African Journal of Rural Development, Vol. 10 (3):2025: pp.241-261 ISSN 2415-2838

Sanitary and Phytosanitary (SPS) barriers for Agro-food trade under AfCFTA with case examples for EAC and SADC Regions

BAGUMIRE ANANIAS

National Food Safety Institute, P.O Box 184021, Kampala, Uganda
Author's email address: ananiasbagumire@gmail.com

ABSTRACT

Sanitary and Phytosanitary (SPS) barriers significantly hinder intra-African trade under the AfCFTA, primarily due to three key challenges: inconsistent legal frameworks, weak institutional capacity, and infrastructural deficiencies. These issues result in low SPS compliance, restricting market access for agricultural products. Analysis of EAC and SADC regions reveals specific trade obstacles, including pest infestations, unharmonized standards for plant/animal movement, inadequate disease surveillance, and high food contaminant levels. Three systemic weaknesses drive SPS non-compliance: regulatory disparities across countries create complex and costly compliance burdens, under-resourced agencies struggle with enforcement, and poor infrastructure such as inadequate storage, laboratories, and transport networks undermines effective SPS controls. Smallholder farmers and MSMEs, which dominate Africa's agri-food sector, often lack the resources to meet SPS requirements which reduces their competitiveness in regional and global markets. To fully realize AfCFTA's trade potential, coordinated action is essential. Member States, Regional Economic Communities (RECs), and the African Union (AU) must work together to harmonize SPS standards, strengthen regulatory capacity, and invest in critical infrastructure. Addressing these barriers will enhance agri-food trade integration, improve food safety, and boost Africa's competitiveness in domestic and international markets.

Keywords: African Continental Free Trade Area, African Union, East African Community, Regional Economic Communities, Sanitary and Phytosanitary (SPS)-Related Trade Barriers, South African Development Community

RÉSUMÉ

Les barrières sanitaires et phytosanitaires (SPS) entravent considérablement le commerce intra-africain dans le cadre de la ZLECAf, principalement en raison de trois défis majeurs : des cadres juridiques incohérents, une capacité institutionnelle faible et des déficiences en infrastructures. Ces problèmes entraînent une faible conformité SPS, restreignant l'accès aux marchés pour les produits agricoles. L'analyse des régions EAC et SADC révèle des obstacles commerciaux spécifiques, notamment des infestations de ravageurs, des normes non harmonisées pour le mouvement des plantes/animaux, une surveillance inadéquate des maladies et des niveaux élevés de contaminants alimentaires. Trois faiblesses systémiques alimentent la non-conformité SPS : les disparités réglementaires entre les pays rendent la conformité complexe et coûteuse ; les agences sous-financées peinent à faire appliquer les règles ; les infrastructures insuffisantes, telles que le stockage, les laboratoires et les réseaux de transport, compromettent les contrôles SPS. Les petits exploitants agricoles et les PME, qui dominent le secteur agroalimentaire africain, manquent souvent des ressources nécessaires pour satisfaire aux exigences SPS, ce qui réduit leur compétitivité sur les marchés régionaux et mondiaux. Pour

Cite as: Bagumire Ananias. 2025. Sanitary and Phytosanitary (SPS) barriers for Agro-food trade under AfCFTA with case examples for EAC and SADC Regions. *African Journal of Rural Development* 10 (2):241-261.

réaliser pleinement le potentiel commercial de la ZLECAf, une action coordonnée est essentielle. Les États membres, les CER et l'UA doivent collaborer pour harmoniser les normes SPS, renforcer la capacité réglementaire et investir dans des infrastructures critiques. La suppression de ces barrières améliorera l'intégration du commerce agroalimentaire, renforcera la sécurité alimentaire et augmentera la compétitivité de l'Afrique sur les marchés nationaux et internationaux.

Mots clés : Zone de Libre-Échange Continentale Africaine, Union Africaine, Communauté de l'Afrique de l'Est, Communautés Économiques Régionales, Barrières commerciales liées aux mesures sanitaires et phytosanitaires, Communauté de Développement de l'Afrique Australe

INTRODUCTION

The African continent is undergoing a significant transformation in its agricultural sector, driven by three powerful demographic and economic forces: high population growth, rapid urbanization, and increasing income levels. These factors are fueling unprecedented growth in intra-African agri-food markets, with food demand projected to surge by 178% by 2050 according to FAO/AUC (2021) estimates. Meeting this explosive demand will require substantial increases in both domestic food production and cross-border trade flows across the continent (AKADEMIYA63, 2023). In response to these emerging opportunities, African nations established the African Continental Free Trade Area (AfCFTA) in May 2019 - a landmark achievement that united 54 countries into a single trading bloc with a combined GDP of $3.4 trillion. This created an integrated market of 1.3 billion people with aggregate disposable income reaching $2.5 billion, representing one of the most significant economic integration initiatives in modern African history (Ndobya, 2022). However, five years after its operationalization, the impact of AfCFTA on agri-food trade patterns remains limited. Several compounding factors have constrained progress: the devastating effects of the COVID-19 pandemic on agricultural supply chains, persistent weaknesses in cross-border transportation infrastructure, geopolitical disruptions including the Ukraine war and regional conflicts, and slow implementation of integration mechanisms at national levels. Current trade patterns continue to reflect historical trends, with Africa's major agricultural exports still dominated by traditional commodities: fruits and nuts; cocoa and cocoa preparations; coffee, tea, and spices; vegetables, roots, and tubers; oilseeds and oleaginous fruits; sugar products; vegetable fats and oils; and tobacco products. Notably, high-value products like fruits, vegetables, coffee and cocoa primarily flow to markets outside Africa, while cereals and staple crops dominate intra-continental trade (Chisom, 2024; Odjo *et al*., 2024). This pattern reflects both the legacy of colonial trade relationships and ongoing challenges in regional value chain development.

Looking ahead**,** projections indicate significant growth opportunities in specific sectors and regions. For instance, East Africa's fruits and vegetables market alone are expected to reach $1.3 billion in 2025. However, these promising projections contrast sharply with Africa's growing food import dependency, which may reach $110 billion in 2025 (LNV, 2024). This paradox highlights the urgent need to boost domestic production capacity and intra-African trade performance. The African Union Commission (AUC) has recognized this imperative through its CAADP implementation Action Plan on building resilient and sustainable agri-food systems in Africa, which aims to ramp up agricultural production for both local consumption and export markets (AU, 2025). AfCFTA complements these efforts by focusing on trade facilitation measures including: tariff reductions, harmonized standards, simplified customs procedures, improved logistics infrastructure, and enhanced vessel transport capacity for agricultural goods (LNV, 2024; Odjo *et al*., 2024). While it remains early to assess AfCFTA's full impact, preliminary

indicators suggest promising developments. Uganda's trade with other African countries surpassed its trade with the EU, traditionally its largest trading partner, a shift attributed to growing AfCFTA engagement (UNEC, 2019). As integration deepens and standards harmonize, particularly in critical areas like Sanitary and Phytosanitary (SPS) measures, agricultural trade volumes are expected to increase substantially (AU, 2022).

The SPS challenge. SPS measures, as defined by the WTO (2010), constitute regulations designed to protect human, animal and plant health from risks associated with pests, diseases, and food contaminants. While essential for safe trade, these measures often create significant barriers for intra-African agricultural trade. Common challenges include: complex and duplicative border procedures, stringent and sometimes unrealistic requirements, inconsistent standards across countries, poor harmonization of regulations, and inadequate SPS management infrastructure (Ndemera *et al.*, 2023). These barriers increase costs, cause delays, and may even divert trade flows (World Bank, 2019; Heher and Steen bergen, 2020). The situation is made worth by deeper systemic issues including lack of trust between trading partners, information asymmetries, and limited access to affordable capital for compliance investments (Keane *et al.*, 2010; González-Mellado *et al.*, 2011).

