

Food Safety in Africa

PAST ENDEAVORS AND FUTURE DIRECTIONS

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Acknowledgments

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The findings, interpretations and conclusions expressed in this work do not necessarily reflect the views of the World Bank and the African Development Bank, their Board of Executive Directors or the governments they represent.

Contents

ii

Acknowledgements	i
List of boxes, figures and tables	iii
Acronyms and abbreviations	iv
Foreword	v
Preface	vi
Executive summary	viii

Chapter 1: Purpose and context	1
Summary	2
A. Food safety and Africa's food system challenge ..	3
B. Rationale and frame of reference for this report ...	5
C. Scope and limitations of the report.....	7

Chapter 2: The food safety landscape in sub-Saharan Africa	11
Summary	12
A. Eco-biological determinants of food safety	15
B. Africa's diverse and changing food system and markets.....	18
C. Physical infrastructure related to food safety	20
D. Governance systems related to food safety	22
E. Investors in food safety.....	24

Chapter 3: Current and recent investments in food safety	31
Summary	32
A. Methodology and data limitations	33
B. Donor overview – Key findings	34
C. Patterns and trends – Key findings	38
D. Factors influencing current investments	44

Chapter 4: Policy discussion	47
Summary	48

<i>Question 1: Is it time to elevate food safety on the health agenda internationally and in SSA? Yes. Several drivers are coming together to raise the priority of food safety.</i>	<i>49</i>
<i>Question 2: To what extent are donor food safety investments reflective of modern best practices and achieving sustainable improvement in food safety? Much has been done and much remains to do.</i>	<i>52</i>
<i>Question 3: To what extent are current donor investments reflective of African strategies and priorities and coordinated to make efficient and effective use of resources? There is significant room for improvement.</i>	<i>54</i>
<i>Question 4: What are likely to be the primary drivers of progress on food safety in SSA over the next decade? Consumer awareness and demand.</i>	<i>55</i>

Chapter 5: Recommendations and implementing ideas	63
Concluding summary	64

<i>1. Better address the health of domestic consumers dependent on informal markets</i>	<i>64</i>
<i>2. Build capacity for well-governed, evidence- and risk-based food safety systems.</i>	<i>66</i>
<i>3. Harness today's marketplace drivers of progress on food safety.</i>	<i>68</i>

List of boxes, figures and tables

Boxes

Box 2.1: Key findings from interviews with food safety experts	13
Box 2.2: Aflatoxin illustrates Africa's food safety challenge.	27
Box 4.1: PACA: Elements of a holistic strategy for reducing aflatoxin risks.	53
Box 5.1: Policy innovation for the informal sector.	68

Figures

Figure 2.1: Descriptive framework of food safety determinants, investors and African institutions.	15
Figure 3.1: Top 10 countries for food safety investment	39
Figure 4.1: Foodborne disease burden in Africa, in disability-adjusted life years	50
Figure 4.2: Push-pull approach to improving food safety through public and private sector.	59

Tables

Table 2.1: International development community involved in food safety	24
Table 3.1: Food safety projects and investments (2010–17), by donor and type of project	37

Acronyms and abbreviations

iv

AfDB	African Development Bank
AUC	African Union Commission
BMGF	Bill & Melinda Gates Foundation
CAADP	Comprehensive Africa Agriculture Development Programme
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
GAFFSP	Global Agriculture and Food Security Program
GFSP	Global Food Safety Partnership
HACCP	Hazard Analysis and Critical Control Point
HoReCa	hotel, restaurant and café
ILRI	International Livestock Research Institute
NGO	non-governmental organization
PACA	Partnership for Aflatoxin Control in Africa
REC	Regional Economic Community
SDG	Sustainable Development Goal
SSA	sub-Saharan Africa
USA	United States of America
USD	United States dollars
WHO	World Health Organization
WTO	World Trade Organization

Foreword

The future of the food system is critical to the long-term well-being of Africa and its people. An abundance and variety of safe and nutritious food, which too many Africans still lack, is the foundation for good health and cognitive development. And as African leaders have recognized, agriculture and value-added food manufacturing can lead Africa's economic growth by providing jobs while meeting growing food demand in the region and the world.

For a food system to be a successful provider, the food must be safe. Consumers demand it. Markets demand it. Our emerging knowledge of the impacts of foodborne illness on health and development compels us to elevate our attention and our effort to do more to make food safe.

In 2015, the World Health Organization conservatively estimated that Africans suffer 137,000 deaths and 91 million acute illnesses annually from foodborne hazards, with the African region having the world's highest per capita incidence of foodborne illness. Tragically, the heaviest burden falls on children under five years old. Africa's food safety challenge will only intensify as its food system matures, supply chains lengthen, and Africans have access to more of the nutritious meat, dairy products, fruits and vegetables that are needed for good health but are more vulnerable to food safety hazards than traditional staples of African diets.

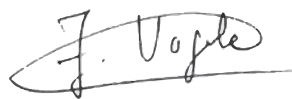
Now is the time to take stock of the current food safety landscape in Africa and for new efforts to address old challenges. It is time to examine what the international donor community is doing to help address these challenges; time to consider how donors, national governments, the private sector and consumers can

work together to strengthen Africa's food safety system and advance health and development in the region. The Global Food Safety Partnership (GFSP) has taken an all-important step in this direction with its report **Food Safety in Africa: Past Endeavors and Future Directions**.

In addition to cataloguing over 500 projects and activities undertaken since 2010 and analyzing patterns and trends in donor investment, the report draws upon input from nearly 200 stakeholders and experts to make important recommendations for providing safe food for Africans. The central message is clear and strong: food safety is the next frontier of food and nutrition security; it is time for increased donor investment and a new strategic approach that squarely addresses the health of African consumers and that harnesses consumer awareness and market forces to drive progress on food safety.

