



Addressing food safety challenges in the African informal sector through innovative strategies & use cases

D3.1: Report of current food safety attributes in the informal sector

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Preface

This report is the result of literature research into the informal African food sector, its actors, its current food safety status, and how the latter can be uplifted. The informal sector is a major source of food for many Africans. The insights, conclusions, and recommendations will guide for further activities within the FoodSafety4Africa project's Work Package 3.

A survey is carried out in parallel out amongst stakeholders via the project's four use cases focusing on different supply chains. The respondents are to provide feedback on their food safety system in general as well as the status (awareness, practices) within their specific domain. The survey's outputs will complement this report and help guide our further activities.

Follow-up activities within Work Package 3 of FoodSafety4Africa include the establishment of an exchange platform and the formulation of policy recommendations, amongst others. They combine both top-down and bottom-up measures. The aim is to advance food safety towards a "mezzanine" level with improved awareness and practices but not necessarily formalizing food businesses, so that these can capture added value and access new markets.

The results of this and other prospective outputs will complement the outcomes of 4th Biennial Review (2015-2023) of the Comprehensive African Agriculture Development Programme (CAADP) showed encouraging results in this respect. Pilar I of CAADP focuses on food safety as part of the sanitary and phytosanitary control system in AU countries. The Africa Food Safety Index that CAADP uses to measure countries' performance is a composite index. It includes, for example, a "system indicator" for the status of a country's governance as well as "outcome indicators" for the prevalence of foodborne disease and for food-safety-related trade disruptions (rejection, border detentions, etc.). More countries submitted data for the 4th review than previously. Their scores varied widely, though, with food systems still scoring concerningly low for some countries as opposed to several others performing well [1]. Food pathogens cause the largest share of reported food safety incidents. Commonly implicated chemical hazards include heavy metals and mycotoxins, for example. The fragmented institutional landscape would merit from establishment of capacity building. There is a recent shift in focus towards sharing responsibilities for governance and the informal sector [2].

Against this dynamic background, it is imperative to exploit the outcomes featured in this report in synergy with other initiatives to realize a comprehensive food safety strategy for Africa.

Gijs Kleter (Work Package 3 leader)

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**Addressing food safety challenges in the African
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cases**

**Literature review:
Enhancing food safety with actors in
informal sectors of food systems**

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Executive Summary

The informal economy is vital to food systems in developing countries, supporting food security and livelihoods for millions. However, its lack of regulation poses significant food safety challenges, leading to health risks such as foodborne diseases. The FS4Africa initiative focuses on transforming African food systems by enhancing food safety in informal markets to improve food security, regional trade, and sustainability.

Method

A literature review was conducted to explore key themes in the informal food economy, including its definitions, significance, key actors, food safety issues, and incentives for innovation. This analysis forms the foundation for further project activities, emphasizing the informal sector's diversity and complexity.

Key findings:

- **Definition and Importance:** The informal economy includes unregistered and unregulated food-related activities essential for livelihoods and affordable food access in developing countries. In sub-Saharan Africa, it accounts for 86% of employment and supports local economies.
- **Actors:** Key players include smallholder farmers, traders, processors, retailers, and consumers, with midstream activities comprising 30-40% of value chain costs.
- **Food Safety Issues:** Challenges arise from poor hygiene, chemical misuse, and inadequate infrastructure, leading to significant health risks. Weak enforcement of food safety standards exacerbates these issues.
- **Perceptions and Incentives:** While awareness of food safety is growing, many actors in informal sectors prioritize food quality over safety. Emerging initiatives, such as direct delivery systems and organic food movements, are fostering consumer trust and improving practices.
- **Policy and Collaboration:** Government efforts to formalize informal sectors have been limited. Instead, enhancing infrastructure, fostering policy dialogue, and providing incentives for safe food practices can drive meaningful change.

Conclusion

Improving food safety in informal markets requires collaboration between governments, businesses, and informal sector actors. Key actions include strengthening food safety systems, raising awareness, and developing affordable certification mechanisms. A multifaceted approach can enhance sustainability and resilience in food systems while supporting livelihoods

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1 Introduction

The informal economy is an essential aspect of food systems, particularly in developing countries where it plays a crucial role in ensuring food security and providing livelihoods for millions. Despite its significance, the informal food sector operates outside the bounds of formal regulatory frameworks, leading to various challenges, particularly in the area of food safety. The informal sector is crucial for food security, but food safety is frequently overlooked. The consumption of unsafe food can lead to various diseases, ranging from diarrhoea to cancer.

