egypt before. At the same time the formal sector was in need to be updated and complying with international guidelines, especially after 1994 and the engagement of WTO in Food Trade. The informal sector, which includes street vendors, small producers and informal markets, often operates outside the formal governance framework.

What are consumers' perceptions of food safety?

Egyptian consumers prioritize price, accessibility and convenience when purchasing food from the informal sector, often relegating food safety to a secondary or even negligible concern. This trend is strongly influenced by economic factors and the need to meet basic food needs at the lowest possible cost. As a result, many consumers prefer affordable options, even if this means potentially compromising food safety.

In Egypt, attention to food safety generally increases in response to food scandals or high- profile incidents. In the absence of such events, the average Egyptian's perception of food safety remains relatively low. For example, practices that would raise concerns elsewhere, such as meat hanging outside butcher shops or bread being handled by buyers and sellers without packaging, are widely accepted. These practices are perceived as normal, and the risks they pose to food safety are often little known or considered by the public.

5.3.3 Limits of the informal food sector

Sourcing from local markets, informal traders are directly dependent on natural hazards affecting agriculture. Some of these hazards are shown in Figure 6.

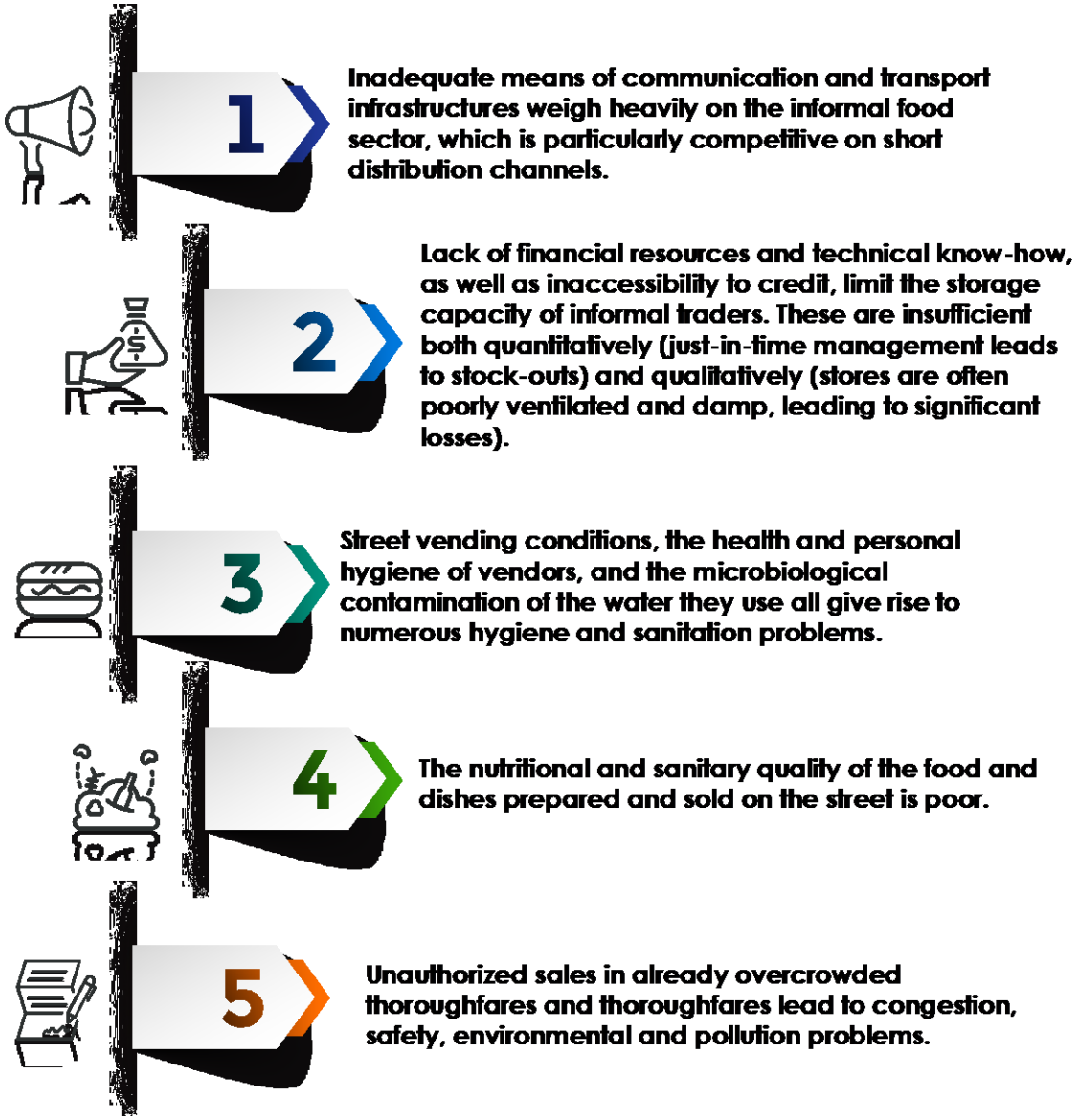

Figure 6: Possible natural hazards affecting the informal food sector