This GFSP report is a call to action for all those invested in Africa's future. It calls for strategies that prioritize local context and needs, which catalyze progress from the ground up, and that foster synergy between actions of the private sector to provide safe food and investments in public goods by governments to build effective food safety systems.

Everyone deserves safe food.



Juergen Voegelé
Senior Director, Food and Agriculture Global Practice
World Bank



Preface

vi

Failures in food safety exact severe costs in developing countries. The Global Food Safety Partnership (GFSP), a public-private partnership, was launched in 2012 to address this problem. The GFSP promotes food safety systems based on prevention underpinned by science to improve the effectiveness of food safety investments. Hosted at the World Bank, the GFSP leverages the Bank's independence, expertise, funding, and convening power in support of the three pillars of its strategic framework: i) to assess and share knowledge on food safety; (ii) to convene diverse stakeholders to drive action: and (iii) to implement food safety programs that produce results on the ground.

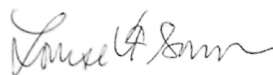
In line with its strategic framework, the GFSP commissioned this report to provide data and analysis that interested actors (including states, international development agencies, and the private sector) working to improve food safety in sub-Saharan Africa could use to improve the impact of their efforts. Our expectation is that this report will support the design of, and investment in, evidence-based food safety programs in Sub-Saharan Africa targeted at the provision of safe food for Africans.

Why Sub-Saharan Africa? In 2015, the food safety agenda received two powerful wake-up calls. The first was commitment of the international community to the Sustainable Development Goals (SDGs). Although food safety was not explicitly defined as a goal, its true importance for the achievement of the SDGs is unmistakable. The development community is beginning to accept that there will be no food security and achievement of the SDGs without food safety. The second wake-up call was the vast contribution to understanding the scale and scope of foodborne

diseases made by the 2015 report from the World Health Organization (WHO). The report revealed that the burden of foodborne diseases, largely borne by developing countries, is similar in magnitude to that of malaria, HIV/AIDS, or tuberculosis. Foodborne disease occurs very widely in Africa and is attributed both to food staples and to nutrient-rich perishables such as fish, meat, milk and vegetables.

In April 2018, the GFSP joined forces with the African Union to hold a joint side meeting at the 14th Annual Comprehensive Africa Agriculture Development Program Partnership Platform Meeting (CAADP PP) in Libreville, Gabon. The meeting underscored the importance of improving food safety and quality standards in Africa, so they are on par with the rest of the world. Food safety risks, it was noted, not only pose significant threats to the health of the population but also to the competitiveness of African agriculture, undermining potential and actual gains to be made in improving public health, food security, and nutrition as well as thwarting efforts to boost trade in sub-Saharan Africa.

Our hope is that this GFSP report will result in greater prioritization of investments in food safety for African consumers, improved harmonization of the development community's support to food safety, and sharper focus on the need to alleviate the public health burden of foodborne disease in sub-Saharan Africa. It is only as we work collectively to grow human capital that we will eradicate extreme poverty and boost shared prosperity by 2030.



Louise Scura
Chair, Governing Committee
Global Food Safety Partnership



Executive summary

viii

1. Current donor investment in food safety in sub-Saharan Africa (SSA) largely reflects the concerns of previous decades and as a result is substantially focused on access to regional and overseas export markets, with emphasis on national control systems. Relatively little is being done to reduce foodborne illness among consumers in SSA. More investment in food safety (by African governments, donors and the private sector) is needed to help ensure that Africans have safe food.
2. New understanding of foodborne disease burden and management, along with rapid and broad change within societies and agri-food systems in SSA, has led to food safety emerging as an important public health and development issue. There is need to reconsider donor and national government investment strategies and the role of the private sector.
3. This report is a call for action on food safety. It provides up-to-date information on key food safety actors, presents the first-ever analysis of food safety investments in SSA, captures insights from a wide-ranging expert consultation and makes suggestions for attaining food safety, based on evidence but also consensus principles, successful elsewhere but not yet applied widely in mass domestic markets in SSA.

Key messages - Needs and opportunities for improvement

4. New evidence shows the very large health and economic burden of foodborne disease. SSA has the world's highest per capita health burden, which disproportionately affects children and undermines the well-being and economic productivity of the whole population. Food safety also underpins the region's agriculture-led development strategies, including the 2014 Malabo Declaration goal of dramatically increasing trade in food.

5. Complexity, dynamism and diversity of the food system hinder efforts to plan and target investments but offer opportunities for agri-food system development. Agri-food systems in SSA are characterized by many hazards and limited understanding of their presence, prevalence and contribution to health risks; predominance of smallholders and diversity of foods; diverse rapidly evolving formal and informal, domestic and export markets; physical infrastructure challenges; complex, underfunded, but modernizing governance systems; and emerging consumer awareness and market demands for food safety that vary widely among countries and between formal and informal markets.
6. While national governments have central responsibility for ensuring safe food for their citizens, international donor organizations are, and have been, the major providers of food safety investments. This report documents investments from over 30 bilateral and multilateral agencies, development banks and foundations. Although their goals, priorities and strategies have been largely uncoordinated, investments have been appreciated by stakeholders who nevertheless see opportunities for re-orientation of investments towards greater impacts.
7. Current donor investment in food safety remains substantially focused on access to regional and overseas export. Much of this donor investment involves activities that are not linked to health outcomes in SSA. The focus reflects priorities which dominated in past decades and which still have relevance but are insufficient to address the food safety needs of African consumers.

Recommendations and implementing ideas

8. The audience for this report consists of donors, African governments and the private sector. It recommends that, in response to changing needs, donors and national governments should broaden their approach to food safety. In keeping with best practice, they should focus more on public health and on harnessing consumer awareness and market forces to drive progress. Focus on export markets remains relevant, but investments need to be broadened, built on, prioritized and targeted to alleviate health risks in the domestic markets mainly responsible for the public health burden of unsafe food among Africans. Specific recommendations and their rationale are given below and implementing ideas are provided in Chapter 5.