Pre-AfCFTA, Africa's SPS landscape was characterized by fragmentation, with different countries and Regional Economic Communities (RECs) implementing divergent standards and regulatory regimes. This lack of harmonization, combined with weak monitoring and enforcement capacities, significantly hampered the smooth flow of agricultural products while increasing transaction costs (Nzomoi *et al.*, 2019; World Bank, 2019; Heher and Steen Bergen, 2020). The resulting inefficiencies discouraged investment in cross-border trade and limited economic growth potential across the continent.

AfCFTA's promise and SPS realities. The AfCFTA framework aims to create stronger market linkages between smallholder farmers, agricultural MSMEs and larger enterprises within integrated regional value chains. Through the agreement, member states committed to allowing free access to 97% of goods across African borders (AfCFTA, 2019). However, SPS-related non-tariff barriers threaten to undermine this vision by restricting the free flow of agricultural products.

The economic impact is substantial - compliance with SPS measures alone contributes an estimated 13% to food prices in sub-Saharan Africa, reducing the competitiveness of African products in global markets (FAO/AUC 2021). Many countries restrict agricultural imports from neighbors due to legitimate concerns about disease transmission or pest introduction and importation of unsafe food though these concerns are sometimes used as disguised protectionism to shield domestic producers (Bagumire, 2010; González-Mellado *et al.*, 2011; Keane *et al*, 2010).

Beyond trade: The human cost. The consequences of weak SPS systems extend far beyond trade limitations. Africa bears the world's highest per capita burden of foodborne illnesses, with WHO data showing: 137,000 annual deaths, 91 million annual illness cases, and disproportionate impact on vulnerable groups (children under five, pregnant women, the elderly and immunocompromised individuals). Major food safety risks include: bacterial pathogens (Salmonella, E. coli, and others.), parasitic infections, natural toxins like aflatoxin, and chemical contaminants (pesticides, heavy metals) (WHO, 2015).

The way forward. Strengthening SPS systems represents a critical pathway to achieving multiple development objectives such as unlocking AfCFTA's trade potential, improving food safety and public health, enhancing export competitiveness, meeting CAADP, Malabo Declaration and Agenda 2063 targets, and

contributing to SDG achievement (AU, 2015; AU, 2019).

Therefore, this paper provides a comprehensive analysis of SPS-related trade barriers by relying on data-driven insights from RECs (particularly EAC and SADC) to identify key food safety, animal and plant health issues in the agricultural value chains that affect product's access to cross-border markets. It identifies the systemic weaknesses in national SPS frameworks that undermine SPS compliance; and provides practical recommendations for stakeholders across the agri-food ecosystem.

By identifying specific pain points and capacity gaps, the analysis aims to inform targeted interventions that can enhance SPS compliance while facilitating greater regional trade integration under AfCFTA. The findings should prove valuable to policymakers, agribusinesses, development partners and researchers working to realize Africa's agricultural potential.

METHODOLOGY

This study employed a dual-method approach combining extensive literature review with multi-stakeholder engagement to examine SPS-related trade barriers across Africa. The research first focused on analyzing SPS trade-restricted agricultural commodities within the EAC and SADC regions, identifying specific food safety, animal health, and plant health compliance issues across entire value chains. The EAC analysis covered animal health concerns in cattle, poultry, swine, goats, sheep, reptiles, insects, ornamental fish, and raw hides; food safety issues in dairy, fish, poultry products, honey, coffee, tea, cereals, spices, nuts, flours, oils, and beverages; and plant health challenges in cut flowers, planting materials, coffee, pulses, citrus, cassava, vegetables, and cereals. Similarly, the SADC investigation examined animal health in swine, cattle, sheep, goats, camels, buffalo, horses, poultry, fish, and honeybees; food safety in maize, pulses, fish, fruits/vegetables, dairy, meat products, food aid, and counterfeit foods; and plant health in fruits/vegetables, sugarcane, cereals, cassava, cotton, bananas, groundnuts, and soybeans. Literature findings were validated through information from stakeholder consultations in two EAC countries (Burundi and Uganda) and seven SADC nations (Malawi, Botswana, Mauritius, South Africa, DRC, Mozambique, and Zambia).

The second phase involved a comprehensive continental assessment of SPS barriers through systematic review of key policy documents including Africa's Sanitary and Phytosanitary Policy Framework and continental strategies for animal health, food safety, and plant health. The author supplemented document analysis with rich qualitative data from diverse stakeholder engagements, including face-to-face and virtual interviews with public and private sector representatives across multiple African countries. The methodology incorporated findings from field missions investigating SPS systems, participation in AU/REC workshops, and facilitation of strategic continental initiatives such as the development of Food Safety Strategy Implementation Plan, African Rapid Alert System for Food and Feed Road map development, and the United States Department of Agriculture – Foreign Advisory Service (USDA-FAS) fellowship program on establishing and harmonizing Sanitary and Phytosanitary (SPS) regulatory regimes across the eight Regional Economic Communities (RECs) of the African Union (AU). Additional data came from web searches for relevant studies, analysis of previously unpublished field reports, and review of workshop outputs. This robust mixed-methods approach enabled cross-validation between documented evidence and practical stakeholder experiences, providing qualitative trade restriction data and insights into systemic SPS challenges. The two-region case study design offered comparative perspectives while revealing pan-African SPS implementation gaps, with all referenced materials systematically cataloged for transparency (Table 1). The methodology's strength lies in its combination of rigorous document analysis with information from extensive multi-country stakeholder engagement, ensuring findings are both evidence-based and grounded in practical trade realities across diverse African contexts.

Table 1. Sources of data and information

S. N	Author and Year of Publication	Title of the Publication	Information obtained
A.	*Published Reports, documents, articles accessed through Google Web searches*		
1	AKADEMIYA63, 2023	Africa Agricultural Trade Monitor	Analysis of agricultural trade, nutrition trends, and EAC trade integration
2	OECD, 2021	Effects of SPS Electronic Certification on trade facilitation	Use of SPS electronic certification in plant-based products
3	FAO/AUC, 2021	Framework for Boosting Intra-African Trade in Agricultural Commodities	Agricultural trade trends, SPS challenges and strategies for enhancing intra-African trade
4	Molnar *et al.*, 2020	SPS Mechanisms in African RECs	SPS requirements across RECs and impacts on AfCFTA trade
5	Babatunde, 2018	SPS Compliance Challenges for African Smallholders	Constraints that smallholders face in meeting SPS requirements
6	Humphrey, 2017	Food Safety, Trade, Standards, and Smallholder Integration	Food safety standards limiting smallholder market access
7	Mbori, 2017	Unjustified SPS Measures in the Tripartite FTA.	SPS barriers affecting agri-food trade under SADC-EAC-COMESA
8	González-Mellado *et al.*, 2011	The Evidence on non-tariff measures to selected African countries exporting to the EU	Non Tarif Measures, including SPS measures applied to Exports to the EU
9	Keane *at al*., 2010	Impediments to Intra-Regional Trade in Sub-Saharan Africa.	Strategies and actions needed to address the barriers
10	Magalhães, 2010	Regional SPS Frameworks and Strategies in Africa	SPS challenges and strategies for improving compliance
B.	*Reports or documents arising from author's direct engagement and interviews with key players, stakeholders and actors on past related projects or published materials on the projects*		
1	Bagumire, 2025b	Solutions to Address SPS trade barriers in Africa	Strategies for addressing key SPS trade barriers
2	AU-IBAR/AUC, 2024	Rapid Alert System for Food & Feed in Africa.	Challenges for food hazard alerts for trade facilitation
3	SADC, 2023b	Mutual Recognition of Food Safety Certificates	Challenges for food safety systems equivalence schemes and solutions for SADC
4	SADC, 2023a	Food Safety Inspection at SADC Borders	SPS inspection challenges and certification improvements
5	AUC, 2022	Draft Food Safety Strategy Implementation Plan	Challenges and actions to address SPS barriers and improve compliance
6	Land O'Lakes, 2021	SPS Framework in EAC	SPS compliance challenges for traded in key agro-food products
7	SADC, 2017	SPS Early Warning Systems in 3 Member States	Key SPS barriers for traded products in selected SADC countries
8	UNIDO, 2011	Trade Capacity Building in EAC Agro-Industry	SPS compliance needs for accessing international markets
C.	*Key Policy and Strategy documents of the African Union*		
1	AU, 2025	CAADP Strategy and Action Plan: 2026-2035	Challenges and plans to boost agri-food production, industrialisation and trade
2.	AU, 2021	Food Safety Strategy for Africa (FSSA) 2020-2036	Challenges and strategies for managing food safety and trade facilitation
3.	AU-IAPSC, 2022	Plant Health Strategy for Africa	Challenges and strategies to managing plant pests and diseases
4.	AU, 2019	Sanitary and Phytosanitary (SPS) Policy Framework for Africa	SPS challenges and policy interventions for Africa
5.	AU-IBAR, 2019	Animal Health Strategy for Africa	Challenges and strategies for sustainable animal health system

