

## Food Control in Uganda: Gaps and Opportunities in the Rice Value Chain

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### ABSTRACT

Food control defines activities, along the food supply chain, that provide consumer protection and ensure that all foods provided for human consumption are wholesome, conform to safety and quality requirements, and are accurately labelled as prescribed by law. This review analysed the capacity and performance of the existing food control system in Uganda, with specific focus on the rice value chain. This study targeted food safety laws, regulations and agreements to which Uganda is signatory for gaps in, and opportunities for improvement of food control along the rice value chain. The operational components of a food control system including inspection, testing, certification, enforcement, and surveillance controls along the rice value chain were investigated. The analysis established there is a significant threat to food safety due to outdated laws, uncoordinated regulatory framework, overlapping mandates, limited testing capacity, inadequate human resource, limited awareness of contaminants and lack of epidemiological data on food outbreaks along the rice value chain. Food control systems must strike a balance between food security, food safety, market access gains and protection of public health.

**Keywords:** food control; food safety; Uganda; rice value chain

### INTRODUCTION

Food is essential to life; hence, access to safe food is a basic human right (Fung et al., 2018). Significant aspects of food control must satisfy all legal, regulatory and consumer requirements in order to achieve the required quality and safety food standard specifications (FAO/WHO, 2021). While food quality focuses on all product characteristics, which influence food values in the consumer's viewpoint, food safety comprises all the measures aimed at protecting human health (Gardner, 2021). Food control laws should be able to enhance safe food production, facilitate trade at domestic, regional and international level, maintain or decrease the cost of doing business, ensure consumer protection while taking into account the existing infrastructure and capacity to ensure synergy in service provision (FAO/WHO, 2021).

Located in East Africa, Uganda has a population of 41.6 million people (UBOS, 2020). Uganda has an agriculture-based economy and 72% of its population are subsistence farmers (Fowler & Rauschendorfer, 2019). Agricultural products in Uganda contribute 28.5% to the national Gross Domestic Product (UBOS, 2020). Rice is third to wheat and sorghum as the food commodity most imported into Uganda (Trading Economics, 2021). Rice imports into Uganda have increased significantly over the years due to population growth, urbanization, changing consumer preferences and economic development (Makosa, 2016). Globalization has increased food availability, but it has also increased the chances that unsafe food produced in one country penetrates another market, hence the need for food control (FAO & WHO, 2018.)

Several studies done in the past on the Uganda rice value chain concentrated mainly on post-harvest practices, mapping and preferment of the marketing system and assessment of profits margins (Barungi & Odokonyero, 2016, Makosa, 2016, Kilimo Trust, 2014, Candia et al., 2015, Rugema et al., 2018). There is need to review the capacity of Uganda's national food control system as it relates to its ability to perform apposite functions efficiently and sustainably in order to provide safe rice for domestic consumption and export. The aim of this study therefore was to critique the food control regulatory framework of Uganda with special focus on the rice value chain so as to document gaps and opportunities for improvement of food control along the rice value chain.

### METHODOLOGY

The present qualitative study adapted a desk-based study on food control along the Ugandan rice value chain. Key components of the approach adopted here included:

- i. An explicit search strategy involving a desk-based search to retrieve literature from scientific databases
- ii. Visits to identifiable organizations to collect available literature that is either unpublished or difficult to access

### DATA SOURCE

To start the study, a shortlist of organizations considered as vastly involved in food control along the rice value chain was created as seen in Table 1.

**TABLE 1:** List of organisations that impact on food safety along the Uganda rice value chain

Sector	Regulatory Departments and Agencies
Government Ministries	Ministry of Trade, Industry and Cooperatives Ministry of Agriculture, Animal Industry and Fisheries Ministry of Health
Government Agencies	Uganda National Bureau of Standards Uganda Revenue Authority
Academia Scientific institution	Makerere University Uganda Industrial Research Institute
Civil society	SEATINI KILIMO Trust Rice Millers Association of Uganda