- (a) **Health first:** Better address the health of domestic consumers dependent on informal markets. Most of the health (and economic) burden of foodborne illness in SSA is borne by the majority who depend on informal markets, where only a small fraction of donor investment has been focused. There is a lack of data on the impacts of specific hazards required for prioritization and on the range, effectiveness and cost of intervention options.

Recommendation. International donors should increase and diversify investment in food safety and prioritize the development of knowledge and of intervention strategies to effectively reduce health risks. National governments and regional institutions in SSA, in dialogue with the donor community, should establish evidence-based food safety

goals, priorities and implementing strategies that consider health burden and development impacts, with emphasis on informal markets.

- (b) Risk-based:** Build capacity for well-governed, evidence- and risk-based food safety systems. Risk-based approaches to food safety management are increasingly the norm among governments and firms producing for formal markets. Approved by governments in SSA, they have yet to be implemented in the informal sector. They provide structured and efficient ways of mitigating risk (such as farm-to-table management) but require adaptation for informal markets and an enabling regulatory environment. Lack of donor co-ordination and underfunded, fragmented and often poorly governed national food safety systems all contribute to regulatory failure and a significant gap between food safety policy and implementation in most countries in SSA.

Recommendation. The donor community and national governments should endorse and implement principles of science and risk-based prevention, adapted to local conditions. Donors and governments in SSA should mutually commit to improving food safety governance. These include SSA country ownership of improving food safety; government commitment to improving institutions and tackling corruption; donor harmonization and alignment with national priorities; and managing for results and mutual accountability.

(c) **Market-led:** Harness marketplace drivers of progress on food safety. The private sector plays a central role in assuring food safety and experience has shown that improvements in food safety come mostly from private sector response to public and market demands. In SSA, a 'push' approach still predominates, focusing on the public sector and trade goals. In contrast, 'pull' approaches use consumer demand for safe food as the major lever for improvement, while supporting the private sector to respond to this demand. The public sector provides an enabling regulatory environment that supports private efforts, provides incentives and accountability for meeting food safety standards and increases awareness of food safety among all stakeholders.

Recommendation. National governments and donors should use their resources and standing to recognize, catalyze and enable the consumer and marketplace drivers of progress on food safety. This requires well-informed and empowered consumers, able to demand food safety, and a private sector that has the capacity and accountability to respond to consumer demand.

SAFER **FOOD**
STRONGER **ECONOMIES**
HEALTHIER **WORLD**

Chapter 1: Purpose and context

Summary

Food safety is at an inflection point in sub-Saharan Africa (SSA), with a genuine convergence of interests around the goals of strengthening food production practices and systems. This report provides an opportunity to learn from past endeavors to improve the impact of future food safety investments.

1. This report, ***Food Safety in Africa: Past Endeavors and Future Directions***, provides data, analysis and recommendations that organizations working on food safety in SSA can use to improve the impact of their efforts. The report focuses on food safety investments and activities of the international donor community and ways that both donors and African governments can better target and coordinate those investments, with greater synergy between the public and private sectors.¹
2. The report is based on several lines of data and analysis. It draws heavily on the recent literature on food safety burden in SSA. Additionally, for the first time, systematic information was collected on donor investments in food safety and Africa. This unique database permitted analysis of previous investments along various axes. A third important input was a set of both in-depth and informal interviews with a wide range of food safety experts in SSA. The report also draws on the experience of project team members with track records leading change in food safety systems in developed and developing countries, decades of experience in researching food safety in the informal markets of SSA and experience with the private sector in SSA.
3. The context of the report includes three sets of evidence: (a) the very large and likely worsening health burden of foodborne disease, (b) the current dominance and future persistence of informal markets and (c) increasing consumer concern over food safety. Support for these assertions is presented throughout the report.

"It is now widely understood among experts and many governments that improving food safety is a key factor in the success of Africa's food system."



"More and more, commercial purchasers and consumers alike are expecting safe products and reacting negatively... when their expectations are not met."

A. Food safety and Africa's food system challenge

4. **It is important to see food safety in the context of the broader development and food system challenges in SSA.** Despite the effort and progress of the past few decades, most countries in SSA still experience serious and persistent hunger and malnutrition; one in three children under the age of five years is stunted.² Africa's food system must meet this fundamental food security challenge by producing abundant amounts of safe, nutritious food, while ensuring it is accessible to both rural and urban consumers for whom traditional agriculture and food systems fall far short.



5. **Improving food safety is a key factor in the success of Africa's food system.** Food safety is, by definition, an element of food security,³ as the Director General of the Food and Agriculture Organization of the United Nations (FAO), José Graziano da Silva, recently stated: "There is no food security without food safety."⁴ Food safety is a significant public health issue in its own right. The World Health Organization (WHO) conservatively estimates that Africans suffer 137,000 deaths and 91 million acute illnesses annually from foodborne hazards, with the heaviest burden of disease falling on children under five years of age. SSA has the highest per capita incidence of foodborne illness in the world.⁵

6. Food safety is essential to the success of Africa's agriculture-led development strategies. Through the Malabo Declaration and the Comprehensive Africa Agriculture Development Programme (CAADP),⁶ African leaders have committed to strategies that depend on access to urban, regional and global markets, which increasingly demand assurances that the food is safe. More and more, commercial purchasers and consumers alike are expecting safe products and reacting negatively with impediments to market access, when their expectations are not met. Safe food is also integral to attaining the Sustainable Development Goals.