Table 2. Major SPS issues that impede trade flow for agriculture products in and from EAC region

	SPS Area	SPS issues in the value chains that impede trade flow	Number of affected products
1.	Animal Health		Out of 8 investigated products
		Lack of traceability for produce and products	01
		Lack of harmonized standards in animal movement and trade	05
		Poor/lack of documentation	-
		Lack of vaccines, lack of facilities for proper vaccine delivery (cold chain) or poor vaccine system	01
		Lack of monitoring and surveillance System for animal pests and diseases	05
		Lack of harmonized standards for animal rearing, handling and transportation	01
		Lack of facilities for treatment of animal products	01
2.	Food Safety		Out of 19 investigated products
		Lack of traceability for agri-food products	02
		High-level of contaminants	11
		Lack of harmonized standards for production, handling and trade	04
		Lack of monitoring and surveillance for contaminants	04
		Presence of banned/unwanted substances or contaminants	07
		Lack of appropriate facilities to test contaminants	06
		Poor Hygiene Practices	01
3	Plant Health		Out of 20 investigated products
		Presence of pests in the consignments	16
		Poor/lack of proper documentation	02
		Unharmonized Inspection Protocols	09
		Unharmonized pests' lists	03
		Unharmonized Moisture content standard	06
		Unharmonized Testing Protocol	01

Source: Compiled by the author

Table 3. Major SPS issues that impede trade flow for agriculture products in and from SADC region

	SPS Area	SPS issues impeding trade flow	Out of 15 investigated products
1.	Animal Health	Lack of monitoring and surveillance system for animal pests and diseases	08
		Lack of harmonized standards in animal movement and trade	10
		Lack of harmonized standards for animal rearing, handling and transportation	01
2.	Food Safety		Out of 14 investigated products
		Lack of monitoring and surveillance for contaminants	02
		Poor and unhygienic handling practices during the harvest and post-harvest	04

		Presence of banned/unwanted substances or contaminants	02
		Inappropriate use of chemicals and drugs to control diseases and pests in agri-food system	03
		High-level of contaminants	03
		Counterfeit, Substandard and pirated food products due to fraudulent practices	01
3.	Plant Health		Out of 14 investigated products
		Presence of pests and diseases in the products and produce	02
		Unharmonized standards for movement of produce	11
		Lack of monitoring and surveillance of pests and diseases	04
		Unharmonized standards for control movement of plant material	04
		Risk of transboundary/extra territorial migration of pests or vectors in producing areas	03
		Presence of monitored pests and diseases transmitted through a vector in growing areas	02

Source: Compiled by the Author

FINDINGS AND DISCUSSION

Key sanitary and phytosanitary issues that affect cross-border trade in Africa. Africa's intra-regional agri-food trade faces significant SPS barriers across three key areas. Animal health challenges include inadequate traceability systems, weak biosecurity measures, frequent disease outbreaks, and non-harmonized standards for disease management and livestock movement. Food safety obstacles comprise widespread contamination from mycotoxins, pesticide residues, heavy metals, and microbial pathogens, compounded by insufficient monitoring systems and poor hygiene practices throughout value chains. Phytosanitary constraints involve prevalent crop pests and diseases, inconsistent documentation, divergent inspection protocols, and unharmonized standards for pest lists, moisture content, and produce movement. These systemic issues create substantial trade barriers, particularly evident in the EAC and SADC regions as detailed in Tables 2 and 3. The lack of standardized regulations, weak surveillance mechanisms, and inadequate traceability systems collectively undermine cross-border agricultural trade, highlighting the urgent need for regional harmonization of SPS measures, strengthened monitoring capabilities, and improved compliance infrastructure to facilitate safer and more efficient intra-African trade flows.

Cross-border trade of agricultural products in Africa faces significant sanitary and phytosanitary (SPS) challenges that vary by region and commodity type. The most pressing animal health issues affecting both East African Community (EAC) and Southern African Development Community (SADC) regions include inadequate monitoring systems for animal diseases and the absence of harmonized standards for livestock movement. These systemic weaknesses represent major barriers to intra-African trade under the African Continental Free Trade Area (AfCFTA), particularly for animal products. Food safety concerns show notable regional differences, with high levels of contamination being the predominant issue for most traded commodities in EAC, while SADC experiences more diverse but less concentrated food safety problems affecting fewer than half of studied products. This discrepancy suggests food safety presents a more significant trade barrier in EAC compared to SADC, though comprehensive studies across other Regional Economic Communities (RECs) are needed to

confirm whether this pattern holds continent-wide.

Phytosanitary issues emerge as the most widespread trade impediments across both regions. In EAC, a striking 80% of traded plant products are affected by pest-infested consignments, while SADC faces comparable challenges with 80% of commodities impacted by inconsistent standards for produce movement. These findings highlight plant health regulations as a critical area requiring attention in AfCFTA implementation, particularly regarding pest control measures and standardization of inspection protocols. While food safety concerns affect fewer products overall compared to animal and plant health issues, the prevalence of high contaminant levels remains a persistent problem that warrants attention. The data reveals clear commodity-specific patterns: animal products primarily encounter challenges related to movement restrictions and certification, while plant products are most affected by pest-related issues and inconsistent phytosanitary standards. These regional and sectoral differences, detailed in Tables 4 and 5, underscore the need for targeted interventions that address specific SPS challenges while working toward greater harmonization of standards across Africa. The findings emphasize that successful implementation of AfCFTA's agricultural trade provisions will require coordinated efforts to strengthen monitoring systems, standardize regulations, and improve compliance infrastructure across RECs (Keane *et al.,* 2010; Magalhães, 2010).

The case study findings highlight critical food safety, animal health, and plant health issues affecting trade in EAC and SADC regions, with implications for AfCFTA implementation.

These insights help member states prioritize SPS capacity development to facilitate agri-food trade across regional markets. The data also pinpoints weaknesses in national SPS systems that hinder value chains from

producing compliant commodities and therefore considered as barriers to trade. This evidence-based approach enables targeted interventions to strengthen regulatory frameworks, monitoring systems, and compliance infrastructure at both regional and national levels under AfCFTA (AU-IBAR, 2019; AU, 2021; AU-IAPSC, 2022; AU, 2022).