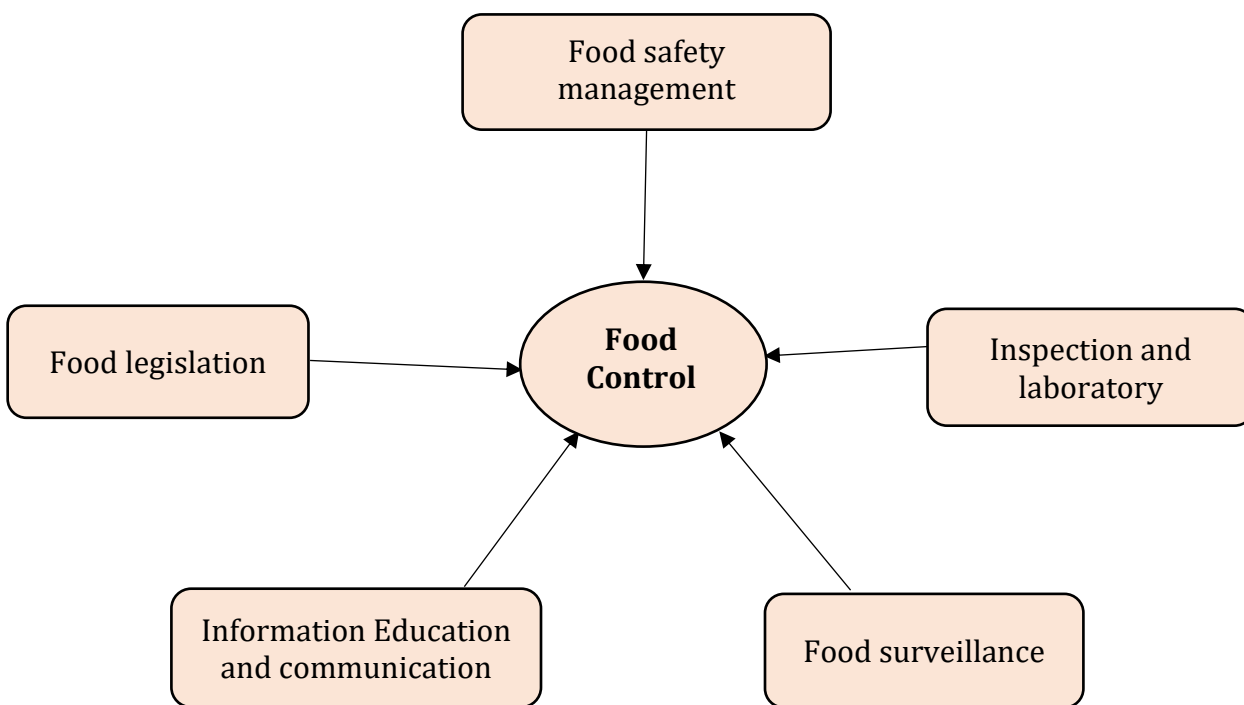
A desk-based search involving searching for information online was the first source of data in this study. The desk-based study reviewed published and unpublished data in form of peer-reviewed literature, food safety policies, acts and regulations of government ministries, departments and agencies that impact on food safety along the rice value chain. For the desktop search, peer-reviewed scientific publications were searched using key words, probable titles and filtering techniques. Literature was identified through web-based searches in Google Scholar and Makerere University Library using the following keywords: food control, food safety, food laws, food regulation and food inspection in the rice value chain of Uganda. To reduce positive-result publication bias, and to provide more complete information, grey literature was also searched to identify evaluation reports available from the websites of identified organizations and institutions.

The grey literature search included web portals and general internet search using different search engines and strategies.

The second part of information retrieval involved actual visits to relevant Ministries, Departments and Agencies (MDAs) that are involved in food control along the rice value. The visits to the organizations also provided opportunity for snowball sampling of other organizations that are part of the rice value chain and information retrieval.

**Inclusion and Exclusion Criteria**

Generally, criteria related to the evaluation of the ‘quality’ and the ‘content’ of retrieved documents was developed prior to the study. Given that food control is a very broad term encompassing many disciplines that are interconnected and interdependent, the scope of this study was limited to the main pillars of a food control system. The inclusion criteria was: -



**FIGURE 1:** Measurement model of the study

- i. A document was included in the study if it was an original study.
- ii. The document should have reported on the functional components of a food control system along the Ugandan Rice value chain which include: -
  - Food legislation
  - Food safety management
  - Inspection and laboratory services
  - Information, Education and communication
  - Food surveillance

The exclusion criteria was: -

- i. a study on food control in other food value chains
- ii. a study on food control outside the time period of this study (2010–2020)
- iii. Literature that did not directly address the objectives of this study.