7. Concern over food safety in SSA is longstanding but good evidence on impacts has only recently emerged. In 2005, FAO and WHO jointly sponsored a continent-wide food safety conference that assessed the food safety situation and produced a wide range of recommendations for collaboration among national governments and donors; many of these are still relevant.⁷ Today, however, the impetus for progress on food safety has changed significantly:

- The 2015 WHO global estimates of foodborne disease quantified for the first time ever the magnitude of the public health burden and how it falls disproportionately on young children.⁸
- The greatest known risks are due to microbiological hazards associated with the higher nutrition animal-source foods and fresh vegetables and fruits that are in increasing demand as African incomes rise.⁹
- As food safety issues become more prominent and consumers more connected to information, they are increasingly concerned over food safety and more demanding of action from the government and private sector.¹⁰
- Though much remains to be done, food safety is receiving increasing attention from international organizations, donors, regional institutions and national governments with major initiatives in recent years.¹¹

B. Rationale and frame of reference for this report

8. Recent increased food safety attention and efforts indicate a demand for more and better evidence, with major international organizations and donors commissioning syntheses on evidence on food safety.

Food safety management has seen great advances in recent decades. A fundamental driver for this report, however, was the realization that current approaches to improving food safety in SSA only partly reflect current understanding of best practice.

9. The central theme of this report is how donors, African governments and the private sector can work together to maximize the impact of food safety investments and improve food safety.

Everyone agrees that such collaboration is needed. The difficulty is catalyzing and sustaining change in current practices.

10. The frame of reference for analyzing current efforts and proposing needed change includes three major elements:

- (a) ***New understanding of the public health problem of foodborne illness in SSA.*** The 2015 WHO-published burden-of-illness estimates show the public health significance of food safety in Africa, with most burden generated in the informal sector. Urbanization is rapidly accelerating in Africa and with this, growth in modern retail. However, most of the risky fresh foods continue to be accessed in traditional, informal value chains.¹² For example, in east and southern Africa, the traditional sector supplies 85–90% of market demand and by 2040 it will still meet 50–70% of demand.¹³ Moreover, while most infectious diseases continue to decline, the burden of foodborne illness is likely to increase.¹⁴ Most donor investment today is focused on formal markets and exports as legitimate elements of African agriculture and trade development strategies. The report will include a public health perspective in its analysis of current investment efforts and recommendations for improvement.



(b) *Developments in managing food safety.* The scientific basis and best practices for making food safe have been established in recent decades but little applied to the informal domestic markets where most health impacts are generated. They are reflected in the recognized frameworks for risk analysis and risk-based approaches, which are spelled out in an array of Codex guidelines.¹⁵ These can be applied at the level of individual operators and specific value chains and at the level of national food safety strategies and systems. In the African context, care must be taken to adapt recognized food safety principles to the wide diversity of Africa's food production settings and markets, as described in Chapter 2.

(c) *What is known about drivers of food safety progress.*

Modernization of food safety systems is underway globally. In every country and region, the sustaining motivation and energy for improving food safety has come from consumers demanding safer food and the agri-food sector responding to supply it. This demand-driven basis for fundamental change, often following high-profile illness outbreaks and contamination incidents, has been well documented in countries as diverse as Belgium, China and the United States of America (USA). In response, many food producers and processors have improved their own food safety practices and advocated for improvement in regulatory oversight and other public support for food safety.

11. This three-element frame of reference—public health, best-practice food safety management and market-place drivers of progress—guides this report's analysis of current investments and recommendations for the future. In the context of SSA, consumer and market awareness and demand for food safety, coupled with the private sector taking responsibility for progress, are particularly important in moving from understanding to greater action and progress on food safety.

- 12. From this context and the data and analysis in this report comes key advice for the donor community and African governments:** Food safety is critically important, deserves greater investments and can be best managed through risk-based approaches that harness consumer demand and private sector incentives.

C. Scope and limitations of the report

- 13. The report focuses on past and present food safety investments by the international donor community.** It provides findings and makes recommendations based on data from over 500 donor-funded projects and activities and input from nearly 200 experts and stakeholders. It provides advice to help donors and African governments better target and coordinate investments, with greater synergy between the public and private sectors.
- 14. The report addresses the safety of food for humans and animal feed.** It does not address animal health in general or plant health, except to the extent projects in these areas have a specific food safety purpose.
- 15. The term ‘food safety investments’ is defined broadly to include any investment or activity intended to improve the capacity of individuals, organizations, countries or regions in making food safe.** The direct beneficiaries can include those producing, processing, storing, transporting or selling food, as well as governments, non-governmental organizations (NGOs) and consumers with roles on food safety. Examples of food safety investment areas include:
- research, education and training regarding hazards and risks and how to minimize them;
 - laboratory capacity, cold chain, transportation and other food safety infrastructure;
 - private sector food safety management, verification and certification;
 - public sector regulatory policy, standards, regulations, inspection and harmonization; and
 - consumer awareness and education.

16. The report presents project-level information on this broad array of food safety topics, but it has limitations. The compilation includes over 500 projects sponsored by more than 30 bilateral and multilateral agencies, development banks and foundations. It should not, however, be considered a full and detailed accounting of all donor food safety projects in Africa or the donor resources being devoted to food safety. A complete accounting is not possible given data gaps and the diversity in how donor organizations report on their activities.¹⁶

17. It is beyond the scope of this report to document what national governments in Africa are contributing to food safety or evaluate the effectiveness of particular donor projects or initiatives. The high-level mapping and analysis of continent-wide donor activity contained in this report can provide the starting point for country-level stakeholder dialogue and strategy development on food safety that considers national government investments and project effectiveness.

Conclusion

By examining recent donor investments in food safety in the context of today's changing food system and food safety challenges in SSA, this report points the way towards improvements in future investment strategies and plans. Furthermore, it provides the analytical foundation for needed dialogue among donors, governments in SSA, the private sector and consumers on how to make the most of those investments at the national and local levels.