Sanitary and phytosanitary barriers for African countries in trading under the AfCFTA. The SPS barriers hindering agri-food trade stem from weak national SPS systems and inadequate quality infrastructure needed to ensure compliance with international standards (AU-IBAR, 2019; AU-IAPSC, 2022; AU, 2022). These systemic deficiencies create market access challenges at regional, continental and global levels. As indicated in figure 1, key weaknesses include: inadequate policies and regulatory frameworks that fail to guide compliance; under-resourced institutions lacking capacity to regulate the sector; and insufficient infrastructure for production, handling, storage, processing, transportation and conformity assessment. Together, these gaps prevent agri-food operators from meeting required food safety, animal health and plant health standards, ultimately restricting trade flows across Africa and beyond (Magalhães, 2010; Babatunde, 2018).

Weak policy, legal and regulatory frameworks

SPS Policy-Related Barriers. The absence of a robust SPS policy and regulatory framework at continental, regional, and national levels in Africa undermines effective implementation and enforcement of best practices. While some countries have SPS policies, they often lack clarity, coherence, and alignment with international standards, making practical application difficult. Poor harmonization and coordination between national, regional, and continental SPS frameworks further fragment regulatory approaches, complicating compliance for cross-border traders and producers (Magalhães, 2010).

SPS Legislative and Regulatory Barriers. Incompatible SPS laws across African countries obstruct harmonized enforcement at regional and continental levels. Divergent national regulations, standards, and enforcement mechanisms create inconsistencies, increasing compliance complexities (Magalhães, 2010). These discrepancies confuse stakeholders such as producers, exporters, and regulators about their obligations, weakening harmonization efforts. Misalignment between national and regional SPS frameworks also raises transaction costs, restricts market access, and hampers intra-African trade.

Lack of expertise to guide policy and legal frameworks. Africa faces a critical shortage of SPS experts, limiting the ability to develop sound policies and laws. Effective SPS governance requires specialized knowledge in food safety, plant and animal health, risk assessment, and regulatory affairs. However, many countries lack professionals with the necessary technical skills, hindering evidence-based policymaking (Magalhães, 2010; Molnar *et al*., 2020). This expertise gap also weakens institutional capacity, technical assistance, and stakeholder awareness, obstructing the development of strong SPS systems that ensure public health protection and trade competitiveness.

Fragmented regulatory landscape at national level. Despite continental and regional efforts to promote SPS coherence, national regulatory systems remain fragmented. Food safety, animal health, and plant health regulations are often managed by separate authorities with minimal coordination, leading to inefficiencies and resource overlaps. Poor harmonization in food safety laws further complicates compliance with prescribed standards (Molnar *et al*., 2020). Although Africa Region Standardization Organization (ARSO) and RECs have made progress in standardizing regulations, greater alignment at the country level is still needed to address non-compliance and strengthen Africa's SPS framework.

Weak SPS institutional frameworks. The implementation of Sanitary and Phytosanitary (SPS) measures across Africa faces significant challenges due to limited institutional investments in critical infrastructure. While African governments have recognized the importance of SPS harmonization, as evidenced by concerns raised by Kenya, Mozambique, Tanzania, and Uganda regarding market access challenges for smallholder farmers, substantial gaps remain in supporting these vital agricultural producers. Smallholder farmers frequently operate outside formal SPS frameworks due to risk assessment constraints, including improper use of unapproved pesticides that violate international standards, substandard agronomic practices leading to pest-infested produce, and failure to implement basic food safety protocols. The absence of Good Agricultural Practices (GAPs), Good Hygiene Practices (GHPs), and Hazard Analysis Critical Control Point (HACCP) systems among Micro, Small, and Medium Enterprises (MSMEs) creates substantial equivalence challenges that hinder regional trade integration (Humphrey, 2017; Babatunde, 2018).

Effect of divergent national priorities on SPS harmonization. The sluggish progress in SPS harmonization at REC level presents a formidable obstacle to African trade integration. While SPS measures serve the dual purpose of protecting health and facilitating agricultural trade, inconsistent regulations across different RECs create unnecessary trade barriers. This regulatory

fragmentation increases transaction costs, limits market access, and prevents African countries from fully realizing the benefits of regional trade agreements. The root causes of this slow harmonization process include conflicting national priorities, insufficient institutional capacity, inadequate testing infrastructure, and a general lack of political commitment to coordination efforts (Magalhães, 2010; Molnar *et al.*, 2020). These systemic challenges underscore the urgent need for enhanced cooperation and capacity-

Table 4. Analysis of specific SPS issues that affect trade of most products in EAC and SADC