5.4 Socio-economic impact of food safety

Foodborne diseases act as a brake on socio-economic development by mobilizing health infrastructures and damaging the productive activities of national economies.

They cause serious illness that can lead to death. They are a threat to public health, productivity, and the economy. Socio-economic indicators have often been underestimated because of the difficulty of accurately assessing the causal links between food contamination and illness or death.

Data on the overall mortality rate attributed to unsafe water, unhealthy sanitation, and poor hygiene in 2016 show a greater deterioration in Nigeria than in Ghana and South Africa (Figure 1). This mortality rate, particularly from foodborne pathogens such as severe diarrhea or debilitating infections including meningitis, is higher than the average observed in Africa (WHO data, 2016). These countries have different characteristics that may explain their differences in food safety management. In Nigeria, in addition to inadequate regulation, economic and demographic pressures, cultural practices and corruption mean that the authorities and the population give low priority to the highest health and safety standards for food. Other discriminatory factors such as urbanization, global influence, and consumer advocacy have also contributed to the lower mortality rates in South Africa and Ghana. Statistics for mortality rate resulting from unsafe conditions in selected regions are visualized in Figure 7.

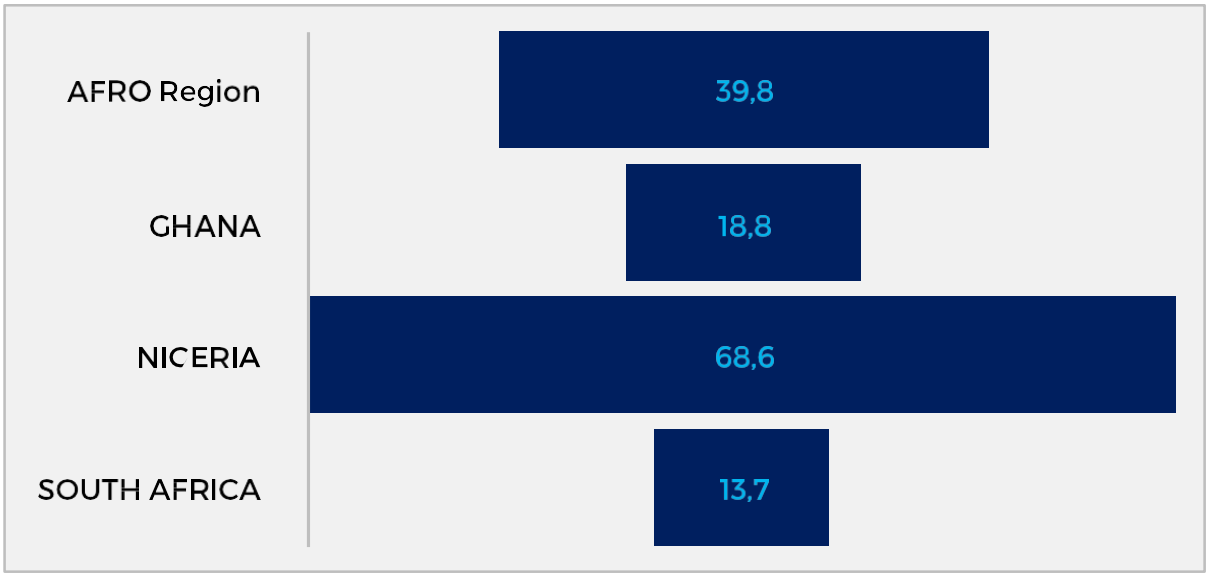

Figure 7: Mortality rate due to unsafe water, unhygienic sanitation and poor hygiene (deaths per 100,000 population)