FS4Africa aims to improve African food safety systems – with particular attention to the informal sector – through local market transformation enhancing food security and regional trade while reducing negative impacts on the environment, biodiversity, health, and society.

2 Method

This literature review aims to explore and summarize the main debates and consensus in the existing literature on the informal economy in food systems. It will delve into definitions and concepts used to define the informal economy, the importance of this sector in food systems, and the types of actors and businesses involved. The review explores and summarizes the main literature on the following topics.

1. Definitions and concepts used to define the informal economy, including a proposed definition for WP3.
2. Importance of the informal economy in food systems.
3. Types of actors and businesses in informal sectors of food systems.
4. Food safety issues in informal sectors of food systems.
5. Perceptions of and views on (safety issues in) the informal economy .
6. Incentives driving actors and businesses in informal sectors of the food system to contribute to food safety innovations
7. Summing up: enhancing food safety with actors and businesses in informal sectors of food systems.

3 Results

3.1 Introduction: Definitions and concepts used to define the informal economy

The informal economy is recognized as the counterpart (often supplementing, complementing or substituting) of the formal economy, encompassing all forms of informal employment, which lack labour or social protection. This includes self-employment in small unregistered enterprises and wage employment in unprotected jobs. The definition covers both informal businesses and workers. Businesses can exhibit varying degrees of informality—legal, fiscal, and labour—which may range from not being officially registered, not paying taxes or maintaining bookkeeping, to not offering contracts and benefits to employees. Informal workers include those working in their own or others' informal businesses, or independently such as subsistence farmers and family workers. These workers typically lack legal recognition and protection, often due to ambiguous or disguised employment relationships. Globally, 60% of the workforce is employed in the informal economy, with higher prevalence in low- and middle-income countries (LMICs), such as sub-Saharan Africa, where it represents an estimated 86% of all employment according to the International Labour Organization of the United Nations (2018), as cited in Mekonen et al., (2022).

The informal economy is often viewed negatively, as unproductive and a hindrance to economic development (Williamson, 2015). This perspective was supported by studies showing lower productivity and tax revenues from informal businesses (Farrell, 2004; LaPorta and Schleifer, 2008), alongside the government's inability to enforce regulations on labour conditions and food safety (Williamson, 2015). Informal businesses are also assumed to create unfair competition for formal businesses due to cost savings from operating informally. Informal workers face vulnerabilities such as illegal working conditions, lack of social protection, low and irregular earnings, and gender-specific risks like job insecurity and harassment. Despite modernisation theories predicting the decline of informality, it remains pervasive and essential to the global economy. Efforts to formalize informal sectors, such as easing registration processes, have had limited success, indicating that informality is likely an intrinsic part of the economy (Mekonen et al., 2022)

Different theories explain the persistence of informality (Crush and Young, 2019; Marusic et al., 2020, Perry et al., 2007).

- The *exclusion* view suggests that informal workers and businesses are excluded from state benefits and the formal economy due to high entry barriers.
- The *exit* view posits that individuals and businesses choose informality after weighing the costs and benefits of formalization.
- The *dualist* view indicates that the informal economy absorbs the overflow of workers and small businesses that the formal economy cannot accommodate. The structuralist view argues that the informal sector supports the formal economy by providing low-cost inputs and flexibility, often due to systemic labour exploitation.

These diverse theories highlight the complexity and context-dependent nature of informality, making generalizations difficult.

A proposed definition for WP3 can be articulated as: "The informal economy in food systems includes all food-related activities that are unregistered, unregulated, and often operate outside the bounds of formal market structures, including all the actors and steps of the food chain." This definition aims to include the diversity of the informal sector.

3.2 The importance of the informal economy in food systems

Informal food markets play a vital role in the livelihoods of the poor in developing countries, providing essential income sources and ensuring food accessibility and affordability to a large segment of the population (Termeer et al., 2024).

The economic contribution of informal food sectors is significant, even though they operate outside formal regulatory frameworks. This sector supports local economies by creating jobs and fostering entrepreneurship among small-scale producers and vendors. Despite its importance, the informal economy often faces challenges such as a lack of infrastructure, inadequate facilities, and limited access to credit and other financial services. However a blend of formal and informal arrangements can also lead to a thriving local economy. Formal contracts are combined with informal agreements between traders and farmers on supply, prices, and input supplies (e.g. seeds), where trader–farmer linkages are mainly based on local trade practices that have evolved. Such hybrid forms of governance, in which formal and informal actors make agreements with each other, increase the opportunities for informal actors to enter market transactions (Termeer et al., 2024).