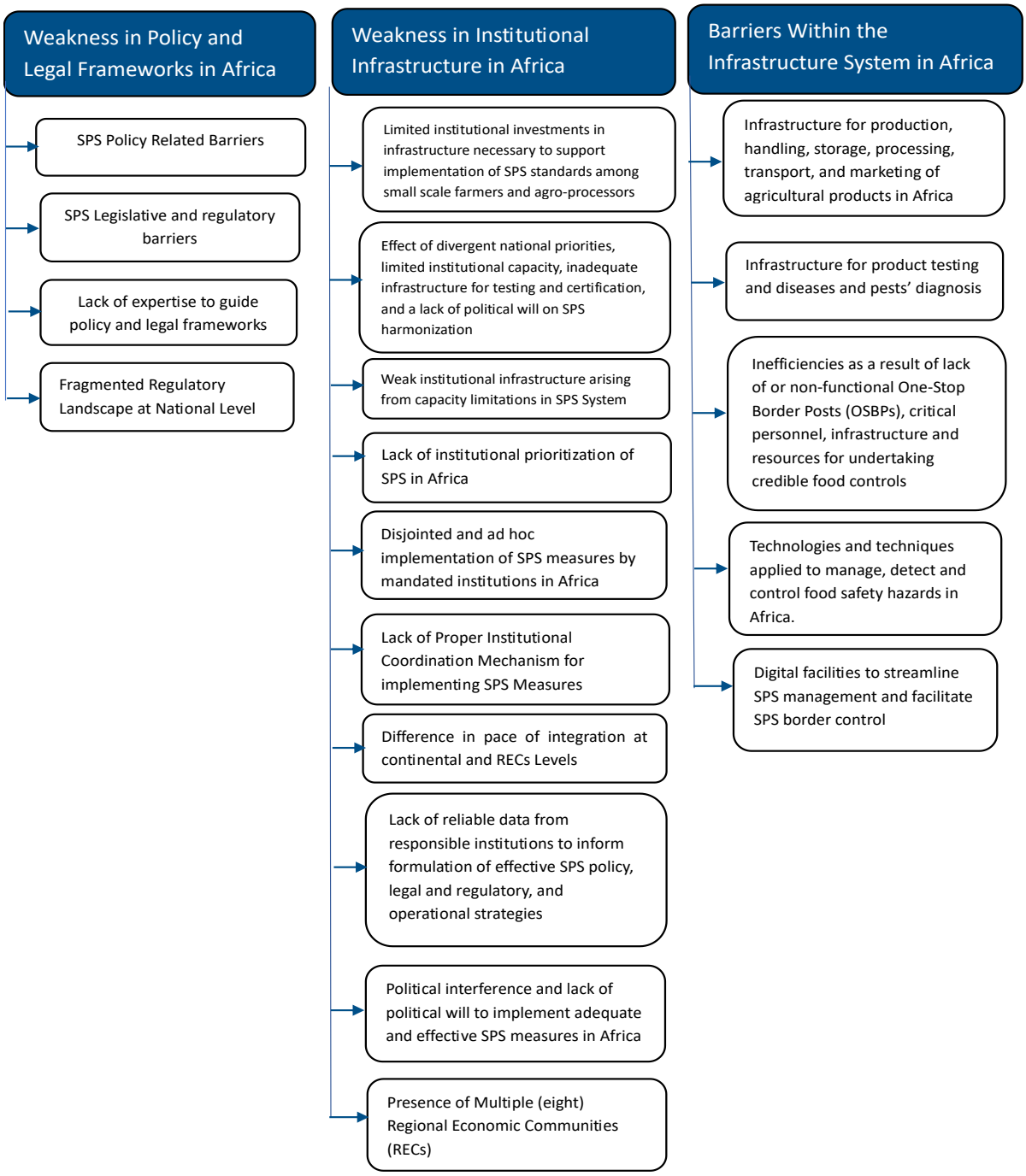
EAC

SPS Area	Total No. of Traded Products studied	Count of specific SPS issues affecting products' trade flow	Count of Major SPS issues (affecting>50% than products)	Count of minor SPS issues (affecting <50% of products)	Average No. of products with minor SPS issues (affecting <50% of products)	Key SPS issues affecting majority of products (>50%)	% age products affected by key SPS issues
Animal Health	08	06	02	04	01	Lack of harmonized standards in animal movement and trade	62.5
						Lack of monitoring and surveillance System for animal pests and diseases	62.5
Food Safety	19	07	01	06	04	High-level of food contaminants	58
Plant Health	20	06	01	05	04	Presence of pests in the consignments	80
SADC							
Animal Health	15	03	02	01	01	Lack of monitoring and Surveillance System for animal pests and diseases	53
						Lack of harmonized standards in animal movement and trade	67
Food Safety	14	06	0	06	03	There were no SPS issues that affected more that 50% of studied products	0
Plant Health	14	06	01	05	03	Unharmonized standards for movement of produce	78.6

Table 5. Agri-food products affected by the SPS issues affecting majority of trade in EAC and SADC

Serial Number	SPS Area	Key SPS issues affecting majority of products (>50%)	Specific products affected by the key Issues
EAC			
1.	Animal health	Lack of harmonized standards in animal movement and trade	Cattle, goat, sheep, live insects, other mammals and reptiles, ornamental fish,
		Lack of monitoring and surveillance System for animal pests and diseases	Cattle, live poultry, swine, goat, sheep, raw hides and skins
2	Food Safety	High-level of food contaminants	Milk and diary products, fish and fishery products, poultry and eggs, natural honey, spices and vanilla, fruits and vegetables, macadamia, cashew nuts cereal flour, animal and vegetable fat and oils, sugar, molasses, fodder and beverages
3	Plant health	Presence of pests in consignments	Cut flowers, cuttings of planting material, coffee, pulses, fruits, cassava, carrots, vegetables, tomatoes, pineapples, onions, sorghum, barley, wheat and fodder
SADC			
4	Animal Health	Lack of monitoring and surveillance System for animal pests and diseases	Cattle, swine, sheep, goat, camel, buffalo, horses, live poultry, live fish and honey bees
		Lack of harmonized standards in animal movement and trade	Cattle, sheep, goat, camel, buffalo, horses, live poultry and live fish
5	Food Safety	None of the SPS issues affected more than 50% of commodities studied	-
6	Plant health	Unharmonized standards for movement of produce	Fruits, sugarcane, tomatoes, vegetables, potato, maize, rice, sorghum, cassava, papaya and cotton

Figure 1: Sanitary and Phytosanitary Challenges (barriers) faced by African countries in trading under the AfCFTA



building initiatives to overcome existing barriers and unlock Africa's agricultural trade potential.

Weak institutional infrastructure arising from capacity limitations. The enforcement of SPS controls suffers from fundamental knowledge gaps among regulatory authorities, resulting in inadequate infrastructure development across agricultural value chains. Critical deficiencies include the lack of appropriate processing facilities, storage systems, cold chain logistics, and quarantine centers at border crossings. These infrastructure gaps directly contribute to non-compliance with both domestic and international SPS requirements, significantly impairing the competitiveness of African

agricultural products in global markets. The situation is exacerbated by limited awareness among value chain actors about SPS requirements, leading to insufficient investment in necessary technologies and facilities (Humphrey, 2017). The cumulative effect of these weaknesses includes increased incidence of pests and diseases, reduced agricultural productivity, and heightened public health risks from foodborne illnesses and zoonotic diseases.

Lack of institutional prioritization of SPS. SPS measures consistently receive lower priority compared to other trade barriers in national and regional development agendas. This marginalization has resulted in chronic underinvestment in human resources, infrastructure, and regulatory modernization. Both producers and consumers frequently prioritize quantity and price over food safety and quality, reflecting a broader societal undervaluation of SPS measures. Policymakers often relegate SPS issues beneath more immediately visible development challenges, despite their significant long-term impacts on public health, agricultural productivity, and trade performance (Keane *at al.,* 2010). This lack of appreciation for SPS systems stems from competing development priorities, resource constraints, and historical policy orientations, necessitating comprehensive awareness campaigns and capacity-building initiatives to elevate SPS considerations in development planning.

Disjointed and Ad Hoc implementation of SPS Measures. The implementation of SPS controls across Africa is characterized by institutional fragmentation and inconsistent enforcement. Multiple agencies with overlapping mandates operate across different ministries, leading to disjointed regulatory efforts. Food safety interventions tend to be reactive rather than preventive, typically occurring only after SPS crises emerge. Border control implementation varies dramatically, with some crossing points having adequate inspection capacity while others remain essentially unmonitored. This inconsistent approach creates dangerous regulatory loopholes that permit the trade of contaminated or pest-infested products, ultimately undermining trust between trading partners and compromising regional food safety systems (Keane *at al*., 2010).

Lack of proper institutional coordination mechanisms. Africa's SPS governance architecture suffers from critical coordination gaps at both national and regional levels (AU-IBAR/AUC, 2024). The absence of dedicated institutions to plan, harmonize, and monitor SPS implementation has created significant barriers to effective standardization. While the African Continental Free Trade Area (AfCFTA) provides a promising framework for integration, it currently lacks the institutional support needed to harmonize SPS measures across member states effectively. This institutional vacuum results in duplicated efforts, inconsistent enforcement, and slow progress toward regional compliance standards, ultimately hampering the continent's ability to realize the full benefits of economic integration (Keane *at al*., 2010; González-Mellado *et al*., 2011).

Difference in pace of integration at continental and RECs levels. The misalignment between continental and regional integration timelines presents another significant challenge to SPS harmonization. While the African Union promotes continent-wide economic integration, Regional Economic Communities (RECs) operate at varying speeds with differing levels of commitment to SPS standardization. This disparity creates regulatory inconsistencies that hinder the free movement of goods. The existence of eight RECs with distinct SPS frameworks adds layers of complexity, as businesses must navigate multiple, sometimes conflicting, sets of regulations. This fragmented landscape significantly increases compliance costs and creates unnecessary barriers to intra-African trade (Mbori, 2017).

Lack of reliable data for SPS policymaking. Most African countries lack robust systems to collect and analyze SPS-related data, leaving policymakers without adequate evidence to

guide decision-making. This data deficiency impedes effective monitoring of progress toward continental goals like Agenda 2063 and the Sustainable Development Goals (SDGs). Without accurate information on SPS issues, governments struggle to design targeted interventions or allocate resources efficiently, undermining efforts to create effective, evidence-based SPS systems (AU, 2022).

Political interference and lack of political will. Political dynamics frequently override evidence-based decision-making in SPS governance, with scientific considerations often taking a backseat to political expediency. The lack of strong political will to prioritize SPS reforms results in underfunded regulatory agencies and weak enforcement regimes. Additionally, donor influence presents another challenge, as external funding often comes with priorities that may not align with Africa's long-term SPS needs, potentially undermining local ownership of solutions and sustainable development pathways.

