# **Food Safety Governance in South Africa**

https://doi.org/10.36369/2616-9045/2024/v13i1a8 Online ISSN: 2616-9045.Print ISSN: 2218-5615

#### NTOMBIZETHU SIMPHIWE MKHWANAZI

University of Pretoria e2mkhwa@gmail.com

#### **CAMILLA ADELLE**

University of Pretoria Cadelleup@gmail.com

#### LISE KORSTEN

University of Pretoria lise.korsten@up.ac.za

### **Abstract**

This paper reviews public policy with a focus on food safety governance. In this study, food safety governance refers to the policy, institutions, and actors involved in forming, interpreting, implementing, and enforcing food safety policies. South Africa is faced with various food safety challenges, resulting from a fragmented governance structure. Hence, better governance of food safety is needed to facilitate effective enforcement. In this study, food safety governance and the challenges of an effective food control system were reviewed. The aim of this review is to assess and analyse the existing state of food safety governance in South Africa and highlight the need for better governance to address the identified challenges and ultimately enhance the effectiveness of food safety enforcement. The challenges that were identified included inconsistencies in the interpretation and implementation of standards and regulations, poor industry participation, poor enforcement of legislation, inefficiencies, lack of a national food safety policy, lack of coordination and cooperation among government at the national level, and lack of communication between the different departments and levels of government involved in the regulation of food safety. The fragmented government structure makes it difficult for the regulators to communicate with the broader industry. Consequently, in South Africa, there is a need to create a robust regulatory framework for food safety that is effectively communicated, fairly implemented, and enforced by the appropriate entities with the necessary training.

Keywords: Food security, Food systems, Food safety, Governance, Consumer protection



### Introduction

As a major producer of food products, South Africa significantly contributes to the regional and global food markets, with its agricultural sector accounting for approximately 10 percent of the country's total export earnings, reaching \$12.0 billion in financial year 2021 (International Trade Administration, 2023). With a rapidly growing global population and increasing food demand, food safety has become a critical issue globally (Hue, 2021), and effective governance is required to ensure that food products meet high safety and quality standards. Food safety is a critical issue (Olaitan, 2017) in all countries, regardless of their level of development (Adekambi et al., 2016). Nevertheless, developed countries have better resources and infrastructure to ensure their food supply safety (Gordon et al., 2020).

Food safety governance is faced with a formidable series of global challenges (Dreyer and Renn, 2009). In developed countries, the primary responsibility for food safety lies with government agencies (Läikkö-Roto, 2020), such as the Food and Drug Administration in the United States, the European Food Safety Authority in the European Union, and the Food Standards Agency in the United Kingdom. These agencies are responsible for developing and enforcing food safety policies, conducting food safety inspections, and monitoring food recalls (Thomann, 2018). However, developing countries, such as India, Brazil, and China, often face unique challenges in ensuring the safety of their food supply (Gordon et al., 2020), including limited resources, lack of infrastructure, and inadequate governance structures. Food safety remains a significant concern in India due to a lack of information and clarity and a lack of enforcement mechanisms despite the efforts of the Food Safety and Standards Authority of India (Yang, 2019). Additionally, despite significant progress in improving food safety in Brazil, including the implementation of new regulations (Van der Meulen et al., 2022) and the strengthening of enforcement mechanisms, food safety remains a major concern due to contamination (Taniwaki et al., 2019). Moreover, in China, although new regulations have been implemented and the enforcement mechanisms have been strengthened, there are still issues with food safety due to the widespread adulteration of food products (Liu et al., 2019).

The success of food safety governance in the United States, European Union, and United Kingdom demonstrates the importance of effective food safety governance in ensuring the safety of the food supply (Dong and Jensen, 2008). However, the efficacy of food safety governance faces challenges due to multiple jurisdictions, fragmented legislation, and ineffective monitoring, surveillance, and enforcement (Adams, 2000). These issues are notably present in South Africa. Furthermore, food safety governance typically encounters difficulties related to territory, miscommunication, and duplication of activities among role players (FAO, 2003; Boatemaa et al., 2019). Consequently, the weaknesses in food safety governance adversely impact the effective regulation of systems (Jia and Jukes, 2013; Unnevehr, 2005). To protect the health and safety of consumers and ensure the quality

and authenticity of exported, imported, and locally produced food, effective food control serves as an overarching aspect of national food safety governance (Adams, 2000; FAO, 2003/50). Food control is defined as "a mandatory regulatory activity of enforcement by national or local authorities to provide consumer protection and ensure that all foods during production, handling, storage, processing, and distribution are safe, wholesome, and fit for human consumption; conform to safety and quality requirements; and are honestly and accurately labelled as prescribed by law" (FAO, 2003).