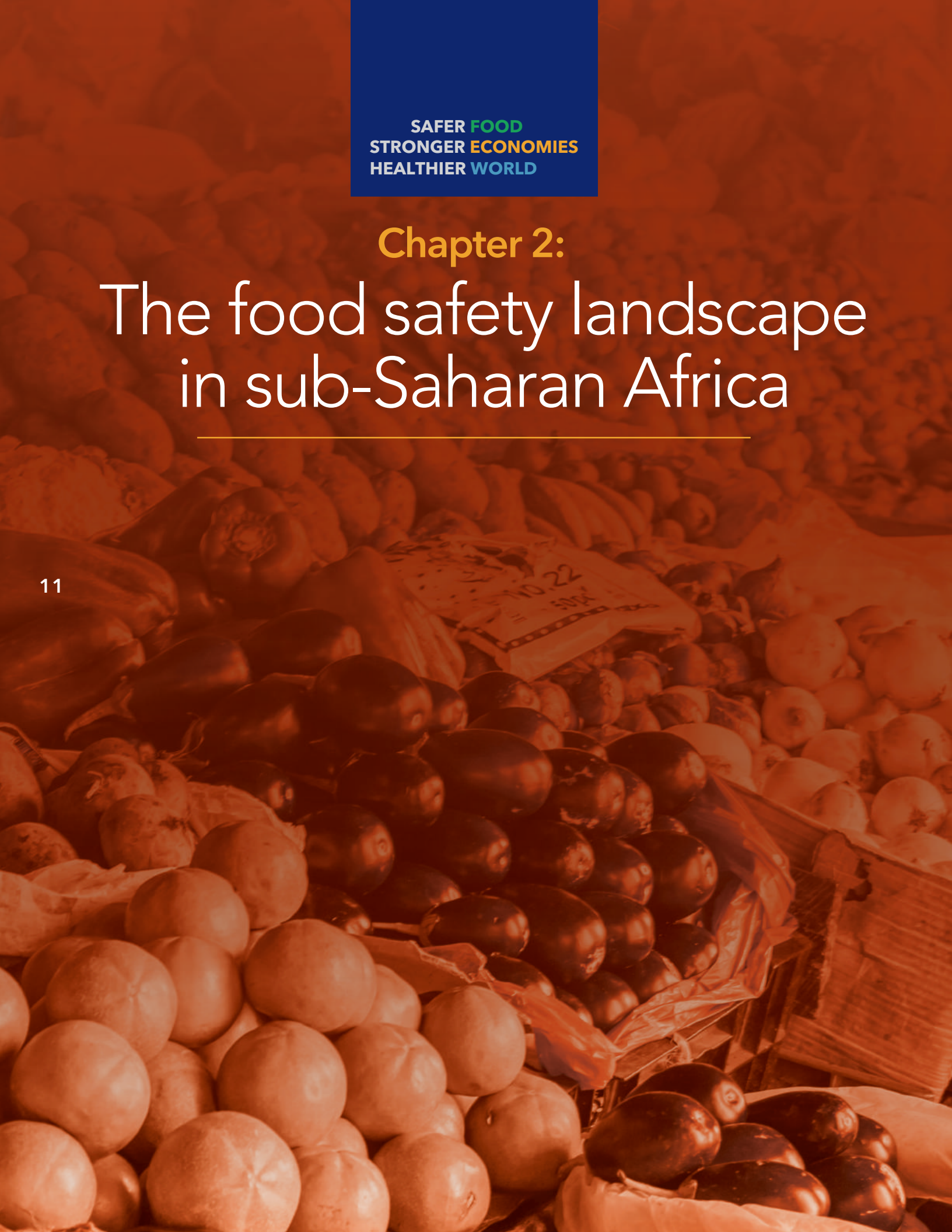
Chapter endnotes

- 1 Five appendices provide supporting material to this report: Appendix A: Institutional landscape for capacity; Appendix B: Implementing ideas; Appendix C: Food safety expert survey summary of responses; Appendix D: Contributors to report and Appendix E: Supplementary material (data collection methodology; donor contributions to food safety; country activities in food safety; anonymized detailed responses from experts; and food safety and the Sustainable Development Goals). The appendices are available online at www.gfsp.org.
- 2 FAO (Food and Agriculture Organization of the United Nations). 2017. *Regional overview of food security and nutrition in Africa 2016. The challenges of building resilience to shocks and stresses*. (Available from <http://www.fao.org/3/a-i6813e.pdf>) (Accessed 13 September 2018)
- 3 FAO (Food and Agriculture Organization of the United Nations). 2003. *Trade reforms and food security: Conceptualizing the linkages*. Rome, Italy: FAO. (Available from <http://www.fao.org/docrep/005/y4671e/y4671e00.htm>) (Accessed 13 September 2018)
- 4 Zayed, S. 2017. World Food Safety Day. (Available from <http://www.fao.org/webcast/home/en/item/4555/icode>) (Accessed 27 August 2018).
- 5 WHO (World Health Organization). 2015. *WHO estimates of the global burden of foodborne diseases*. Geneva, Switzerland: WHO. (Available from http://www.who.int/foodsafety/publications/foodborne_disease/fergreport/en/) (Accessed 13 September 2018)
- 6 AUC (African Union Commission). 2014. *Malabo Declaration on accelerated agricultural growth and transformation for shared prosperity and improved livelihoods*. Addis Ababa, Ethiopia: AUC. (Available from http://www.resakss.org/sites/default/files/Malabo%20Declaration%20on%20Agriculture_2014_11%2026-.pdf) (Accessed 28 August 2018)
- 7 FAO (Food and Agriculture Organization of the United Nations). 2005. FAO/WHO regional conference on food safety for Africa. Rome, Italy: FAO. (Available from <http://www.fao.org/docrep/meeting/010/a0215e/A0215E00.htm>) (Accessed 13 September 2018)
- 8 WHO (World Health Organization). 2015. WHO estimates of the global burden of foodborne diseases. Geneva, Switzerland: WHO. (Available from http://www.who.int/foodsafety/publications/foodborne_disease/fergreport/en/) (Accessed 13 September 2018)
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- 10 Hoffmann, V. and Moser, C. 2017. You get what you pay for: The link between price and food safety in Kenya. *Agricultural Economics* 48(4): 449–458. <https://doi.org/10.1111/agec.12346>
- 11 Initiatives include the United States Agency for International Development, the Department for International Development, the Bill & Melinda Gates Foundation etc.
- 12 Gómez, M.I. and Ricketts, K.D. 2013. Food value chain transformations in developing countries: Selected hypotheses on nutritional implications. *Food Policy* 42: 139–150. <https://doi.org/10.1016/j.foodpol.2013.06.010>