Presence of multiple Regional Economic Communities. The coexistence of eight RECs with distinct SPS frameworks creates substantial compliance challenges for businesses operating across multiple jurisdictions. Each REC maintains its own set of rules, regulations, and standards related to SPS measures, leading to complexity and confusion for both businesses and regulatory authorities. This regulatory fragmentation imposes significant administrative burdens and costs on agricultural producers and traders, while simultaneously hindering broader economic integration efforts across the continent (Keane *et al*., 2010; Magalhães, 2010; Mbori, 2017; Molnar *et al.*, 2020).

Donor-driven interests in shaping SPS agenda. External donor influence has contributed to a lack of local ownership in setting SPS priorities that truly reflect Africa's developmental needs. While donor funding plays a crucial role in supporting SPS initiatives, the accompanying conditions and agendas may not always align with Africa's long-term objectives. This dynamic can inadvertently marginalize African stakeholders from decision-making processes, limiting their ability to develop context-specific solutions. There is growing recognition of the need for a more Africa-driven approach to SPS governance that emphasizes local ownership, leadership, and participation in setting priorities and implementing solutions.

General lack of awareness of SPS measures. A pervasive lack of understanding about SPS measures among policymakers, farmers, agri-food business operators and consumers represent a critical barrier to effective implementation. Many stakeholders view SPS compliance as an unnecessary regulatory burden rather than an essential component of food safety and trade facilitation. This awareness gap stems from limited access to information, inadequate training opportunities, and general underestimation of SPS impacts on livelihoods and economic development. Addressing this challenge requires comprehensive awareness campaigns and capacity-building initiatives to foster a culture of food safety throughout agricultural value chains (Humphrey, 2017; Babatunde, 2018).

Low research and innovation in SPS areas. Africa faces significant deficits in SPS-related research and innovation capacity, limiting the continent's ability to develop context-appropriate solutions. Despite the critical importance of SPS measures for public health and market access, chronic underinvestment in research infrastructure and limited collaboration between academia and industry have constrained innovation. The absence of supportive policy environments and institutional frameworks further inhibits knowledge generation and technology transfer in SPS-related fields (AU, 2022).

Low logistical capacity to support SPS controls. Inadequate logistical capacity presents major challenges for effective SPS control implementation across Africa. Regulatory authorities frequently lack the necessary resources, infrastructure, and

personnel to conduct timely inspections, testing, and certification processes. Poor transportation networks, particularly in rural areas, hinder access to remote farms and processing facilities, delaying risk detection and compromising enforcement efforts. Addressing these logistical constraints requires targeted investments in transportation infrastructure, technology adoption, and inter-agency coordination to strengthen SPS control systems (Magalhães, 2010; FAO/AUC, 2021).

Lack of knowledge and skills to meet international standards. Many African countries struggle to implement international standards for food safety, animal health, and plant health. While export-oriented sectors may adhere to international norms, domestic markets frequently operate with lower standards, disproportionately affecting vulnerable populations. The patchy adoption of Good Agricultural Practices and other food safety protocols contributes to high levels of contamination across food systems. Value chain actors often lack awareness, knowledge, and resources to implement improved food safety practices, highlighting the need for comprehensive capacity-building initiatives (Humphrey, 2017; Babatunde, 2018).

Weak SPS enforcement regimes promoting informal trade. The limited utilization of harmonized SPS measures reflects broader implementation and enforcement challenges across Africa. Despite progress in standard harmonization, uptake remains low due to awareness gaps, capacity constraints, and persistent non-tariff barriers. Bureaucratic hurdles and informal trade practices further discourage compliance, driving many traders toward informal channels that bypass SPS requirements entirely. Strengthening enforcement regimes requires comprehensive strategies that address awareness, capacity, infrastructure, and trade facilitation challenges simultaneously (Humphrey, 2017; Babatunde, 2018).

Weak implementation by smallholder farmers and informal operators. Smallholder farmers and informal sector operators face particular challenges in implementing SPS measures due to limited access to resources, knowledge, and technologies. The informal nature of much of the agricultural activity makes enforcement particularly difficult, as many operators exist outside formal regulatory frameworks. Addressing these implementation gaps requires tailored support programs that account for the unique constraints facing small-scale producers while gradually bringing them into formal compliance systems (Humphrey, 2017; Babatunde, 2018).

Compartmentalized implementation across market segments. SPS implementation in Africa often follows a two-tiered approach, with export-oriented sectors receiving disproportionate attention compared to domestic market suppliers. This compartmentalization leaves the majority of African consumers exposed to potential food safety risks while concentrating compliance resources on narrow market segments. The fragmented nature of agricultural value chains, with numerous small-scale and informal operators, further complicates monitoring and enforcement efforts. Addressing these disparities requires more balanced approaches that extend SPS benefits across all market segments (Magalhães, 2010).

Stringent market requirements and African export challenges. The rigorous SPS standards imposed by developed country markets present significant challenges for African exporters. Many producers lack the resources, technical capacity, and infrastructure needed to meet these demanding requirements, resulting in exclusion from lucrative markets. This dynamic perpetuates a cycle of marginalization, forcing African producers to rely on lower-value local and informal markets. The situation is complicated by differing standards between RECs and

international markets, with African producers often facing multiple layers of requirements. Addressing these challenges requires targeted investments in capacity-building and infrastructure development to enhance compliance capabilities (Humphrey, 2017; Babatunde, 2018).

Pathways to Strengthening SPS Frameworks. The analysis reveals systemic weaknesses across Africa's SPS institutional landscape, encompassing infrastructure deficits, coordination gaps, capacity limitations, and implementation challenges. Addressing these interconnected issues requires a comprehensive approach that prioritizes institutional strengthening, capacity development, and regulatory harmonization. Key interventions should focus on establishing dedicated coordination bodies, improving data systems, enhancing research capacity, and increasing investments in SPS infrastructure. Political commitment to evidence-based policymaking and greater alignment between RECs will be essential for meaningful progress. By addressing these institutional challenges, Africa can unlock significant agricultural trade potential while improving food safety and public health outcomes across the continent (AU, 2019; AU-IBAR, 2019; AU, 2021; AU, 2022; AU-IAPSC, 2022).

SPS barriers within the infrastructure system

Infrastructure for production, handling, storage, processing, transport, and marketing of agricultural products. The implementation of effective Sanitary and Phytosanitary (SPS) measures across Africa faces fundamental challenges due to systemic weaknesses in agricultural infrastructure (González-Mellado *et al.*, 2011). Throughout the value chain, from production to market, inadequate facilities compromise food safety and quality standards. Production infrastructure remains underdeveloped, particularly for smallholder farmers who lack access to technologies that could enhance both productivity and compliance with SPS requirements. Post-harvest losses, estimated at 30-40% of total production, stem largely from insufficient storage facilities that fail to protect against spoilage and pest infestation. Processing capacity is severely limited, forcing most agricultural exports to remain in raw forms that are more susceptible to SPS violations and receive lower market prices. Transportation networks are particularly deficient in rural production areas, creating delays that degrade product quality before reaching markets. Marketing systems lack proper organization and information flows, pushing smallholders toward informal channels where SPS controls are typically absent (Keane *at al.*, 2010). These interconnected infrastructure gaps collectively reduce the competitiveness of African agricultural products while increasing food safety risks and limiting market access. Addressing these deficiencies requires comprehensive investments in cold storage facilities, processing plants, rural transportation networks, and market information systems that can maintain product quality and safety standards throughout the value chain.