Food policy is equally as important as food control. A food safety policy is vital for policy direction, resource mobilisation, and better coordination among stakeholders (Ministry of Health, 2022). It also demonstrates the state's commitment to providing safe and healthy food to customers and helps to ensure compliance with food safety regulations. The policy establishes the basis for the development of food safety regulations and sets the standards for food safety practices in the country. A review of food safety governance in South Africa is essential to ensure alignment and adherence to regulations that dictate the responsibilities of food businesses. This includes implementing measures to prevent food contamination and guarantee the safety of the food they produce, handle, and sell. A thorough assessment ensures that governance structures support and enforce these regulations effectively, safeguarding public health and maintaining standards within the food industry. Consequently, the objective of this study was to review the status of food safety governance in South Africa and unpack the challenges inherent in the governance of food safety in South Africa to provide practical implications for policymakers and other stakeholders.

# Methodology

A non-systematic literature review approach was adopted to identify pertinent literature sources. The search encompassed published peer-reviewed articles, reports, and grey literature sourced from Google Scholar, ScienceDirect, Scopus, government websites, professional societies, and organisational web pages. Search terms such as 'food safety,' 'governance,' 'policies,' 'food security,' 'food systems,' and 'consumer protection' were employed to retrieve relevant articles.

# **Food Safety Governance**

Food safety refers to all the measures that are taken to ensure that the food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use (WHO, 2006). This definition covers the idea that the safety of food is determined by the production and preparation conditions, rather than the outcome of end product testing, which implies a systems approach. This starts with the food safety culture in an organisation, including the shared perceptions of the importance of food safety,

communication founded on mutual trust, and confidence in the efficacy of the preventive measures (Yiannas, 2008). Moreover, the consistent practice of safe food handling behaviors by food handlers is crucial for ensuring food safety, as these behaviors directly demonstrate the safe handling of food (Griffith et al., 2010; Bolanos, 2020). Even though the presence of biological, chemical, and physical hazards occurs naturally (Zanin, 2021), some are introduced by humans across the food supply chain. Hence, effective food safety management is of the utmost importance throughout the system (FDA, 2012).

The legislation mandating regulatory control is referred to as food control. The primary duty of food control is to uphold the food laws that safeguard consumers from the risks of unwholesome, adulterated, or falsely advertised food items by forbidding the sale of products that do not meet the buyer's expectations regarding their nature, composition, and quality. There are various definitions for the term governance. Some of the definitions emphasise authority in an organisation, institution, or state (Pierre, 2000; Jordan et al., 2005; Flinders, 2002). While others refer to the structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation (Hyden and Bratton, 1992; Course Hero, 2021; Darko et al., 2016). Hyden and Bratton (1992) stated that governance is used both in political, functional, and intellectual contexts and historically refers to the task of administering a government or any other entity or organisation. Thus, government and governance are often used as synonyms.

A more recent understanding of the concept of governance goes beyond government. Governance describes "the patterns that emerge from the governing activities of the social, political, and administrative state actors" (Kooiman, 1993) and non-state actors. While the government includes the institutions and actions of the state (Jordan, 2008), and it is also governed by top-down hierarchical control through regulations (Lemos and Agrawal, 2006). Considering this, Trower (2010) perceived governance "as a collective effort through smooth and suitable processes to take actions that advance a shared purpose consistent with a country's mission". This definition entails structural arrangements, decision-making processes, and implementation capacity. Rhodes (1997) noted that governance "provides the institutional framework within which the civic-public realm is managed". Additionally, McCarney et al. (1995) viewed governance "as the relationship between civil society and the state, between rulers and the ruled, and the government and the governed". The focus of this definition is on the connection between government officials and the general public. In this study, governance was defined as the patterns that emerge from the governing activities of social, political, and administrative state actors and non-state actors (Kooiman, 1993). Non-state actors are individuals and/or organisations that are not affiliated with, directed by, or funded by any government (Johansson, 2020). Nonetheless, Cooperation among state and non-state actors, along with governance structures at various levels, can present difficulties. Due to the number

of actors involved, these actors can sometimes undervalue trust (Martinez et al., 2007). Thus, Fearne and Martinez (2005) asserted that a lack of trust between actors in the food supply chain can delay cooperation.

Food safety stakeholders are guided by national policy. Therefore, a food safety policy needs to outline the operational necessities for every component of the food safety measures (Redman, 2007; Cafaggi, 2012; Ansell et al., 2006). It must provide concrete answers to questions concerning all the different stages of a policy circle and the food production continuum, encompassing when, where, what, how, and by whom the food is processed. That is, a policy should be established on the foundation of a comprehensive understanding of the current situation and define what the public needs to ensure that their needs are addressed appropriately (Thomann, 2018).