Source : WHO, data dump, 2016

Infants, young children, the elderly, and the sick are particularly vulnerable to unhealthy food. Nearly 600 million people, a tenth of the world's population, fall ill and 420,000 die each year after consuming contaminated food, resulting in the loss of 33 million years of healthy life (DALY 2020).

The World Bank's 2018 report on the economic burden of foodborne diseases estimates annual production losses due to these diseases in low- and middle-income countries at US$95.2 billion, and annual treatment costs at US$15 billion. The report also reveals an annual shortfall of US$110 billion for low- and middle-income countries due to lost productivity and related health expenditures. Children under the age of five bear 40% of the burden of foodborne disease and 125,000 die each year (Jaffee et al. World Bank, 2018). In Ghana, the actual burden of food borne illnesses is unknown. However, it is reported that 420,000 cases are reported with an annual death rate of 65,000 (Ababio and Lovatt 2015).

Access to healthy food has an economic cost. Here, healthy foods are defined beyond their normal satisfaction of nutritional requirements, capturing safety as a critical indicator. FAO and the World Bank provide an indicator of people's economic access to the cheapest healthy food in each country that meets their dietary needs from locally available foods (Table 9). It shows that the cost of access to healthy food in Africa, which in this case captures safety as a critical indicator, is lower than globally but rising faster than in the rest of the world. Comparing North, West and Southern Africa, we see that North African countries had better access to healthy or safe food in 2021 at US$3.47 in purchasing power parity (PPP), followed by West African countries at US$3.71 PPP. Southern Africa countries had the highest cost of economic access (US$4.06 PPP), but with less variation than West Africa, at 5.8% and 7.6% respectively. This trend in the cost of economic access is partly explained by investments in food safety governance.

Table 7: Cost and affordability of healthy eating per person per day (French

	Cost of a healthy diet (USD in PPP, per person per day)					Proportion of the population unable to afford healthy food (%)			People who cannot afford healthy food (millions)				
	2019	2020	2021	Variation 2019-2020 (%)	Variation 2020-2021 (%)	2019	2020	2021	2019	2020	2021	Variation 2019-2020 (millions)	Variation 2020-2021 (millions)
WORLD	3.43	3.51	3.66	2.3	4.3	41.2	43.3	42.2	3005.5	3191.9	3139.5	186.4	-52.4
AFRICA	3.31	3.38	3.57	2.2	5.6	77.4	77.9	77.5	989.4	1020.7	1040.5	31.3	19.8
North Africa	3.60	3.57	3.47	-0.6	-2.8	54.7	54.0	51.7	131.3	131.9	128.5	0.6	-3.4
Sub-Saharan Africa	3.28	3.36	3.58	2.6	6.6	82.6	83.3	83.4	858.1	888.8	912.1	30.7	23.3
Southern Africa	3.71	3.84	4.06	3.4	5.8	65.4	67.4	67.0	43.4	45.3	45.6	1.9	0.3
Central Africa	3.30	3.37	3.55	2.2	5.3	82.1	82.2	81.9	145.7	150.5	154.5	4.8	4.0
East Africa	3.01	3.09	3.29	2.7	6.7	84.2	84.7	84.6	341.3	352.7	361.9	11.4	9.2
West Africa	3.37	3.45	3.71	2.5	7.6	84.1	85.1	85.4	327.6	340.3	350.1	12.7	9.8

Source : FAO, 2023

Healthy/safe foods tend to be more expensive due to cyclical shocks (pandemics, political instability) and inflation. The cost of healthy products makes them less accessible to low-income households. These poor households spend a larger proportion of their budget on food quantity, which limits their ability to purchase healthy food (FAO, 2023). In Nigeria, the economy is mainly driven by crude oil, while in Egypt the economic system is more diversified, reducing wage inequalities. The decline in the number of people without access to healthy food in North Africa can be attributed to the importance of investment in basic social infrastructures. In Egypt, for example, the state has invested heavily in new roads and electricity generation capacity, while in Nigeria, despite its vast natural resources, the country faces major infrastructure challenges (World Bank, 2017).