## RESULTS AND DISCUSSION

### Food legislation

Food legislation is a key pillar for an effective food control system (FAO/WHO, 2021). Food control is governed by a complex set of laws and regulations, which set out the government's requirements to be met by food handlers to ensure the food is safe and of adequate quality (FAO/WHO, 2021). As a country, Uganda is subject to both national and international regulatory frameworks, through its membership to the United Nations, African Union, Common Market for East and Southern Africa (COMESA) and the East African Community (EAC) (COMESA, 2021, UN, 2021, EAC/AU, 2021). Uganda is also a signatory to the World Trade Organisation (WTO) agreements on Sanitary and Phytosanitary Measures (SPS) and on Technical Barriers to Trade (TBT) (WTO, 2021b). Uganda actively participates in the Codex Alimentarius Commission (CAC) activities through the National Codex Contact Point (NCC) (UNBS, 2021a)

**TABLE 2:** Policies and Acts that impact on food safety of rice in Uganda

Policies	Acts
National Standards and Quality Policy, 2012	Food and Drug Act, 1959 (CAP 278) Chemicals Control Act, 2006
Uganda Food and Nutrition Policy, 2003	Public Health Act, 1935 (CAP 281)
Uganda National Fisheries policy, 2004	Weights and Measures Act, 1965 (CAP 103)
Uganda National Agricultural Policy, 2013	Uganda Revenue Authority Act, 1991 (CAP 196)
National Grain Trade Policy, 2015	Agricultural Chemicals Control Act, 2006 Adulteration of Produce Act, 2000 (CAP 27) Trade Licensing Act, 1969 (CAP 101) Uganda National Bureau of Standards Act, 1983 (CAP 327) Standardization, Quality Assurance, Metrology and Testing (SQMT) Act 2006

### Gaps in food legislation

At national level, from policy to mandatory standards, the regulatory framework in Uganda is extensive, but fragmented in several government ministries and lacks harmonization. However, the main law governing food safety issues in Uganda is the Food and Drug Act (CAP 278) of 1959, which is outdated (FAO, 2021). Several other acts of parliament govern food safety issues in specific ministries and agencies in relative isolation and implementation as seen in Table 2. Important to note is that there, is no policy that comprehensively addresses food safety in the entire food sector hence the rice sector.

Several unsuccessful attempts have been made in the last 62 years to amend the Food and Drug Act (CAP 278) of 1959. The year 2003 saw the emergence of the Uganda Food and Nutrition policy and more recently, the 2017 draft National Food and Drug Authority Bill intended to replace 1959 Food and Drug Act (UFNP, 2003, Parliament of Uganda, 2020). The Food and Drug Act has a limited scope of food regulation. The act does not cover postharvest handling, processing, manufacture, importation, exportation, distribution and sale of food, which are core processes that affect food safety in the rice value chain (FAO, 2021). The collaborative mechanisms for key actors or regulatory institutions in the food value chain are not elaborated in the Food and Drug act.

In the EAC common market, unresolved Non-Tariff Barriers (NTBs) for rice negatively affect food safety (Kilimo Trust, 2018). The EAC describes NTBs as laws, regulations and administrative and/or technical requirements other than tariffs imposed by a partner state, whose effect is to impede trade (EAC, 2017).

NTBs in rice trade increase the cost of operation hence reducing profitability (Kathiresan et al., 2020). The consequence of reduced profitability is the wide spread blending of imported broken rice with 'whole' locally produced rice to increase profits (Makosa, 2016) hence compromising food safety. Similarly, NTBs increase the time taken to deliver rice to consumer markets there by increasing the risk of food contamination (Aday & Aday, 2020).