The governance of food safety entails the oversight of regulations, guidelines, and norms that are established by the government that enforces food safety practices and policies. Nonetheless, like food security and food control, food safety governance is intricate and operates at multiple levels, involving a range of stakeholders with interdependent duties. According to Ogus (2004), food safety governance relies on legal and social regulations to steer or motivate behaviour. The primary objective of food safety regulation is to safeguard and advance public health, shield consumers from spoiled, counterfeit, or inappropriate food items, and offer consumers pertinent and accurate information to make informed decisions regarding safety and nutrition (FAO, 2005). Therefore, food safety controls are enforced through food safety standards and regulations.

Standards define the expectations. Busch (2000) maintains that standards are unsuitable instruments for organising markets and mitigating transaction costs but they "reflect much more fundamental social/technical relations that are essential to the establishment and regulation of social and ethical behaviour in capitalist markets". Standards serve as a mechanism for cementing power dynamics and can be viewed as tools for shaping the identities of individuals who are involved in various domains, from supermarkets to kitchens, to align with a relatively steady pattern (Baur et al., 2016).

Due to the complexity and diversity of food safety governance, there is disagreement in the literature (Henson and Humphrey, 2010). Lin (2014) and McMahon (2013) attest to the distinction between public and private food governance, and food safety governance is also determined by the distinction between public and private. Public food safety governance seldom meets the broader social and ecological concerns and is broadly concerned with food, health, and safety needs (McMahon, 2013). Thus, food safety governance needs to cover elements including "strategic direction, organisational structure and accountability, policies and standards, risk, and issues [with] management, culture, and behaviours" (GFSI, 2018). Food safety governance involves reconciling the interests, values, and perspectives of actors from different sectors and policy areas

including international trade, environmental problems, agricultural policies, human rights, and health problems (Díaz-Méndez and Lozano-Cabedo, 2020). However, South Africa lacks a systematic food safety governance framework, and this is a matter that requires appropriate attention and action (Van Bers et al., 2019).

# Why is there a need for food safety governance in South Africa?

For a variety of reasons, South Africa's food safety governance is essential. Firstly, the nation has one of the largest food industries in the world, and it is important to the economy. Thus, maintaining this sector and avoiding financial losses due to food recalls or outbreaks of foodborne illnesses is needed to ensure that food is safe to eat (Hussain and Dawson, 2013). Secondly, even though there is no estimated burden of foodborne diseases due to a lack of data (Shonhiwa et al., 2019), cases of food contamination have been reported, which have a high probability of causing foodborne illness (Muzigaba et al., 2016). By ensuring that the food that is produced and consumed is safe for consumption, effective food safety governance can aid in addressing this problem (Gardner, 1993).

Thirdly, effective governance of food safety is essential for preserving public health and security (NRC, 1998; Adams, 2000). Foodborne diseases can have major health effects and can be fatal, particularly for susceptible groups like children, pregnant women, and the elderly (WHO, 2006). Therefore, the health and welfare of South Africa's population can be protected by making sure that the governance of food safety is effective (Mukamba, 2011).

Fourthly, strong food safety governance can improve South Africa's food industry's reputation abroad. Having a strong food safety system can help to increase consumer trust in South African food goods, which will increase exports and foreign investment as consumers' concerns about food safety decrease (Unnevehr, 2003). Nevertheless, despite the significance of food safety governance, South Africa has encountered several difficulties in this area. For instance, the absence of effective regulation and enforcement of food safety legislation is one of the primary issues (Oloo, 2018). Consequently, this has led to foodborne illness outbreaks and a significant number of food recalls.

# **Challenges with Food Safety Governance**

In recent decades, a series of food crises have occurred across the globe (Verbruggen, 2016); these are likely due to the globalisation of food supply chains, the increasing concentration of economic power among food retailers, and the emergence of new consumer concerns related to animal welfare, dietary habits, the environment, and fair trade. Additionally, these crises have brought to light severe inadequacies in the prevailing design and implementation of food safety laws in numerous nations. This has not only intensified consumer awareness and anxieties regarding food safety but has also increased

scepticism towards government regulation, resulting in significant reputational costs for branded food producers (Lin, 2014).

Following these food crises, several nations have revised their food legislation and regulatory frameworks by increasing border inspections, imposing import restrictions, and incorporating food chain controls (Adams, 2000). For example, South Africa revised its regulations under the Foodstuffs, Cosmetics, and Disinfectants Act 54 of 1972 about overall hygiene requirements for food facilities, food transport, and related issues and the regulation relating to the application of hazard analysis and the critical control point system (DoH, 2018a; DoH, 2018b). South Africa also published a compulsory specification for processed meat products (DTI, 2019).