Assessment of the health impacts of food safety is linked to an effective foodborne disease surveillance system or programme. In many African countries the foodborne disease surveillance system does not exist or is poorly implemented. In Ghana, there is a national integrated disease surveillance and response system managed by the Public Health Division of Ghana Health Service (GHS). The Integrated Disease Surveillance System Ghana (3rd Edition) has incorporated a list of priority food borne diseases as part of the diseases under surveillance. Whenever there is an outbreak of food-borne illness and it is identified through GHS facilities, it gets recorded in the integrated disease surveillance system and that triggers a public health response. However, disease surveillance officers are yet to be trained to start picking data, monitor trends and detect FBD outbreaks. The system, if fully implemented, will gather information on the food history of patients reporting with foodborne diseases.

5.4.1 Investments and financial resources

Physical infrastructure, among other indelible legal, institutional, regulatory, and strategic frameworks, represents a major requirement for effectively driving food safety. From production to consumption, these infrastructure, including containers that protect stored food from the risks of contamination and moisture, drying equipment, clean water, personal hygiene and sanitation facilities, facilitate the implementation and compliance with food safety guidelines or standards. Physical infrastructure needs are increasing rapidly as food moves from the farm to the markets, whether at the local and informal level or at the urban, regional and international levels.

In Africa, the resources mobilised to improve food security come mainly from donors. Some countries use their budget allocations to provide basic social infrastructure, which can have an indirect impact on the quality of food produced, sold or consumed. The European Commission (EC), the United States, FAO and WHO are the main donors, supporters and implementers of food safety projects. The African Development Bank has recently funded agricultural development projects, including tens of millions of dollars for food security. Specifically in Ghana, most funding from development partners donors is channeled through the government for ministries such Food and Agriculture and Health. For the informal sector, Global Affairs Canada through the Modernising Agriculture in Ghana (MAG) programme provided funds for the development of the food safety guidelines for MMDAs. Increasingly however, research and academic institutions and NGOs are also attracting funding from various sources to implement food safety activities. Examples include the current FS4Africa project funded by the European Union, the development of National Policy and Technical Regulation for Aflatoxin Control in food and Feed funded by AGRA, and the project titled ‘Enhancing aflatoxin management in Ghana’s maize and groundnut’ being funded by the Standards and Trade Development Facility (STDF) of the World Trade Organisation (WTO). Additionally, some donors provide funding and various forms of support directly to the value chain actors. For example, the Africa Women in Agribusiness (AWIA) runs training programme for its members (both formal and informal actors) while many of their members have been receiving various food safety interventions including funding and infrastructure from NGOs, Mastercard Foundation, FAO and development partners like USAID, and GIZ.

Interviews conducted by ILRI with food security experts in five countries in West and East Africa, including Nigeria, show that access to reliable public budget information is a major challenge. Some private agencies certify exports that generate significant revenues. Others depend on limited national budgets and donor resources to manage their data sustainably.

During the interviews, it was widely reported that agencies generally lacked the facilities, human resources and operational funds needed to operate a modern food safety regulatory system (Grace et al. 2018).

Donor investments in food safety in Africa are focused on supporting access to foreign markets, trade and formal markets, rather than the public health problem resulting from foodborne diseases transmitted through domestic and informal[2] markets. Donors invest relatively little to directly reduce the burden of foodborne disease in Africa, including surveillance systems, public awareness of food safety issues, research on specific risks and interventions, and informal market capacity and practices.

Other limitations of donor interventions include a lack of coordination of activities and poor traceability of information on development funds. According to ILRI interviews with experts, donor funding should focus more on three areas: (i) capacity building of value chain actors; (ii) consumer awareness; and (iii) generation of evidence on health risks and management options.