In 2005, the EAC member states agreed to a high Common External Tariff (CET) of 75% on rice to protect regional producers from cheap imports (Bünder, 2018). However, the EAC common market protocol also allows for duty remissions which gives member states leeway to reduce or eliminate tariffs as they deem necessary (Kilimo Trust, 2018). Kenya implemented a low CET of 35%, which renders Kenyan rice cheaper than locally produced rice in Uganda thereby encouraging smuggling (EAGC, 2016). Furthermore, whole rice was affected by high import tariffs more than broken rice whose niche market is Africa (Oiro et al., 2017). The high import tariff lowered the profit on whole rice in Uganda and prompted Pakistan and Vietnam exporters to redirect their exports to more profitable markets elsewhere (Makosa, 2016). Tanzania became the main supplier of whole rice while Pakistan and Vietnam maintained their dominance in the supply of broken rice (EAGC, 2016). Less profit on broken rice was tolerated due to limited number of alternative markets (Makosa, 2016). However, broken rice is reported to be more prone to aflatoxin contamination than whole rice posing a potential health risk to the consumer population (Iqbal et al., 2012, Ali, 2019)

**Opportunities in food legislation**

Food legislation should address food control at the various levels of the food chain right from farm to fork. Development of an integrated, comprehensive and consolidated food policy and subsequent law that links production, processing and marketing can address food control and safety issues. To ensure cohesion and eliminate the current fragmented regulatory framework, the scopes and responsibilities of food handlers, government regulators, and research and academia need to be clearly spelt out. The roles of the various actors need to be clearly defined to avoid reluctance and the blaming game when it comes to implementation, as is the case with the current inadequate food law in Uganda. Responsibilities for food control may be shared among a number of government agencies with wide-ranging goals, approaches, resources and capability. Training, traceability, penalties allotted upon breaching the law and risk analysis could be included in the contemporary food law. Harmonization of import tariffs on food products at the EAC level would promote fair trade, reduce on smuggling, improve on the quality of rice imported in the region and foster food safety along the rice value chain.

**Food safety management**

In Uganda, food safety along the rice value chain is managed in a multi sectorial approach by four government ministries and agencies. Food safety regulatory agencies work under the Ministries of Trade, Industry and Cooperatives (MTIC), Ministry of Health (MoH), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and Ministry of Finance, Planning and Economic Development (MoFPED). The main regulatory agencies that control food along the rice value chain include Uganda National Bureau of Standards (UNBS), Uganda Revenue Authority (URA), and the Directorate of Crop resources of MAAIF. The regulatory agencies also known as competent authorities manage food safety hazards, fraud issues and emerging risks. Similarly, all the actors along the rice value chain play a vital role in food safety.