One of the major challenges for food safety governance in South Africa is the complexity of the regulatory framework, which includes a range of laws, regulations, and standards that are aimed at promoting and maintaining food safety (Boatemaa et al., 2019). This complexity can make it difficult for food producers and suppliers to understand and comply with the requirements, leading to non-compliance and potential food safety risks (Oloo et al., 2018). Additionally, the lack of resources and capacity within the regulatory agencies that are responsible for enforcing food safety standards can limit their ability to effectively monitor and enforce compliance (Thomann, 2018). Other major challenges include a lack of coordination and cooperation among government at the national level, national food safety policy, inconsistencies in legislation, inefficiencies, and poor implementation, enforcement of legislation, and industry participation. These challenges and how they influence food safety are discussed below.

# • National food safety policy

Coherent national food safety policies are the foundation of effective food safety arrangements. Generally, most food safety concerns in South Africa are not adequately addressed in national governmental policies (FAO, 2005). Thus, adopting a coordinated and sustainable approach to the holistic management of food safety is challenging. Furthermore, the major public health and economic implications of food safety are not fully recognised (Kaferstein, 2005). Hence, national policymaking continues to assign low priority to food safety. To rectify this situation, the government needs to understand the public health and economic benefits associated with improving food safety governance (McMahon, 2013) and, in consultation with all stakeholders, design comprehensive national food safety policies.

In several nations, the current legislation is obsolete, inadequate, and incapable of effectively addressing contemporary and emerging food safety concerns. For example, some food laws were developed several decades ago and have not undergone revisions to encompass the current food safety standards and trade agreements as outlined by Codex (FAO, 2005). Enforcement of food legislation is problematic in certain instances, which

leads to insufficient consumer protection against fraudulent practices and contaminated food items and the import and domestic production of substandard food products. Furthermore, Nago (2005) and Tomlins and Johnson (2009) clarified that the informal sector, which frequently produces and distributes fresh and processed food products (such as street foods) for direct consumption, often operates outside of the official control systems and is the least regulated, except by the municipal environmental hygiene authorities.

Lack of coordination and cooperation among government at the national level Effective food safety governance requires coordination and cooperation among the various government departments and agencies. In the absence of a comprehensive national food safety policy with strategic and action plans, these institutions tend to operate based on their aspirations of food safety (Vipham, 2018). The absence of a clear strategy and action plan leads to multiple institutions operating independently, with no clear responsibility for food safety. This often results in the duplication of activities, miscommunication, and ineffective utilisation of resources (Savelli and Mateus, 2019). The need for a well-functioning coordination mechanism cannot be overstated. In many developing countries, the existing mechanisms are insufficient, which leads to inefficiencies and increased risks to public health (UNDP, 2017). Thus, it is important to have a clear understanding of the responsibilities among institutions and a system in place to ensure effective communication and cooperation. However, the challenge of coordinating food safety governance remains a persistent issue in many countries, including South Africa (FAO, 2005). The national policy on food and nutrition security highlights the need for a central coordinating body for food safety in South Africa, which could bring together the different government departments and stakeholders and streamline their efforts towards a common goal of ensuring food safety for the population. This was suggested in 2001; however, nothing has materialised to date.

### • Inconsistencies in the standards and regulations

South Africa has inconsistencies in its standards and regulations, which are largely influenced by trade agreements, customer demand, and government priorities. Trade is often used as an argument either for or against food safety standards, controls, and regulations (Unnevehr, 2003). Thus, these inconsistencies, both within and across countries, are due to the pressure to meet global trade standards. Global food safety standards often favour established exporters, which can limit the access of developing countries to export markets (Unnevehr and Ronchi, 2014). These standards may be inconsistent due to the overlapping commissions of various organisations, lack of consideration for country or value-chain context, conflicting regulations based on the mandates of developed nations, fragmented or missing legislation, and differing food safety standards for export versus domestic market production (Grace, 2015).

Consequently, these inconsistencies can result in additional compliance burdens on the value-chain actors (Graffham et al., 2007).

# • Poor implementation and enforcement of legislation

Another challenge in food safety governance is the limited resources and capacity of the enforcement agencies, which can result in limited enforcement of food safety standards and lenient penalties for non-compliance. This can reduce the deterrent effect of the regulatory framework, leading to a higher risk of food safety violations. Additionally, the lack of coordination between the different enforcement agencies can lead to inefficiencies and gaps in enforcement.

## • Poor industry participation

A key challenge in food safety governance is the limited participation of the food industry in promoting and maintaining food safety standards. Despite the presence of industry associations and other organisations, there is often a lack of engagement and cooperation between the industry and the regulatory agencies (Martinez et al., 2007). This can limit the effectiveness of the initiatives that are aimed at promoting food safety and the ability of the industry to identify and address food safety risks (Unnevehr, 2003).