3.3 Actors in informal sectors of food systems

The informal sectors of the food system are characterized by a variety of actors and businesses, each playing a role in supply chain activities or supporting service delivery. An important segment is the midstream sector (processing, logistics, wholesale) of food value chains. This 'midstream' takes account of 30–40% of the value added and costs in food value chains (Reardon., 2015). Among the key actors and businesses in informal food value chains we distinguish the following archetypical categories:

- Farmers, primarily smallholders, grow and sell crops and livestock without formal registration.
- Traders, including wholesalers and brokers, trade products from producers and sell them to retailers facilitating the movement of goods from rural to urban areas. They are often operating in an informal context and are often considered to be exploitative to farmers. Many initiatives are excluded from development initiatives and are not on the radar of policy to be involved in sustainable policy dialogues. But in reality, they are key in linking rural farmers to the major urban markets in all African countries
- Processors, transform primary products into higher value products.
- Retailers, such as street vendors and market stall operators, provide the final link to consumers, selling food directly to households.
- Consumers, from low-income households, depend on these markets for affordable and accessible food options, often prioritizing cost over quality and safety.

3.4 Food safety issues in informal sectors of food systems

Food safety in informal sectors of the food system in LMIC is a major concern due to often poor hygiene practices, lack of proper sanitation, and inadequate infrastructure (Morse et al.

2018). Smallholder farmers often lack knowledge about safe and rational use of chemical inputs, leading to overuse or misuse of agro-chemicals, which can result in the contamination of food. Wholesalers may use chemicals to enhance the shelf life and appearance of produce, while retailers often operate in environments with poor sanitation, exposing food to contamination from dirty water and unsanitary market conditions. In addition, actors in the formal markets lack access to testing facilities to verify food safety of produce traded. See Table 1 for an overview of the different sources of food safety risks for different actors in the food system.

Table 1: Possible sources of food safety risks

Segment	FS Risk (Chemical)	FS Risk (Contamination)
Farmer	Overuse/misuse of chemicals	Contaminated water, lack of sanitation facilities
Trade	Chemical use to enhance appearance or to control storage pests	Dust, environmental contamination
Processing		Contaminated additive and inputs
Retailer		Contaminated water, unsanitary market conditions
Consumers		At home preparation

Case studies from sub-Saharan Africa highlight the challenges in establishing effective national food safety control systems (Randolph, 2021; Grace et al., 2019; Roesel and Grace, 2015). For example, farmers sell foods of animal origin and fresh produce, which pose significant foodborne illness risks, in informal wet markets. This makes control and inspection difficult. Moreover, the costs associated with improving trading places and testing laboratories are prohibitive, and the expertise needed for proper analysis is often lacking. On top of this, the existing food safety standards are poorly enforced due to weak surveillance systems in many African countries (Randolph, 2021; Gwambi, 2020). Effective monitoring and control measures to regulate agro-chemical use are often absent and therefore urgently needed (Mutengwe et al., 2016).

3.5 Perceptions of and views on food safety issues in the informal sectors of food systems

Perceptions of food safety among actors in informal sectors of food systems in LMIC are varied. Many value chain actors in informal food sectors are aware of food safety issues but do not consider them a priority (Dijkxhoorn et al., 2023). However, these actors often mix perceptions of food safety with food quality. This is partly due to a lack of education and awareness about the health risks associated with unsafe food practices

Mwove et al. (2020) found that several factors affect food safety and hygiene awareness among informal food vendors in Kenya, including education level, training in food hygiene and safety, mobility of street food vendors (SFVs), and public health inspections. Public health

inspections had a significant impact on all aspects of food safety and hygiene scores. Mobile vendors were more likely to have poorer working conditions and food handling practices compared to non-mobile vendors. Higher levels of training and education were linked to better food safety awareness scores, while more experience in street food vending improved food handling practices. Also in East Africa, according to Blackmore et al. (2022a, b) informal markets have systems in place to oversee quality and safety, shaped by how consumers and value chain actors interact. They show that quality is crucial for everyone involved in the supply chain and for consumers, impacting their choices at every stage. This finding aligns with similar evidence from other countries such as found in the review article of Wallace et al. (2022), who find that although vendors have little knowledge of food safety, they have a positive attitude towards it. Nyokabi et al. (2018) studied the livestock value chain in Kenya and found that actors had low levels of knowledge of zoonoses and low levels of adherence to food safety standards, mostly due to a lack of formal training or low education levels.