Infrastructure for product testing and disease and pest diagnosis. Diagnostic and testing infrastructure for SPS compliance in Africa suffers from severe limitations that hinder effective food safety management and agricultural health protection. Laboratory networks are underdeveloped, with many countries lacking basic facilities for routine food safety analysis and pathogen detection. This creates substantial barriers to both domestic SPS compliance and international market access, as producers cannot reliably verify the safety and quality of their products. Plant and animal health systems face similar challenges, with limited capacity for early pest and disease detection resulting in delayed responses to outbreaks. The geographic distribution of testing facilities exacerbates these problems, as most laboratories are concentrated in urban centers, far from agricultural production zones. Many existing facilities struggle with equipment

maintenance and reagent shortages, while accreditation challenges undermine confidence in test results (Keane at al., 2010; Magalhães, 2010; González-Mellado *et al.*, 2011). Building effective diagnostic capacity requires parallel investments in quality management systems, human resources, and sustainable financing models. Regional approaches could optimize limited resources through specialized reference laboratories serving multiple countries, while stronger linkages between testing facilities, research institutions, and regulatory bodies would enhance the practical impact of diagnostic services on food safety and trade outcomes.

Non-risk-based inspections. Current inspection regimes in many African countries employ outdated approaches that examine all products uniformly rather than focusing resources on high-risk products. This inefficient system creates unnecessary trade bottlenecks while failing to adequately address genuine food safety hazards. The reactive nature of these systems becomes evident when inspection intensity increases only after product rejections occur in foreign market, a costly and ineffective way to manage SPS risks. The limitations are particularly apparent at border posts, where scarce resources are spread thin across all incoming goods regardless of risk profile, leading to inconsistent SPS controls (Keane *at al.,* 2010; Magalhães, 2010). The financial burden of maintaining comprehensive inspection systems is unsustainable for many African governments, resulting in under-resourced operations. Transitioning to risk-based inspection would require significant capacity building in risk assessment methodologies, product categorization frameworks, and modern inspection technologies. Such reforms could dramatically improve the efficiency and effectiveness of SPS controls while reducing compliance costs for legitimate trade.

Inefficiencies from lack of functional One-Stop Border Posts (OSBPs). The absence or poor functionality of One-Stop Border Posts (OSBPs) across Africa creates substantial trade barriers while complicating SPS enforcement. Traditional border procedures involving multiple stops and redundant documentation requirements cause delays that are particularly detrimental to perishable agricultural commodities. These inefficiencies increase costs through spoilage and storage fees while encouraging traders to bypass formal channels altogether, undermining SPS oversight. The resulting informal trade flows escape regulatory scrutiny, creating potential food safety risks. Functional OSBPs with integrated inspection facilities could significantly reduce clearance times while maintaining appropriate SPS controls. However, their implementation requires coordinated investments in physical infrastructure, equipment, and inter-agency cooperation among border control authorities.

Human and other resource constraints in SPS implementation. A critical shortage of qualified personnel severely limits Africa's capacity to implement effective SPS controls. Regulatory agencies and border posts lack sufficient numbers of trained food inspectors, laboratory technicians, and certification officers. Available staff often work with inadequate support systems, including limited access to testing facilities, outdated equipment, and poor transportation for monitoring activities. The human resource gap extends beyond numbers to encompass skills mismatches, with many staff requiring upgraded technical competencies. Salary levels for inspectors are frequently non-competitive, leading to high turnover and loss of institutional knowledge. Addressing these challenges requires comprehensive workforce development strategies including enhanced training programs, competitive remuneration packages, and clear career pathways to attract and retain qualified professionals in SPS-related fields (Keane *at al.,* 2010; Magalhães, 2010; González-Mellado *et al*., 2011; FAO/AUC, 2021).

Laboratory accreditation and sustainability challenges. Many African

countries struggle to maintain accredited laboratory services for SPS compliance due to funding constraints, equipment maintenance issues, and personnel shortages. Laboratories that achieve accreditation often face sustainability challenges that result in fluctuating service quality and periodic loss of accredited status, undermining confidence in test results. The geographic concentration of testing facilities in capital cities creates additional barriers, as samples from production areas must travel long distances, compromising integrity and delaying results. Many laboratories operate with obsolete equipment or face chronic reagent shortages, limiting testing capabilities (Magalhães, 2010). Developing sustainable laboratory networks requires stable funding mechanisms for accreditation maintenance, equipment procurement strategies prioritizing durability, and regional approaches to laboratory specialization. Such measures could help optimize limited resources while building confidence in test results across borders.

Inadequate funding for inspection Services. Chronic underfunding of food inspection services has created systemic weaknesses in Africa's SPS enforcement capabilities. Many regulatory agencies operate with budgets covering only a fraction of mandated activities, forcing difficult choices about monitoring priorities. The funding shortfall affects all inspection system components, from staff recruitment to equipment procurement and operational expenses. These constraints are particularly acute for perishable food inspections requiring rapid response capabilities. Sustainable solutions must address both funding levels and predictability, potentially including dedicated budget lines, public-private partnerships, and cost-recovery mechanisms. Regional cooperation could help pool resources for specialized inspection capabilities that would be prohibitively expensive for individual countries to maintain independently.

Technical capacity limitations. Effective SPS implementation in Africa is constrained by widespread technical capacity limitations across regulatory systems. Staff shortages exist at all levels, with those available often lacking access to proper tools, equipment, and updated reference materials. The geographic distribution of technical capacity is highly uneven, with rural production areas particularly underserved. Many inspectors face challenges reaching remote sites due to transportation limitations, while laboratory support is often centralized far from sample collection points. Building sustainable technical capacity requires strengthening food safety education, continuous professional development programs, and practical tools like mobile inspection applications that can extend limited resources to underserved areas.

Technologies and techniques for food safety management. Africa's food safety systems often rely on imported technologies ill-suited to local contexts or unaffordable for small-scale operators. Many advanced interventions developed for industrialized markets are cost-prohibitive for African micro and small enterprises, with limited adaptation to local products and methods. The lack of localized research and innovation leaves many businesses without appropriate solutions, with hazard detection often relying on visual inspection that misses microbial and chemical contaminants. Developing appropriate technologies requires greater investment in localized research, adaptation of international best practices, and low-cost detection tools suitable for small-scale use through researcher-business partnerships.

Digital solutions for SPS management. The absence of digital SPS management systems represents a significant missed opportunity to enhance food safety oversight while facilitating trade. Most African countries rely on paper-based documentation systems that create inefficiencies and fraud vulnerabilities. The lack of digital integration between food control system components hampers coordination and data-driven decision making. At borders, manual processes cause unnecessary delays in perishable goods clearance while providing limited capacity for

compliance tracking. Implementing digital solutions requires careful sequencing, beginning with basic computerization of inspection records and advancing to integration and analytics capabilities (OECD, 2021). Mobile technologies offer particular promise for remote areas, while regional harmonization of digital systems can facilitate cross-border information exchange and reduce costs through shared platforms. These technological upgrades are essential for Africa to meet international SPS standards while maintaining efficient trade flows under agreements like the AfCFTA.

CONCLUSION

The African Union (AU) Member States have significant opportunities to boost agricultural trade and benefit from regional integration, particularly under the AfCFTA. This presents a chance to increase incomes for agri-business operators, including smallholder farmers and MSMEs, who often struggle with market access. However, addressing food safety, animal, and plant health issues is critical to comply with standards and facilitate trade. Case studies from the EAC and SADC regions reveal key challenges such as pest infestations, unharmonized standards, weak disease surveillance, and food contamination, which hinder trade. These findings help prioritize SPS capacity development to strengthen agri-food value chains.