## Inefficiencies

Food safety governance in South Africa has many inefficiencies that lead to waste, mismanagement, and economic losses. According to Grace (2015) and Vipham et al. (2018), the existing food safety arrangements and agriculture value chains are largely inefficient. The root causes of these inefficiencies include "overlapping responsibilities, misconceptions, inadequate or misplaced controls, and lack of data for informed decision-making" (Jaffee et al., 2018). The impact of these inefficiencies is far-reaching and affects individuals, the food and agriculture industry, and governments. While precise estimates are unavailable the economic repercussions of foodborne illnesses are believed to be significant (Grace, 2017; Hoffman et al., 2015), and the costs associated with foodborne diseases include medical care, productivity losses, employment loss, and mortality (Scharff, 2012). Additionally, there are also expenses related to inadequate governance, non-compliance with trade regulations, and the wastage or loss of food (De Lange and Nahman, 2015).

### Conclusion and Recommendations

The study involved a review of food safety governance, discussing the challenges within South Africa's system, which involves multiple actors in a complex structure. This complexity has led to conflicting regulatory regimes, hindering effective coordination among these actors, making it challenging to discern necessary actions to enhance food

safety. Additionally, the fragmented governance structure has serious implications for how these diverse actors behave and interact in ensuring food safety.

Evidence from the literature identified the challenges of food safety governance as lack of coordination and cooperation among government at the national level, national food safety policy, inconsistencies in standards and regulations, poor industry participation and enforcement of legislation, and inefficiencies. The lack of coordination and cooperation among government departments in South Africa is a major hindrance to effective food safety governance. Therefore, to ensure effective food safety management in South Africa, there is a need for comprehensive national food safety policies that address the current and emerging food safety issues. These policies should be developed through stakeholder consultation and should address the informal sector and its regulation and control.

Despite the efforts of the South African government and other organisations to promote food safety, significant challenges remain. The complexity of the regulatory framework, limited resources and capacity of the enforcement agencies, and limited industry participation are significant challenges that need to be addressed to ensure that food products meet high standards of safety and quality. Through continued efforts to improve food safety governance, South Africa can ensure the health and well-being of its citizens and the stability of the food industry. The inefficiencies in food safety governance in South Africa are a major concern and have far-reaching consequences. Consequently, this topic should be prioritised for future research, which could provide valuable insights and help to identify potential solutions to these challenges.

The evidence indicates that food control is a crucial aspect of national food safety governance. Food control serves as a regulatory structure that addresses the level of inclusiveness, transparency, and accountability, which ultimately impact trust. Therefore, centralised and systematically arranged food safety governance is needed to account for any complexities and diversities. The management of food safety governance should also be considered. The issues of food safety are no longer the responsibility of a single institution or industry. Thus, a larger management system is needed that involves the various entities that are responsible for the implementation and enforcement of food safety policies. In this way, food safety management could provide direction to all stakeholders for establishing and implementing food safety management measures through collaborative efforts to safeguard human health. The study offers a fresh perspective by advocating for a comprehensive, nationally inclusive, and communicated regulatory framework involving stakeholders. It stresses the need for a centralised, transparent, and collaborative food safety management system beyond singular entities, aiming to address existing challenges and ensure public health.

### **Areas for Future Research**

The identified areas for future research present crucial avenues to enhance food safety governance in South Africa. Firstly, investigating the implementation of management systems among the diverse entities involved in governance could shed light on collaborative approaches for improved outcomes. Secondly, delving into the causes behind the lack of coordination among national government departments would offer insights for structural and procedural enhancements in governance. Thirdly, focused research on developing comprehensive national food safety policies, emphasising stakeholder consultation and informal sector regulation, is essential to address emerging issues. Lastly, exploring methods to bolster industry participation and legislation enforcement stands as a significant factor influencing the attainment of elevated food safety standards. An exploration of these areas could yield practical solutions and strategies vital for fortifying South Africa's food safety governance.

**Conflict of Interest**: The authors have no competing interests to declare.

**Acknowledgments**: The authors would like to acknowledge the DSI-NRF: Centre of Excellence in Food Security, the University of Pretoria, and Bayer who sponsored this project.

### References

- Adekambi, S. A., Dabade, D. S., Kindji Gaspard, K., Den Besten, H. M. W., Faure, M., Nout, M. J. R., Sobosso, B., & Ingenbleek, P. (2016). Towards stable access to EU markets for the Beninese shrimp chain: Quality, legal and marketing issues. In *Quality and innovation in food chains: Lessons and insights from Africa* (pp. 213-236). Wageningen Academic Publishers. <a href="https://doi.org/10.3920/978-90-8686-825-4">https://doi.org/10.3920/978-90-8686-825-4</a> 10
- Adams, M. (2000). Ensuring Safe Food from Production to Consumption. *International Journal of Food Science and Technology* 35(3), pp.356
- Alrobaish, W.S., Vlerick, P., Luning, P.A. and Jacxsens, L. (2021). Food safety governance in Saudi Arabia: Challenges in control of imported food. *Journal of Food Science*, 86(1), pp.16-30.
- Ansell, C.K., Ansell, C. and Vogel, D. (2006). What's the beef?: the contested governance of European food safety. MIT Press.
- Baur, P., Driscoll, L., Gennet, S. and Karp, D. (2016). Inconsistent food safety pressures complicate environmental conservation for California produce growers. *California Agriculture*, *70*(3), pp.142-151.