There is a growing awareness among consumers on food safety, driven by advancing technologies and a growing economic middle class. As a result, numerous initiatives are emerging to address the issue. One category of initiatives is formed by the increasing number of direct delivery systems in major urban cities across Africa. These systems link trusted origins of safe foods to consumers thereby reestablishing trust and confidence in the supply chain. Other initiatives focus on raising awareness about the risks associated with chemical use in food production. There is an emergence of organic initiatives, although the products sold in these outlets are often uncertified due to the absence of formal verification mechanisms.

Box 1. Safe food via short value chains Kenya

Over the past decade, Kenya has experienced a significant transformation in its retail landscape, particularly with the emergence and growth of groceries (including fresh vegetables) on demand services. This shift has been driven by several factors, including technological advancements, changing consumer preferences, and the entrepreneurial spirit of local businesses.

The development of groceries on demand in Kenya can be traced back to the early 2010s, when mobile technology and internet penetration began to expand rapidly. With the proliferation of smartphones and the increasing availability of mobile internet, consumers started to demand more convenient and efficient shopping experiences. The launch of mobile money services like M-PESA in 2007 also played an important role, providing a reliable and widely used platform for digital transactions. The initial phase of the groceries on demand market was characterized by the entry of e-commerce platforms such as Jumia and Kilimall, which began offering a wide range of products, including groceries. These platforms leveraged their existing logistics networks to provide delivery services, making it easier for consumers to purchase groceries online and have them delivered to their doorsteps.

As consumer start building trust in online shopping, so did the number of platforms specializing in grocery and fresh delivery. Companies like Greenspoon (<https://greenspoon.co.ke/>), focus on providing high-quality, fresh produce and ready-to-eat meals. Sourced from 'responsible farmers' and aimed at catering the growing middle class in urban areas. Those consumers are increasingly looking for convenience and quality in their food purchases, including organic products. Initiatives like this also link business from the formal sector with suppliers from the informal sector. In addition to large e-commerce platforms, local startups have played a significant role in shaping the groceries on demand market in Kenya. Startups such as Twiga Foods, established in 2014, revolutionized the supply chain by connecting farmers directly with retailers through a digital platform (see <https://www.twiga.shop/landing-page?nextPage=/>). This not only improved the efficiency of the supply chain but also ensured that consumers received fresh produce at competitive prices.

3.6 Incentives driving actors in informal sectors of food systems to contribute to food safety innovations

Current government interventions to regulate the informal sector generally fall into three categories: reducing costs and simplifying procedures, increasing benefits, and enhancing enforcement. While rational cost-benefit analyses underpin these approaches, studies indicate they have minimal impact on reducing the size of the informal economy (Floridi et al., 2020; Rothenberg et al., 2016). Policies to increase economic benefits show some promising results, but evidence is inconclusive. Businesses often weigh the benefits of formalizing against associated costs, leading to partial formalization by more productive businesses and continued informality by less productive ones (Floridi et al., 2020). Therefore, rather than eradicating informality, the focus should be on addressing the broader issues faced by informal businesses through economic development, improved governance, and better public services. Government efforts to formalize the informal economy frequently fail and can even hinder economic growth and inclusivity. The informal economy encompasses economic activities that operate outside governmental regulation and taxation, often lacking formal recognition and protection.

Governments can play a better role in supporting informal midstream businesses by improving infrastructure and including actors and businesses in policy dialogues. Enhancing infrastructure, such as providing better market facilities and access to clean water, can significantly improve food safety. Including informal actors and businesses in policy dialogues ensures that their needs and challenges are addressed, fostering a more inclusive approach to food safety.

Despite these potential supports, the policy instruments offered by governments to encourage informal midstream businesses to contribute to public goals are limited. Mekonnen et al. (2022) highlight the need for more effective incentives to trigger substantial changes among informal sector actors. This could include financial incentives, training programs, and access to resources that promote safe food practices.

Notably, the African Union and the International Livestock Research Institute are jointly developing a new guideline for food safety interventions in the informal markets of Africa. Its finalization is scheduled for 2025. The guideline recognizes the importance of governmental oversight, training, and the creation of an enabling environment (IPS, 2024). It will extend upon the draft Codex Alimentarius guidelines for assuring the safety of food in traditional markets. Amongst others, these describe hygienic conditions and practices that food business operators should respect and checks and control that officials should make (Codex Alimentarius, 2024). These guidelines will extend upon previous ones for food safety of street-vended food in Africa (GAIN, 2021). In addition, actors and businesses operating in informal economies are driven by common business goals, similar to those in the formal sector. Therefore, emphasizing business opportunities that align profit maximization with public goals, such as food safety, is crucial. Moreover, the job opportunities provided by the informal sector and the economic value generated by the informal sector are substantial. The size of the informal sector in terms of employment, including agriculture, varies across regions of the world but is largest in Africa – which, in 2016, was estimated at 86% (ILO, 2018), presenting

opportunities for formal actors and businesses to engage and collaborate with those in the informal sector.