African countries are also investing in physical infrastructure, such as sanitation, electricity, and transport, to support the production and distribution of safe food. Most of the rural poor do not have access to improved sanitation or safe water sources. According to the World Bank (2018), only 35% of the population has access to electricity, and access rates in rural areas are less than a third of those in urban areas. Transport infrastructure also lags. This is likely to reflect a general lack of public resources to adequately fund essential government functions, as well as higher priorities in areas such as ensuring basic food security, improving nutrition, and combating known infectious diseases.

[2] FAO. 2005. FAO-WHO Regional Conference on Food Security in Africa. Rome, Italy: FAO. (Accessed 04/08/2024, https://www.fao.org/4/a0215f/A0215F09.htm#ch9)

6 GENERAL RECOMMENDATIONS

Food safety governance faces significant challenges, including weak enforcement, inadequate funding, poor inter-agency coordination, the prevalence of the informal sector, low public awareness, supply chain issues, and political instability.
A multi-faceted approach is needed to address these challenges, including stronger regulatory frameworks, better coordination, increased public awareness and use of modern technologies, and cooperation between government, the private sector, and civil society.

6.1 Recommendations for the legal and institutional framework

In the current context, national food safety legislation needs to be updated to bring it into line with international instruments and to meet new requirements.

6.1.1 Alignment with international instruments

The globalization of food markets requires countries to develop food standards that meet consumer needs and are internationally accepted and recognized. The WTO SPS Agreement states that national sanitary and phytosanitary standards based on agreed Codex Alimentarius, IPPC and OIE standards do not require additional scientific justification.

Some countries in the region have bodies responsible for setting food standards, often based on relevant Codex standards. However, in many other countries the food standards authorities are not well defined and do not actively participate in the development of national food standards.

As part of the overall food safety management system, national governments should develop food standards based on Codex Alimentarius. As food safety policy and legislation, all stakeholders, including consumers, need to be involved in the development of these national standards.
The SPS Agreement requires States to implement sanitary measures (food safety control) that provide an equal level of protection to their main trading partners. Under the SPS Agreement, sanitary measures include:

«…all relevant laws, decrees, regulations, requirements and procedures including but not limited to criteria for the final product; production processes and methods; testing, inspection, certification and approval procedures; quarantine regimes, provisions on statistical methods»

6.1.2 General recommendations for the legislative and regulatory framework

In a dynamic perspective of adaptation to international instruments, the legislative and regulatory framework governing food safety must undergo major changes. To do so, States must:

- Harmonise national regulations with international standards.
- Establish or strengthen food safety regulatory agencies with clearly defined responsibilities and resources.
- Improve national food safety policies to develop relevant food legislation.
- Develop the necessary legislative and institutional framework for food control, considering regional and international requirements as well as local conditions.
- Strive to better coordinate the roles of agencies involved in food safety management to minimize gaps or overlaps in activities while optimizing the use of limited public resources.
- The establishment of food safety legislation should provide a sound basis for national food inspection and control systems.

6.2 Consumer awareness

Communication, coordination, and cooperation between countries are essential to ensure food safety in a global economy. Ministries of health, agriculture, trade, and industry, and sometimes fisheries, tourism, and local (or regional) authorities are often involved in managing food safety, which is a cross-sectoral issue. The agencies should create consumer awareness on the importance and benefits of prioritizing food safety by the consumers. Continuous enlightenment must be pursued through regular information media and social media platforms. These awareness programs must be proactive and not reactive. It is equally important to communicate with the consumers in their language of understanding. Formations of consumer organisations should be encouraged where they do not exist, and the existing ones should be involved in national and grassroots food safety discussions and other initiatives.

6.3 Coordination of food safety activities at the national level

Communication, coordination and cooperation between countries are essential to ensure food safety in a global economy. Ministries of health, agriculture, trade and industry, and sometimes fisheries, tourism and local (or regional) authorities are often involved in managing food safety, which is a cross-sectoral issue. In the absence of a clearly defined national food safety policy with implementation plans, these organizations tend to act according to their own food safety objectives. Moreover, without a clear definition of the responsibilities of these organisations, the scarce resources available in the countries of the region are often wasted through duplication.