- Boatemaa, S., Barney, M., Drimie, S., Harper, J., Korsten, L. and Pereira, L. (2019).

  Awakening from the listeriosis crisis: Food safety challenges, practices, and governance in the food retail sector in South Africa. *Food Control*, 104, pp.333-342.
- Bolanos, J. A. (2020). Organisations, culture & food safety: a rapid comparative overview of organisational culture frameworks in the food sector. *London: FSA*.
- Busch, L. (2000). The moral economy of grades and standards. *Journal of Rural Studies*, *16*(3), pp.273-283.di
- Cafaggi, F. (2012). Transnational governance by contract—private regulation and contractual networks in food safety. In *Private Standards and Global Governance*. Edward Elgar Publishing.
- Course Hero. (2021). Good governance and corporate social responsibility. <a href="https://www.coursehero.com/file/122182845/GG-CSR-Module1pdf/">https://www.coursehero.com/file/122182845/GG-CSR-Module1pdf/</a> [Accessed February 23, 2023]
- Darko, J., Aribi, Z.A. and Uzonwanne, G.C. (2016). Corporate governance: the impact of director and board structure, ownership structure, and corporate control on the performance of listed companies on the Ghana stock exchange. *Journal of Corporate Governance* 16(20, pp.259-277.
- De Lange, W. and Nahman, A. (2015). Costs of food waste in South Africa: Incorporating inedible food waste. *Waste Management*, 40, pp.167-172.
- Department of Health. (2018a). Regulations governing general hygiene requirements for food premises, the transport of food, and related matters. The Republic of South Africa.
- Department of Health. (2018b). Regulations relating to the hazard analysis and critical control point system (HACCP system): Amendment. The Republic of South Africa.
- Department of Trade and Industry. (2019). Compulsory Specification for Processed Meat Products. The Republic of South Africa.
- Díaz-Méndez, C. and Lozano-Cabedo, C. (2020). Food governance and healthy diet analysis of the conflicting relationships among the actors of the agri-food system. *Trends in Food Science & Technology*, 105, pp.449-453.
- Dong, F., and Jensen, H. H. (2008). Sanitation and hygiene deficiencies as contributing factors in the contamination of imported foods. *Imported Foods: Microbiological Issues and Challenges*, 139-158.
- Dreyer, M. and Renn, O. (2009). Food safety governance (pp. 111-120). Berlin: Springer.

- FAO. (2003). FAO's strategy for food chain approach to food safety and quality: A framework document for the development of future strategic direction. Committee of Agriculture. The seventeenth session, Rome, 31 March- 4 April 2003.
- FAO. (2005), FAO/WHO framework for developing national food safety emergency response plans. Food and Agricultural Organization, UN.
- Fearne, A. and Martinez, M.G. (2005). Opportunities for the coregulation of food safety: insights from the United Kingdom. Choices 20(2), pp.109-116.
- Food and Drug Administration. (2012). Irradiation in the production, processing, and handling of food. Final rule. Federal Register, 77(112), pp.34212-34215.
- Flinders, M. (2002). Governance in Whitehall. *Public Administration*, 80(1), pp.51-75.
- Gardner, S. (1993). Consumers and food safety: A food industry perspective. Food and Agriculture Organization of the United Nations: FAO, Rome, Italy.
- Global Food Safety Initiative (GFSI). (2018). Enhancing food safety through third-party certification. GFSI: Atlanta, USA.
- Gordon, A., DeVlieger, D., Vasan, A., & Bedard, B. (2020). Technical considerations for the implementation of food safety and quality systems in developing countries. In Food Safety and Quality Systems in Developing Countries (pp. 1-40). Academic Press.
- Grace, D. (2015). Food safety in low- and middle-income countries. International Journal of Environmental Research and Public Health, 12(9), pp.10490-10507.
- Grace, D. (2017). Food safety in developing countries: research gaps and opportunities. Feed the Future, White Paper.
- Graffham, A., Karehu, E. and MacGregor, J. (2007). Impact of EurepGAP on small-scale vegetable growers in Kenya (No. 6). London: DFID.
- Griffith, C.J., Livesey, K.M. and Clayton, D. (2010). The assessment of food safety culture. British Food Journal 112(4), pp.439-456.
- Henson, S. and Humphrey, J. (2010). Understanding the complexities of private standards in global agri-food chains as they impact developing countries. The Journal of *Development Studies*, 46(9), pp.1628-1646.
- Hoffman, S., Maculloch, B. and Batz, M. (2015). Economic burden of major foodborne illnesses acquired in the United States (No. 1476-2016-120935).