De Steenhuijsen Piters et al (*forthcoming*) developed a framework that presents a structured way of analyzing incentives and disincentives within the informal sector to support food system outcome transformation, that is also applicable to food safety and has the following analytical elements:

- Motives: differ strongly between actors in informality, can align or oppose, and drive actor strategies.
- Strategies: actors translate their motives, assets and relations to/with other actors into business strategies.
- Incentives and disincentives: actors are related to each other through numerous modes in a political-economic and social environment. Actors can stimulate or constrain (collective) innovations.
- External drivers: can influence processes internal to the system through investments, lobby and other modes of influencing

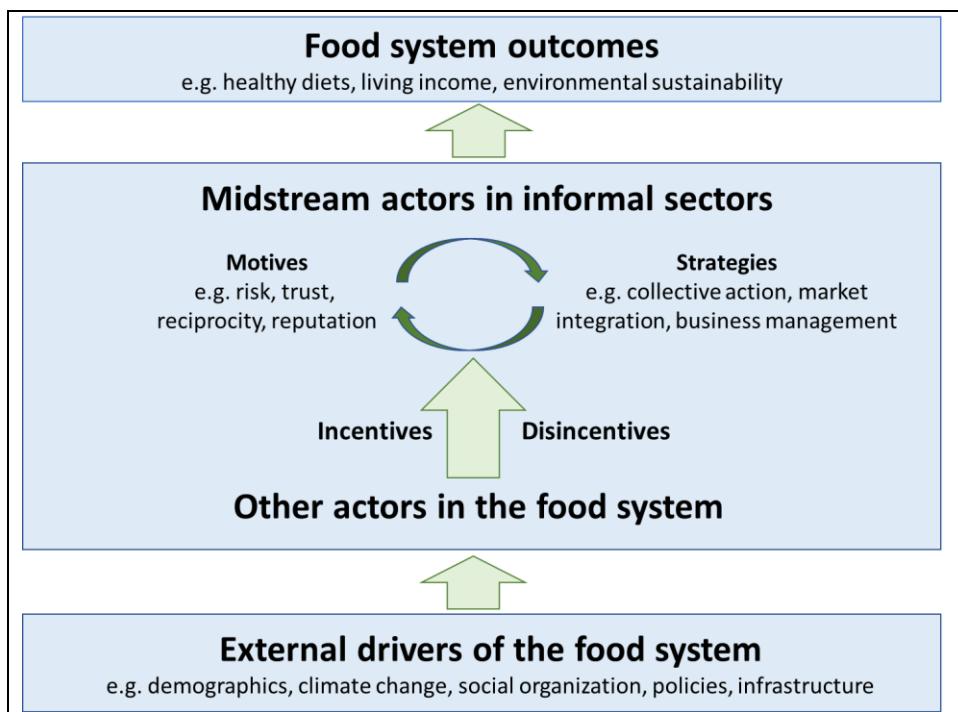


Figure 1: An analytical framework for food system transformation that address informality

4 Conclusion: Enhancing food safety with actors in informal sectors of food systems

Food safety issues within informal sectors of food systems are a major concern due to poor hygiene practices, inadequate infrastructure, and limited enforcement of standards. Perceptions of food safety among actors and businesses in the informal economy vary, with many conflating food safety with food quality. However, consumer awareness, notably among emerging middle-class consumers, is gradually increasing, driven by initiatives and the rise of direct delivery systems in urban areas.

Collaboration between governments and informal sector actors and businesses is crucial for achieving these goals. By working together, they can develop and implement policies that enhance food safety while supporting the livelihoods of those working in the informal sector. This collaborative approach can lead to more sustainable and resilient food systems, benefiting both producers and consumers.

In absence of government support, actors and businesses can incentivise each other..... Outside influence through investments, lobby and influencing policy makers is possible, required that the internal political economic dynamics of informality is understood.

Enhancing food safety within the informal food sector requires a multifaceted approach. Strengthening national food safety control systems is essential to manage and oversee informal markets effectively. Increasing education and awareness among informal actors and businesses about safe food practices can lead to significant improvements in food safety. Developing affordable and accessible certification mechanisms (including traceability) for organic and food safety can help build consumer trust and improve market access for informal producers.

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