**Responsibilities of regulatory agencies along the rice value chain**

• Uganda National Bureau of Standards

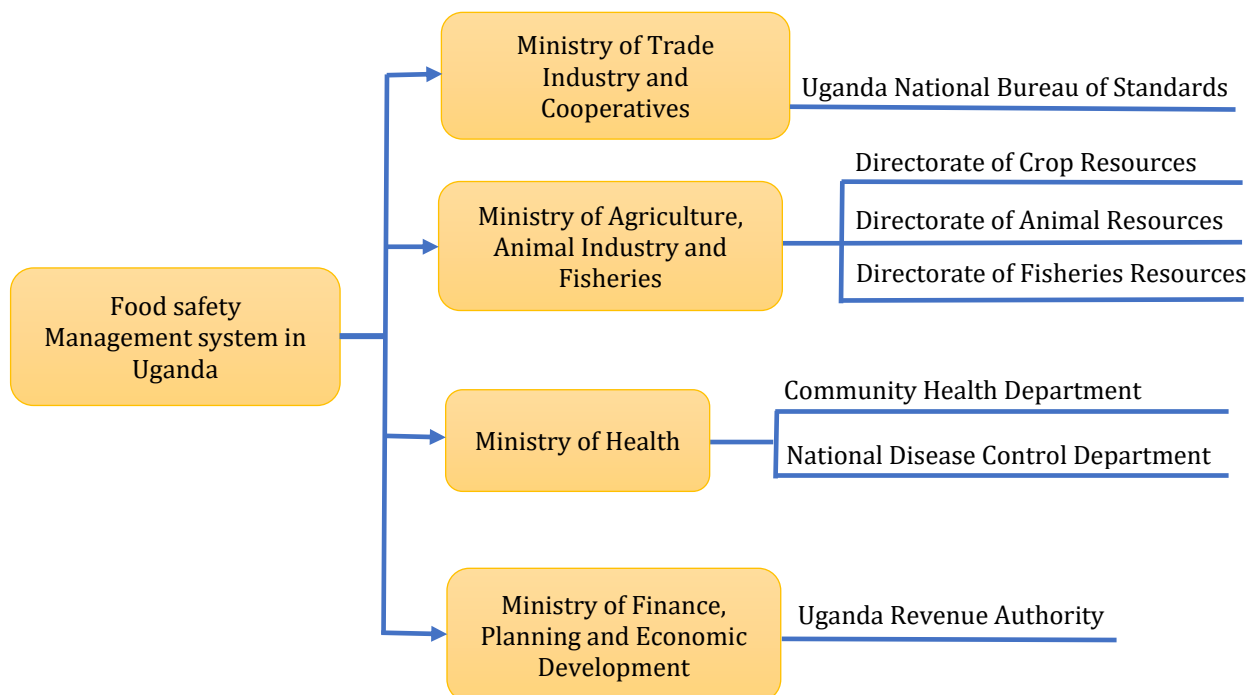
UNBS operates under the MTIC. UNBS is governed by the Uganda National Bureau of Standards act, 1983 (CAP 327). The mandate of UNBS is to formulate, promote and enforce food standards with the aim of protecting public health and safety (UNBS, 2021b). UNBS is responsible for the development and adoption of mandatory standards for all food products on the Ugandan market. Ugandan standards specific to the rice sector include US EAS 764, US EAS 765 and US EAS 128, for paddy, brown and milled rice respectively (UNBS, 2021c).

• Uganda Revenue Authority

URA operates under the Ministry of Finance, Planning and Economic Development. URA functions under the Uganda Revenue Authority Act, 1991 (CAP 196). URA regulates rice imported into Uganda by receiving and storing consignments in customs bonded warehouses until due taxes are paid and all technical regulatory agencies are satisfied with the food safety aspects. URA authenticates documents pertaining to the origin, quantity and destiny of rice imported and traded in Uganda with the aim of preventing dumping of substandard rice in Uganda

• Ministry of Agriculture, Animal Industry and Fisheries

The functions of MAAIF are derived from the Local Governments Act (1997). The mandate of MAAIF is to support, promote and guide the production of crops, livestock and fish to ensure the improved quality and quantity of agricultural produce and products for domestic consumption, nutrition, food security and export (MAAIF, 2020). MAAIF implements the Sanitary and Phytosanitary (SPS) agreement of the WTO. The SPS agreement acknowledges that national governments have the right to implement sanitary and phytosanitary measures necessary for the protection of human health (WTO, 2021a). The Directorate of Crop resources of MAAIF under the Agricultural Chemicals Control Act, 2006 regulates the use of agricultural chemicals whose excessive use can negatively influence food safety (MAAIF, 2020).



**FIGURE 2:** Uganda Government Ministries and Agencies involved in food safety of rice

- Rice handlers

Rice farmers, rice consolidators, processors, traders, retailers and caterers commonly referred to as the food industry have the primary responsibility for delivering safe rice to consumers (FAO, 2012). This responsibility ensures that the rice supplied at any stage of the rice value chain is safe and complies with mandatory rice standards specifications (Kilimo Trust, 2018).

#### **Gaps in food safety management along the rice value chain**

Food safety management along the rice value chain in Uganda lies in several agencies with overlapping mandates. These mandates lead to overlay of legal provisions, suboptimal linkages and lack of accountability for food safety incidences in the different agencies (MTIC, 2015). Uganda lacks a food safety authority that conducts an over-arching or coordination role in respect to food safety issues. Weak coordination among regulatory agencies results in duplication of efforts, wasted resources and counterproductive competition.