- Hue, V.T. (2021). Food safety in Vietnam: Perceptions, behaviours, economics, and policy (Doctoral dissertation, University of Western Australia)
- Hussain, M.A. and Dawson, C.O. (2013). The economic impact of food safety outbreaks on food businesses. *Foods* 2(4), pp.585-589.
- Hydén, G. and Bratton, M. eds. (1992). Governance and politics in Africa. L. Rienner
- International Trade Administration. (2023). South Africa-Country Commercial Guide. <a href="https://www.trade.gov/country-commercial-guides/south-africa-agricultural-sector">https://www.trade.gov/country-commercial-guides/south-africa-agricultural-sector</a>. [Accessed December 13, 2023]
- Jaffee, S., Henson, S., Unnevehr, L., Grace, D. and Cassou, E. (2018). *The safe food imperative: Accelerating progress in low-and middle-income countries*. World Bank Publications.
- Jia, C. and Jukes, D. (2013). The national food safety control system of China—a systematic review. *Food Control*, *32*(1), pp.236-245.
- Johansson, F. (2020). Private Security Providers and Humanitarian Aid-Workers: The Creation of Security and Aid-Workers' Use of Private Security Providers in Somalia (Masters dissertation, Uppsala University).
- Jordan, A., Wurzel, R.K. and Zito, A. (2005). The rise of 'new policy instruments in comparative perspective: has governance eclipsed government? *Political Studies*, *53*(3), pp.477-496.
- Jordan, A. (2008). The governance of sustainable development: taking stock and looking forwards. *Environment and Planning C: Government and Policy*, 26(1), 17-33.
- Käferstein, F. (2005). Food safety: a pressing public health and economic issue. In Understanding the Global Dimensions of Health (pp. 199-212). Springer, Boston, MA.
- Kooiman, J. ed. (1993). Modern governance: new government-society interactions. Sage.
- Läikkö-Roto, T. (2016). Enhancing the efficacy of local official food controls in Finland (Doctoral dissertation, University of Helsinki)
- Lemos, M.C. and Agrawal, A. (2006). Environmental governance. *Annual Review of Environment and Resources*, *31*(1), pp.297-325.
- Lin, C.F. (2014). Public-private interactions in global food safety governance. *Food and drug law journal*, *69*(2), pp.143-160.
- Liu, Z., Mutukumira, A.N. and Chen, H. (2019). Food safety governance in China: From supervision to coregulation. *Food Science and Nutrition* 7(12), pp.4127-4139.

- Martinez, M.G., Fearne, A., Caswell, J.A. and Henson, S. (2007). Co-regulation as a possible model for food safety governance: Opportunities for public-private partnerships. Food Policy 32(3), pp.299-314.
- McCarney, P., Halfani, M. and Rodriguez, A. (1995), Towards an understanding of governance: the emergence of an idea and its implications for urban research in developing countries. Urban Research in the Developing World, 4, pp.91-141.
- McMahon, M. (2013). What food is to be kept safe and for whom? Food-safety governance in an unsafe food system. Laws 2(4), pp.401-427.
- Ministry of Health. (2022) National food safety policy. Food and Drugs Authority, Ghana. The Republic of Ghana.
- Mukumba, C. (2011). An analysis of Southern Africa's food safety standards within the broader framework set by the WTO's SPS measures: a South African case study (Masters dissertation, University of the Witwatersrand).
- Muzigaba, M., Puoane, T. and Sanders, D. (2016). The paradox of undernutrition and obesity in South Africa: A contextual overview of food quality, access and availability in the new democracy. Food poverty and insecurity: International food inequalities, pp.31-41.
- Nago, C. (2005). Experiences on street foods in West Africa. Trabalho apresentado num seminário da FAO/Consumers International sobre alimentos vendidos nas ruas no leste e sul da África: Balancing Safety and Livelihood, pp.15-17.
- National Research Council, Committee to Ensure Safe Food from Production to Consumption and Institute of Medicine. (1998). Ensuring safe food from production to consumption. National Academy Press.
- Ogus, A.I. (2004). Regulation: Legal form and economic theory. Bloomsbury Publishing.
- Olaitan, O.F. (2017). A Study of the Potential for Increasing the Export of Horticultural Products by Air from Nigeria (Doctoral dissertation, University of Huddersfield).
- Oloo, B., Lanio, D. and Oniang'o, R. (2018). Food safety legislation in some developing countries. Food Safety: Some Global Trends, p.19.
- Pierre, J. (2000). Debating governance: Authority, steering, and democracy. OUP Oxford.
- Redman, N. (2007). Food safety: a reference handbook. ABC-CLIO.
- Rhodes, R.A. (1997). Understanding governance: Policy networks, governance, reflexivity, and accountability. Open University.