Three systemic weaknesses drive non-compliance: regulatory disparities, under-resourced enforcement agencies, and poor infrastructure like inadequate storage and labs. Tackling these requires coordinated investments in policy harmonization, legal frameworks, capacity building, and integrated regulatory mechanisms. Strengthening institutional frameworks, improving data systems, and enhancing research are essential. Political commitment and alignment between Regional Economic Communities (RECs) are crucial for progress.

Additionally, addressing infrastructural gap such as cold storage, processing plants, and rural transport is vital to maintaining product quality. Investments in disease diagnosis, compliance assessment, and border controls are equally important. By tackling these SPS barriers, AU Member States can enhance intra-African trade and expand global market access while improving food safety and public health outcomes. A multi-dimensional approach is necessary to unlock Africa's agricultural trade potential.

ACKNOWLEDGEMENT

The author gratefully acknowledges the financial support of the United States - Department of Agriculture - Foreign Agricultural Service (USDA-FAS) and Mississippi State University

DECLARATION OF CONFLICT OF INTEREST

The authors declare that they have no conflict of interest in the paper.

REFERENCES

Akademiya2063. 2023. Africa Agriculture Trade Monitor 2023. https://www.resakss.org/node/6886. Available online 27-06-2025.

AfCFTA. 2019. Agreement Establishing the African Continental Free Trade Area (AfCFTA)

AU, 2025. CAADP Strategy and Action Plan: 2026-2035 (Building Resilient Agri-Food Systems in Africa). AUDA-NEPAD January 2025

AU. 2022. Implementation Plan for the Food Safety Strategy for Africa. Published by African Union - Department of Agriculture, Rural Development, Blue Economy, and Sustainable Environment

AU. 2021. Food Safety Strategy for Africa 2022-2036. Published by African Union-Department of Agriculture Rural Development, Sustainable Environment and Blue Economy. African Union Headquarters.

AU 2019. Sanitary and Phytosanitary (SPS) Policy Framework for Africa. Published by African Union -

Department of Rural Economy and Agriculture, October 2019

AUC. 2015. African Union Agenda 63. The Africa We Want. Popular version published by the African Union Commission

AU-IBAR. 2019. Animal Health Strategy for Africa (AHSA) 2019 – 2035. Published by African Union – Inter-Africa Bureau for Animal Resources

AU-IBAR. 2024. Report of the Expert Consultative Meeting on Development of Rapid Alert Systems for Food and Feed in Africa; 26 - 28 August 2024 in Lusaka, Zambia

African Union – Inter-Africa Phytosanitary Council. 2022. The Plant Health Strategy for Africa (PHSA). Published by African Union – Inter-Africa Phytosanitary Council

Babatunde, M.A. 2018. Conforming to SPS measures by African small holder farmers: Challenges and constraints. Book Chapter. Department of Economics, University of Ibadan, Nigeria. (Available online 12-02-2025)

Chisom, M. 2024. Top Agricultural Commodities leading Africa's export market. Business Day. September 2024 https://businessday.ng/news/article/top-10-agricultural-commodities-leading-africas-export-market/

Dutch Ministry of Agriculture, Nature and Food Quality (LNV), 4024. Uganda Agri-Economic Outlook April 2024 available at https://www.agroberichtenbuitenland.nl/binaries/agroberichtenbuitenland/documenten/publicaties/2024/04/29/agrieconomic-outlook

FAO/AUC, 2021. Framework for Boosting Intra-African Trade in Agricultural Commodities and services. Published by the Food and Agriculture Organization of the United Nations and the African Union Commission Addis Ababa, 2021

González-Mellado, A., M'barek, R., Nii-Naate, Z., Gonçalves, N. and Spinoglio, M. 2011. The importance of non-tariff measures for African agricultural and food trade to the EU: Evidence from selected countries. European Commission – JRC Scientific and Technical Reports. EUR25146 EN-2011

Heher, U. and Steen bergen, V.2020. Kenya Supplying to multinationals exposed local forms to international horticulture markets. Chapter 6 In*: An Investment Perspective on Global Value Chains*. World Bank Report.

Humphrey, H. 2017. Report on Food Safety, Trade, Standards and Integration of Small Holders into Value Chains. A review of the literature Report prepared for IFAD 11 IFAD Research Series

Keane, J., Calì, M. and Kennan, J. 2010. Impediments to Intra-Regional Trade in Sub-Saharan Africa. Prepared for Overseas Development Group (ODG) of the Common Wealth Secretariat

Land O Lakes, Venture 37. 2021. Report on Assessment of SPS Framework in EAC Partner States conducted under the USDA-funded Trade of Agriculture Safely and efficiently in East Africa (TRASE)

Mbori, O. H. 2017. Combating unjustified Sanitary and Phytosanitary measures in African Tripartite Free Trade Area (SADC-EAC-COMESA): SPS Plus or Minus? *Hungarian Journal of Legal Studies* 58(4):409-433. December 2017. DOI:10.1556/2052.2017.58.4.4

Molnar, G. and Benrejeb, S. G. 2020. Review of mechanisms for food safety related SPS measures within African Regional Economic Communities (RECs): Paving way for a continent-wide food safety coordination effort. *Food Control* (115) September 2020 107206

Ndobya, G. 2022. The Africa Continental Free Trade Area and the SPS Agreement: Insights for Africa. Article Published in the Afronomics Law, November 10, 2022

Magalhães, J. 2010. Report on Regional Sanitary and Phytosanitary Frameworks and Strategies in Africa of 2010. WTO Agriculture and Commodities Division

Ndemera, M., Gokah, I. and Gichuri, M. 2025. Economic impact of sanitary and phytosanitary measures on regional food trade. A Case Study of AGRA Focus Countries. Food Trade Coalition for Africa

Nzomoi, J., Mutua, J., Kiprop, H. and Kathambi, A. 2022. An Economic analysis of Kenya Horticulture export performance 2010 – 2021. *International Journal of Economics* 1 (4): 63-75

Odjo, S., Berthe, A. and Diallo, M.H. 2024. Africa in world agricultural trade: recent trends

and carbon footprint. Chapter 2 - *in World Agricultural Trade: Recent Trends and Carbon Footprint*. 2024

OECD, 2021. Digital Opportunities for Sanitary and Phytosanitary (SPS) Systems and the Trade Facilitation Effects of SPS Electronic Certification. OECD Food, Agriculture and Fisheries Paper March 2021 n°152

SADC. 2023a. Report on Status of Food Safety Inspection and Sampling System at Border Entry Points in SADC Member States. South African Development Community Secretariat

SADC. 2023b. Report of Analysis of SADC Framework for Mutual Recognition of Food Safety Certificates of Compliance issued by Competent National Authorities across the Member States. South African Development Community Secretariat

SADC. 2017. Report on Comparison of SPS Early Warning System and Rapid Response Strategies in selected three SADC Member States. South African Development Community Secretariat

UNIDO. 2011. Independent Evaluation Report on Trade Capacity Building in Agro-industry Products for the Establishment and Proof of Compliance with International Markets Requirements in EAC. Vienna 2011. Available online 12-02-2025

UNEC. 2019. The African Continental Free Trade Area: Impact Assessment for Uganda. Report published by United Nations Economic Commission for Africa Office for Eastern Africa.

World Bank Group. 2019. Creating Markets in Kenya – Unleashing Private Sector Dynamism to Achieve Full Potential: Country Private Sector Diagnostic Study Report

World Health Organisation (WHO). 2015. WHO Estimates of the Global Burden of Foodborne Diseases. Foodborne Disease Burden Epidemiology Reference Group 2007-2015 Geneva 2005

World Trade Organization. 2010. Sanitary and Phytosanitary measures. The WTO Agreements Series