- Multi-sectoral governance and strengthening food control

It is important to promote multisectoral governance by increasing resources for the implementation of joint action plans between institutional actors on food and nutrition issues. The State has a responsibility to ensure that food safety control standards are applied and then to strengthen the control of food standards through the involvement of local authorities and civil society associations. Consumer advocates are called upon to ensure the promotion of food

labels as a tool to help consumers make informed choices (food labels help to make informed food choices in different settings, such as grocery stores). It is the responsibility of the state to set up effective control laboratories and monitor plans for verified and non- documentary control of imported products.

6.4 Recommendations for the informal sector

6.4.1 Considering the informal sector

Informal sellers will be officially recognized through the granting of licenses and legal status, facilitating their integration into food safety policy and ensuring better regulation. The licensing process should be simplified and incentivised to comply with food safety requirements.

6.4.2 Training and certification of operators

The introduction of a simple and recognizable certification for vendors who have received basic food safety training could reassure consumers about the safety of the foods they buy.

6.4.3 Improving hygiene standards

Encouraging better hygiene practices among vendors and food handlers, possibly with the support of local authorities or community initiatives, could gradually improve food safety and the perception of the informal sector.

6.4.4 Establish ingredient distribution centers:

The establishment of centers to provide street vendors with safe and quality-controlled ingredients could significantly improve the overall safety of the food they sell. These centers could serve as one-stop shop for vendors to access safe and affordable ingredients, thereby ensuring higher levels of food safety in the informal sector.

6.4.5 Strengthen national systems

Inspection and food safety control systems need to ensure better management and oversight of informal markets.

6.4.6 Need to involve the informal sector

To improve food security governance, it is essential to include the informal sector in policy discussions and to develop specific initiatives that address its peculiar challenges. This could include creating more accessible training programs, simplifying the licensing process, and establishing systems to help informal sellers adopt safer practices.

6.5 The implementation of training programs

Develop specialized training programs for informal vendors, including hygiene awareness workshops and hygiene certification, as observed in Kenya. There is a need for accessible

and practical training programs adapted to informal vendors. These programs should focus on basic food safety practices and be delivered in a way that is understandable to those with limited formal education.

Indeed, improving the education and awareness of informal sector actors and businesses on safe food practices can lead to significant improvements in food safety.

- Work with community leaders to disseminate safe practices and encourage the adoption of hygiene standards within local communities.
- Developing affordable and accessible certification mechanisms (including traceability) for organic products and food safety can help build consumer confidence and improve market access for informal producers.

6.6 Use of innovative technologies

- Use of digital technologies to improve food traceability, such as mobile applications used in India and Morocco, to enable better risk management and rapid response to crises.
- Implement early warning systems to report food safety incidents quickly, adapted to local conditions, and accessible to all stakeholders, including simple technologies such as SMS and voice messages.

6.7 Effective monitoring and control

- Invest in mobile laboratories and monitoring infrastructure to conduct on-site testing, especially in remote areas and informal markets, as ONSSA has done in Morocco.
- Integrate the Internet of Things, artificial intelligence, and real-time data analytics to improve food risk monitoring and control.

6.8 Public-private partnership promotion

Partnerships could be expanded to strengthen these efforts:

- Public-private partnerships: Collaboration between government agencies, private companies, and NGOs could help create more sustainable support systems for informal vendors.

It will encourage partnerships between governments, NGOs, and the private sector to support the informal sector. Collaboration can include the provision of resources, technical training, and infrastructure improvements, as well as research.

- Community initiatives: Local community organizations could be crucial in supporting informal vendors by organizing training, facilitating access to resources, and promoting food security awareness.

For example, cooperative models where small vendors can share resources, access training, and improve food safety practices should be encouraged.

- **International cooperation:** Partnerships with international food safety organizations could provide expertise, funding, and resources to improve food safety practices in the informal sector.

- Provide financial incentives or other benefits, such as quality labels or certificates, quality bonuses, etc., to encourage informal actors to adopt and maintain food safety standards.
- Promote exchanges and partnerships with international institutions and countries with advanced food safety governance systems to benefit from their expertise and best practices.

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