- 13 Tschirley, D., Reardon, T., Dolislager, M. and Snyder, J. 2015. The rise of a middle class in east and southern Africa: Implications for food system transformation. *Journal of International Development* 27(5): 628–646. <https://doi.org/10.1002/jid.3107>
- 14 Hoffmann, S. 2018. *Assessing potential influences of income and food price trends on global patterns of foodborne disease*. 2018 Annual Agricultural & Applied Economics Association Meeting, Washington, D.C., 5–7 August 2018.
- 15 The Codex Alimentarius, or ‘Food Code’, is a collection of standards, guidelines and codes of practice adopted by the Codex Alimentarius Commission. The commission is the central part of the joint FAO/WHO food standards.
- 16 See methodology note in Appendix E.

Chapter 2:

The food safety landscape in sub-Saharan Africa



Summary

The extraordinarily complex landscape of food safety issues, institutions and forces in SSA poses significant challenges to progress on food safety. Understanding this complex and diverse landscape is the starting point for crafting strategies, policies and investments with meaningful and lasting impacts.

18. The following portrayal of the food safety landscape in SSA draws on formal and informal interviews with nearly 200 stakeholders and experts. The descriptive landscape analysis in this chapter and the policy analysis and recommendations in Chapters 4 and 5 derive from the large database of donor community investment activities assembled for this project and the factual input and perspectives of a wide range of participants and expert observers of the food safety landscape in SSA. Some of the key findings are shown in Box 2.1 and given in detail (anonymized) in **Appendix E**.



19. We identify four main sets of determinants that structure the food safety landscape and influence food safety management in SSA. While some challenges apply generally to food safety, others reflect unique characteristics of SSA:

- **Eco-biological determinants** include a wide range of foods, potentially supporting dietary diversity, many hazards and environmental conditions that support them, but also that provide opportunities for risk management (such as solar drying);
- **Food system and market determinants** where wide diversity and rapid change provide opportunities and risks;

Box 2.1: Key findings from interviews with food safety experts

The interviews included participants from government, academia, industry, civil society and donor organizations.

Capacity-building needs and experience: Respondents indicated a wide range of capacity needs, from investments in sanitation infrastructure to needs for advanced methods of diagnosis. All sectors claimed to provide some capacity-building, but these had limited reach and largely ignored the informal sector; on-ground activities focused on exports. Moreover, training often did not consider reach, sustainability or health outcomes. Most trainings did not monitor and evaluate the effectiveness or outcomes of training.

Risk assessment: While almost half of respondents in the formal interviews correctly said that biological hazards were most important to human health, more than half considered chemical hazards had more impact on trade. In a related question, respondents thought donors considered support for export trade (effectively protecting the health of consumers outside the country) to be the highest priority (70%) but their preference would be for protecting health of consumers in SSA to be the highest donor priority (80%).

Risk management: Several public sector actors noted that they did not have capacity or resources to enforce food safety. Public sector interviewees were mainly based in headquarters and much of their time was spent on drafting legislation and harmonization of regulations and standards between countries, although they recognized these regulations were not enforced in informal markets. These markets were seen as especially difficult to regulate and one respondent noted that Northern models do not necessarily work in African settings, in particular in informal markets, and that more innovative and different approaches are needed which allow transition from the informal to formal.

- **Physical infrastructure** of varying quality, but often under-developed and poorly maintained (with, however, measurable improvement over the last decades in many places); and
- Complex, underfunded, fragmented **governance systems** for food safety which are modernizing and increasingly responding to more demanding consumers.