Countries of the EAC developed harmonized regional standards under the Standardization, Quality Assurance, Metrology and Testing (SQMT) Act (EALA, 2006). Harmonised standards ensure that all imports meet the regional standard specifications and enhance the competitiveness of exports in regional and international markets (EAC, 2018). Irrespective of the fact that rice standards have been developed and harmonized, locally, there is little awareness about them and they are generally not in use. Traders and consumers are therefore not making purchases based on standard specifications (EAGC, 2016, Kilimo Trust, 2018). Purchases depend on the “perceived quality as determined by the amount of broken rice, presence of foreign matter and comparison to rice available at the point of purchase (Makosa, 2016).

UNBS implemented the Pre-Export Verification of Conformity (PVoC) programme in 2013 (UNBS, 2021a). PVoC is a conformity assessment and verification procedure applied to all general goods with mandatory standards in their respective exporting countries, to ensure compliance with the applicable mandatory Ugandan standard specification. To promote food safety, the required minimum shelf life of imported food items is 75% upon arrival at the entry point in Uganda (UNBS, 2018). Large consignments of imported rice that undergo PVoC spend a long time in transit and outlast safety certifications. Drastic changes experienced during transit warrant re-examination on arrival but this has not yet been investigated (FAO/WHO, 2011)

UNBS provides relevant regulations and standards required in packaging and labelling of rice in Uganda (Government of Uganda, 2020). Majority of the rice on the Ugandan market is open traded and measured using cups or packaged in non-standardized polypropylene packaging materials with no information labels (Kilimo Trust, 2018). Lack of labelling is compounded by the fact that majority of the low-income consumers are more conscious of the unit price than the quality and safety requirements (Makosa, 2016).

Properly labelled rice is supplied to supermarkets for the top segment market where locally produced rice has failed to penetrate due to poor packaging and labelling requirements (Masao, 2013). Inconsistency in labelling requirements observed in both locally grown and imported rice consignments create a wider gap in food traceability and safety.

#### **Opportunities in food safety management**

A comprehensive food safety management system covering the entire food chain right from farm to fork as a way of protecting the health of consumers can be established. Restructuring regulatory agencies to create a single unified food safety authority is likely to be most effective and in line with EAC guidelines. The food safety authority would be multi-sectoral, objective in its oversight role and ensuring consistency of approach based on policy. The intention of the food safety authority would not be to ‘take over’ the system but rather to coordinate roles and align activities to appropriate regulatory agencies. The food safety authority would also ensure a clear delineation of responsibilities and increase transparency. This intern would also lead to effective use of resources, reduced duplication of effort and in the long-term, increased confidence and support from both the consumer and private sectors. However, unless given the appropriate political support and long-term planning with relevant stakeholders, a unified food safety authority could frustrate proponents for interdepartmental collaboration.

There is need to implement governance along the rice value chain to control food. Governance is concerned with the coordination function, which allows actors to reduce food safety risks in production, transport, storage and distribution (FAO/WHO, 2021). Detailed processes and product specifications as well as guidelines necessary to achieve food safety in the rice value chain can be defined through a governance structure. Co-regulation and self-regulation processes could be explored to address food safety issues given the limited human resource available in regulatory agencies.

Enforcement of standards and grading criteria for both locally produced and imported rice can provide a fair-trading platform and enhance safe and better-quality rice on the Ugandan market.

#### **Food inspection and testing**

Inspection of imported rice is directly managed by three government agencies: UNBS, URA and MAAIF. UNBS and MAAIF possess regulations, procedure and sampling plans for the inspection and testing of imported rice. Food inspectors from UNBS and MAAIF are deployed at specific entry points across the country and they work closely with URA customs officers. All imported rice consignments are tagged by the URA asycuda system for inspection. At the entry point, URA officers present all rice consignments at the verification bay to food inspectors. Food inspectors ensure that the rice has a certificate of conformity, a valid import permit or notified mark from an EAC partner state as evidence of compliance to the specific mandatory rice standard (UNBS, 2018).