- Savelli, C.J. and Mateus, C. (2019). The utilisation of tools to facilitate cross-border communication during international food safety events, 1995–2019: a realist synthesis protocol. *BMJ open*, *9*(10), p.e030593.
- Scharff, R.L. (2012). Economic burden from health losses due to foodborne illness in the United States. *Journal of Food Protection*, 75(1), pp.123-131.
- Shonhiwa, A.M., Ntshoe, G., Essel, V., Thomas, J. and McCarthy, K. (2019). A review of foodborne disease outbreaks reported to the outbreak response unit, national institute for communicable diseases, South Africa, 2013–2017. *International Journal of Infectious Diseases*, 79, p.73.
- Taniwaki, M.H., Pitt, J.I., Copetti, M.V., Teixeira, A.A. and Iamanaka, B.T. (2019).

  Understanding mycotoxin contamination across the food chain in Brazil:

  Challenges and opportunities. *Toxins*, *11*(7), p.411.
- Thomann, E. (2018). Food safety policy: Transnational, hybrid, wicked. In *Oxford Research Encyclopedia of Politics*.
- Tomlins, K. and Johnson, P. (2009). Developing food safety strategies and procedures through the reduction of food hazards in street-vended foods to improve food security for consumers, street food vendors, and input suppliers. Project Final Report.
- Trower, C.A. (2012). The practitioner's guide to governance as leadership: Building high-performing non-profit boards. John Wiley & Sons.
- United Nations Development Programme (UNDP). (2017). Institutional and Coordination Mechanisms: Guidance Note on Facilitating Integration and Coherence for SDG Implementation.
- Unnevehr, L.J. (2003). Food safety in food security and food trade: an overview. Policy Brief 1.
- Unnevehr, L. and Ronchi, L. (2014). Food safety and developing markets: research findings and research gaps. IFPRI discussion paper.
- Unnevehr, L. (2015). Food safety in developing countries: Moving beyond exports. *Global Food Security*, 4, pp.24-29.
- Van Bers, C., Delaney, A., Eakin, H., Cramer, L., Purdon, M., Oberlack, C., Evans, T., Pahl-Wostl, C., Eriksen, S., Jones, L. and Korhonen-Kurki, K. (2019). Advancing the research agenda on food systems governance and transformation. *Current Opinion in Environmental Sustainability*, *39*, pp.94-102.

- Van der Meulen, B., Card, M., Din, A., Fortin, N., Mahmudova, A., Maister, B., Türkoğlu, H., Bilgin, K., Lederman, J., Poto, M., Sattigeri, V., Sohn, M., Sun, J., Urazbaeva, A, and Yuriy Vasiliev. (2022). Chapter 3 Food regulation around the world. Editor(s): Aleksandra Martinović, Sangsuk Oh, Huub Lelieveld. Ensuring Global Food Safety (Second Edition). Academic Press. https://doi.org/10.1016/B978-0-12-816011-4.00001-X.
- Vashisht, A.K. (2018). Food safety culture: an underlying cause for success and failures of food safety management systems (Masters dissertation, North Dakota State University).
- Verbruggen, P. (2016). Understanding the 'New Governance 'of Food Safety: Regulatory Enrolment as a Response to Change in Public and Private Power. *Cambridge International Law Journal*, 5(3), pp.418-449.
- Vipham, J. L., Chaves, B. D., & Trinetta, V. (2018). Mind the gaps: how can food safety gaps be addressed in developing nations? *Animal Frontiers*, 8(4), 16-25.
- Wallace, R.B., Oria, M. and National Research Council. (2010). The food safety system: context and current status. In *Enhancing Food Safety: The Role of the Food and Drug Administration*. National Academies Press (US).
- World Health Organization. (2006). Five keys to safer food manual.

  <a href="https://apps.who.int/iris/bitstream/handle/10665/43546/9789241594639">https://apps.who.int/iris/bitstream/handle/10665/43546/9789241594639</a> eng.
  <a href="mailto:pdf">pdf</a> [Accessed February 04, 2023]</a>
- World Health Organization. (2015). Food Safety: Fact Sheet No 399.
- https://www.gov.za/sites/www.gov.za/files/gcis documents/world-health-day-who-fact-sheet.pdf [Accessed March 28, 2023]
- Yang, H. (2019). Food Safety in India: Status and Challenges. *Gates Open Res*, *3*(1043), p.1043.
- Yiannas, F. (2008). Food safety culture: Creating a behavior-based food safety management system. Springer Science & Business Media.
- Zanin, L. M. (2021). The interplay between food handlers and food safety culture: assessment strategies and educational actions to the proactive evolvement (Doctoral thesis, Universidade Federal de São Paulo).