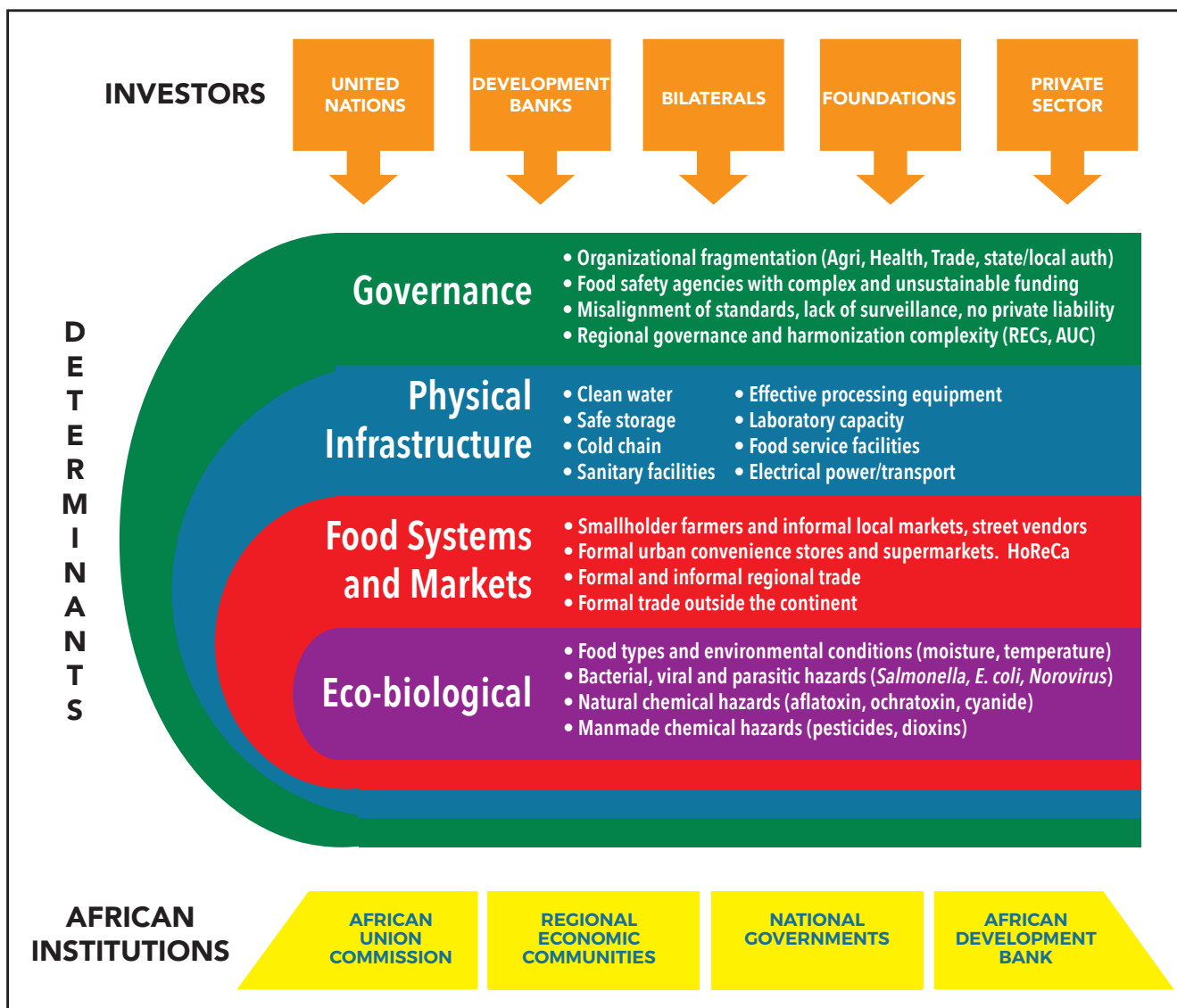
Interfacing with these determinants are the investors in food safety who are the focus of this report (Figure 2.1). The rest of this chapter describes determinants and investors.

Feedback on donor efforts: Interviewees reported that donor co-ordination was for the most part haphazard, with none reporting donors were highly coordinated and one reporting donors appeared to be having a ‘fight of influence’ at high levels. However, nearly all agreed that donor co-ordination was of tremendous importance. Another challenge raised was that the agenda of donors and recipients did not match. Traceability, openness and transparent information with regard to development funds were also considered important issues.

Advice for donor investment: Three areas were by far the most important: building capacity in value chain actors, raising consumer awareness, and generating evidence on health risks and management options. Areas where previous food safety investment have concentrated (for example, laboratories, harmonization) were considered less important and investments outside food safety which can have spillover benefits on food safety (for example, cold chain, water infrastructure) were considered to be lower priorities.

Way forward: Public awareness was considered very important in driving change and creating financial incentives. The public sector appears to lag behind the private sector in terms of food safety. The need for incentives/motivation for behavior change was stressed by several and responding to consumer demand was viewed as key. There was little understanding of public-private partnerships, but these were seen to be important and some successful examples given. Political will and buy-in were seen to be key. Achievable goals for the next 10 years identified by respondents included greater consumer awareness and food safety driven by the private sector.

Figure 2.1: Descriptive framework of food safety determinants, investors and African institutions



A. Eco-biological determinants of food safety

20. Compared to other regions, SSA faces a remarkably broad range and high prevalence of hazards. While evidence on the burden of foodborne illness in SSA, especially at the national level, remains weak, the aforementioned WHO study is considered credible though conservative. According to this, key hazards for SSA in terms of their impact on human health are:

- *Bacterial and viral hazards.* These are responsible for about 70% of the assessed foodborne disease burden (which includes both sickness and death). *Salmonella* is estimated to have the highest mortality of all hazards, causing about one-third of all deaths in Africa associated with foodborne hazards – 32,000 annually.
- *Parasitic hazards.* These contribute about 17% of the burden. *Taenia solium*, the pork tapeworm, infects millions of Africans and in some cases causes severe illnesses, including epileptic seizures, and 15,000 deaths annually. Other significant foodborne parasites in the region are *Ascaris* spp. and the protozoa *Cryptosporidium* spp. and *Toxoplasma gondii*.
- *Natural chemical hazards.* Aflatoxin is a pervasive chemical hazard in SSA that predominantly affects staple crops such as cereals and groundnuts. Only health impacts resulting from aflatoxin-associated liver cancer were assessed in the WHO report and these constituted just over 1% of the total disease burden from all causes studied by WHO. Though less common, consumption of insufficiently processed cassava with high levels of naturally occurring cyanide can lead to 'konzo', an acute and devastating form of paralysis with a 20% mortality rate. There is high concern but less evidence on the health impacts of industrial chemicals in food. Only dioxins were included in the WHO study, although further WHO information on the impact of chemical hazards is forthcoming.

21. Hazards within the food chain do not necessarily lead to health risks

for the consumer. *Hazards* are those unwanted agents in food (for example, bacteria/viruses, parasites and chemicals) likely to cause harm if not adequately controlled; *risk* refers to the probability that harm will in fact occur and its potential severity. The hazard/risk paradigm is well illustrated by the dairy sector in Kenya, where informal sales of raw milk account for approximately 90% of the milk market.¹ Although raw milk is known to contain bacterial hazards that might adversely impact health, Kenyans routinely boil their milk before consumption. As a result, the risk of acquiring bacterial infections such as brucellosis and tuberculosis from unpasteurized products is much lower than might be expected in such settings, though not eliminated.² Current food safety regulations in SSA and concerns over food safety are often based on the presence of hazards rather than the risk to human health. This has led to food scares and to misallocation of scarce resources, as concerns and funding tend to follow

hazards which trigger high concern (such as those caused by chemicals) but which may have a lower health burden than hazards which are not regarded as so alarming (such as those caused by biological agents). Given the report's recommendation that food safety systems need to be more consumer-driven, it is essential that consumers are better informed about the risks they face.