TABLE 3: Regulatory requirements for food consignments in Uganda

Regulatory Agency	Requirements
MAAIF	Phyto-sanitary certificate
MAAIF/UNBS	Import permit
UNBS	Certificate of Conformity
UNBS/URA	Import Declaration form
UNBS/URA	Certificate of Origin of Commodity
UNBS/URA	Certificate of Incorporation
UNBS/URA	Tax Identification Number
UNBS/URA	Commercial invoice
URA	VAT registration

#### **Gaps in inspection and testing along the rice value chain**

Imported rice consignments without certificates of conformity or notified quality marks or valid import permits, undergo sampling and are sent to the laboratories for analysis, prior to release (UNBS, 2018). Testing laboratories are centralized in Kampala, which is far away from most entry points. Rice samples take long to be tested due to the limited testing facilities and this frustrates importers into smuggling (EAGC, 2016). Lack of laboratory testing facilities at entry points inhibit immediate testing of the rice that would help make quick and timely food safety related decisions (Khisra, 2017). Insufficient human resource capacity in regulatory agencies results into inconsistent sampling hence entry of rice imports whose food safety status is not known.

To ascertain food safety, UNBS provides mandatory certification audits for all rice milling industries (UNBS, 2021b). The certification marks indicate that the manufacturer is capable of consistently producing a safe and quality product in accordance with mandatory rice standards. Certification mainly targets well-established large-scale rice milling industries. This leaves a food safety gap for locally produced rice, which is never certified.

Locally, in order to obtain the required amounts of paddy rice for the industry as well as stock supplied directly into the market; rice is consolidated from different small-scale farmers. At farm level, there is eminent use of pesticides, fertilizers and poor post-harvest practices that pose a risk of chemical and microbiological contamination to locally produced rice (EAGC, 2016). Rice contamination further occurs during the storage, transportation and marketing but this is never inspected. Inspection is done basing on a checklist system to determine compliance with specifications outlined in the standards (UNBS, 2021c). This form of inspection is limiting and is appropriate for a large-scale milling company but may not apply to a retailer in the market trading rice.

Food inspection programmes serve to eliminate barriers to regional and international trade and boost competitiveness of the locally produced rice (Kilimo Trust, 2018). An important function of these programmes is to verify compliance with existing laws and standards. In East Africa, rice is considered a "sensitive product" (EAGC, 2016). This is because rice is having a high import tariff it attracts in each country (Vitale and Morrison, 2013). The challenge is that the requirements for "sensitive products" like rice have not been harmonised across the region (EAGC, 2016). Impromptu export and import bans have been observed in the rice value chain and this makes it hard for one to define the food safety criteria to guide the rice sector in both domestic and regional markets (Kilimo Trust, 2018). The frequent impromptu import and export bans on rice, results into smuggling that compromises the handling and safety of rice (EAGC, 2016).

#### **Opportunities in food inspection and testing**

Improvement in the availability and accessibility to laboratory facilities along the rice value chain should be prioritized. With the larger share of locally produced rice ending up in domestic markets, it is imperative that inspection be done to address any potential hazards. Risk analysis based on profiling of failed rice consignments to inform inspection frequency can assist with prioritizing work and placing focus on high-risk hazards during testing. Rapid test kits can be used to determine real time risk and reduce on the workload in the laboratories.

#### **Information, Education and Communication**

Information, Education and Communication (IEC) activities examined included extension and advisory services offered by government ministries, food industry, civil society and educational institutions to promote food safety (WHO, 2014).

#### **Gaps in Information, Education and Communication along the rice value chain**

Currently, IEC activities along the rice value chain are reactive, top down and donor-driven. Lack of the requisite knowledge in good agricultural practices at the farm level, good hygienic and manufacturing practices at the processing level coupled with improper packaging all play a part in increasing the possibility of contamination and food safety risks. There is inadequate public knowledge, awareness and practices related to the possible microbial and chemical contamination in rice. Public education is currently achieved through ad-hoc mass media programmes. Training requirements for enforcement officers are equally lacking. An evaluation of qualifications for all food inspectors indicated qualifications from diplomas to degrees in a variety of disciplines, with little to no competence-based inspection training. There is no annual schedule for training of food inspectors in all regulatory institutions. This is mainly attributed to limited funding by government. due to lack of research, product development and limited industrialisation. Due to lack of research, product development and limited industrialisation, the biggest percentage of rice locally grown in Uganda is consumed domestically or exported without any value addition.

#### **Opportunities in information, education and communication along the rice value chain**

There is need to build capacity and competence for all food handlers across the rice sector. Food handlers need to be appropriately trained and educated on food safety. Food handlers training materials should be context-specific and provide clear and realistic mechanisms by which food safety can be attained from farm to fork. Knowledge transfer training can be provided by inspecting officers, educational establishments, non-governmental organisations and private training companies. Training should be monitored and supervised by a central body to ensure consistency of approach.

Consumer awareness, which is context specific to target appropriate responses in the consumer, is key in driving improvement in food safety systems. Regulators should similarly receive competence-based training and evaluations to ensure that they can implement a risk based and proactive inspections. Development of country- specific training toolkits, which address the prioritised high-risk areas, may be required. Potential donors may be interested in observing, supporting and/or participating in the capacity building process.

Government leaders need to be convinced of the importance of monitoring food safety. Organising a high-level meeting to press the case for improvements in food control and demonstrate the benefits of capacity building in this regard may be crucial. Linking the needs assessment to regional initiatives or international obligations can also help to increase awareness and generate support.

Collaborative arrangements between the private sector and academia can develop relevant technical skills to improve food safety in the rice sector (NGTP, 2015). Establishment of a research and product development fund can improve and strengthen innovations and technology transfer, which directly influences the safety of rice.

Regulatory agencies could employ processes for constructive interactions with stakeholders such as food safety platforms, databases and stakeholder engagements to support networking and dialogue as a means of promoting communication. These communication platforms keep all regulators updated about the evolving food safety needs at national and international level and facilitate effective communication on key food safety issues.

### Food Safety Surveillance

Food safety surveillance is defined as the ongoing and systematic collection, analysis, and interpretation of data about a food borne disease, which is used in planning, implementing, and evaluating public health programs (FAO & WHO, 2018). Monitoring of contamination in a food chain, combined with surveillance of human illness and epidemiological investigations of outbreaks helps identify new hazards hence surveillance is a cornerstone of food control (Chebolu-Subramanian & Gaukler, 2015).

The market surveillance department of UNBS protects the public against false trade descriptions applied to rice by word of mouth, label, notice or advertisement. The false description of a product could be related to country of origin and/or manufacturer, expiry date and composition (UNBS, 2021a). The local government health inspectors inspect food preparation, production and marketing areas for compliance to good hygiene practices (Uganda National Planning Authority, 2020). The ministry of health epidemiology and surveillance identifies and captures data on the source of food related outbreaks and the population at risk (MOH, 2020).

### Gaps in food safety surveillance

There is limited data on the incidence and prevalence of food-borne diseases in Uganda. Lack of epidemiological evidence makes it hard to demonstrate the effect of a weak food control system on food safety and human health. Lack of epidemiological evidence could explain why there is no specific government budget to support food control in Uganda

### Opportunities in food safety surveillance

The shift in food control from "reaction and response" to "prediction and prevention" requires holistic and structured approaches to collecting and analysing intelligence for early identification of emerging food

hazards. Developing food safety intelligence by collection, analysis and communication of intelligence data will allow competent authorities to understand major food safety risks and refocus on prompt and effective preventative efforts.

### CONCLUSION

In general, the food safety law in Uganda is antediluvian and there is need to amend it to address gaps in food control systems and current changes in technology. However, although the factors jeopardizing food control seem to be easy to control in theory, current practices and bureaucracies involved in amending policies and acts, indicate that Uganda still has a long way to go in attaining an effective food control system. There remains a discrepancy between global aspirations and national realities. Barriers to achieving an effective food control system can appear insurmountable due to overlapping mandates, limited testing facilities, lack of awareness of contaminants in the rice value chain and absence of epidemiological evidence. A comprehensive situation analysis such as this can inform the development of a realistic road map to support the development of a sustainable food control system. Generation of political will, efficacy of training food inspectors, improving testing infrastructure and implementation of a governance structure are imperative. Food control systems must strike a balance between food security, food safety, market access gains and protection of public health.

### DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

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