- 22. Lack of evidence on hazards, risks and management options chills investment and reduces impacts.** Systematic evidence on the burden of foodborne disease is only starting to emerge and is not yet readily available at country level. This deficit is especially significant because a small number of hazards and commodities is usually responsible for most of the health burden. For example, according to the WHO study, in SSA just six hazards are responsible for 75% of the foodborne disease burden. Prioritizing the 'vital few' can greatly improve efficiency of food safety management. Similarly, the lack of information on the effectiveness and cost benefit of different food safety interventions reduces willingness to invest in food safety management.



B. Africa's diverse and changing food system and markets

23. The food system in SSA remains deeply rooted in smallholder

agriculture. Most smallholders produce staple cereals and legumes largely for household consumption but also with the aim of selling the surplus in local markets to generate income. Many produce fruits and vegetables and keep livestock also for family consumption and sale at local markets.

24. Smallholder farmers and millions of other households rely to varying degrees on informal local markets for key components of their


diets. Most commonly, these are traditional markets, including local wet markets and kiosks selling produce and meat, as opposed to the modern convenience stores or supermarkets serving higher-income urban consumers. Street vendors serve millions and are an integral part of the informal market system. These traditional markets and vendors might be under some municipal oversight or licensing but are 'informal' in the sense that they typically operate outside of any formal system of effective food safety regulation or other oversight, and many lack sanitation facilities and other health and safety-related infrastructure.

25. Despite their food safety challenges, informal markets are

fundamentally important to food and nutrition security in SSA. They are where most people obtain most of their food, especially the riskiest animal-source food and fresh produce.³ The income generated by these sales provides millions of farmers and traders with the income required to meet basic household needs. In many countries, women play prominent roles in this system and it is one of their few employment options. Economic models suggest informal markets will remain a central feature of the food system in SSA for the foreseeable future.

26. While smallholder agriculture and informal markets persist, the food system in SSA is experiencing rapid changes in response to ongoing urbanization and an emerging middle class.⁴

Larger and more intensive farms are emerging and a growing number of small- and medium-size agribusinesses are processing and adding value to raw commodities. Large modern supermarkets and a modern food service industry (including the hotel, restaurant and café — HoReCa – sector) are increasingly common in response to economic and demographic changes



that are likely to accelerate in the future. This expanding commercialization should benefit consumers and help grow the economy. However, like any advanced food system, there will be new food safety risks, accompanied by the means or lack thereof to mitigate and prevent them.

- 27. As the formal sector expands, more attention is needed on related food safety challenges and opportunities.** Supermarkets and the HoReCa sector market themselves on food quality and safety and they increasingly seek local supply chains that can meet food safety standards. This creates opportunities for farmers and food manufacturers and is an impetus for greater focus on food safety from farm to table. However, when contamination occurs in a large-scale production or processing setting, it can radiate across value chains and affect large numbers of consumers, as demonstrated by the massive 2017–18 *Listeria* outbreak associated with processed meats in South Africa.⁵
- 28. Expanding cross-border and regional trade in food within SSA raises other food safety issues.** These include higher consumer expectations in certain receiving countries, standards imposed by commercial traders and customers, and the border checks that come with regional trade. Lack of harmonized food safety and quality standards among governments gives further visibility to food safety issues and impedes trade among countries within Africa. The picture is further complicated by the fact that much cross-border trade is conducted outside formal trade channels and thus may avoid compliance with standards altogether.
- 29. Export outside the continent can further expose food safety challenges and create a strong demand for capacity to address them.** In Europe, the USA and other advanced markets, government food safety standards and verification requirements are high. Moreover, many of the companies involved in the global trade in food are large, branded retailers and manufacturers who have the financial means and incentives to impose their own strong purchase specifications for food safety. SSA has a long history of exporting raw agricultural commodities – coffee, tea, cocoa and groundnuts – outside the continent, typically for further processing into specialty foods. More recently, farmers in SSA have been able to export fresh fruits, vegetables and fish, which can be more vulnerable to

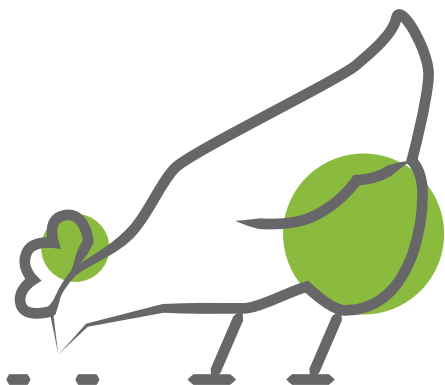
food safety hazards, and food processors in SSA are adding value to traditional commodities in search of higher returns. Such export trade is heavily dependent on the capacity of African producers to meet high food safety standards.



C. Physical infrastructure related to food safety

30. In any food system, food safety depends on physical infrastructure.

Even at subsistence levels of food production and consumption, containers to protect stored food from contamination and moisture, drying equipment, clean water and personal hygiene and sanitation facilities are important factors in preventing foodborne illness. Physical infrastructure needs expand quickly as food is moved off the farm to markets, whether local and informal or more urban, regional and international. Physical infrastructure becomes especially important when modern food safety standards are expected to be met. Key infrastructure elements of modern food systems include:




- **Clean water.** Clean water is a prerequisite for safe food from farm to table.
- **Safe storage.** Food stored for marketing or transported to markets needs protection from microbiological and chemical hazards, including those transmitted by pests.
- **Cold chain.** Maintaining the cold chain is essential to the safety and quality of commodities vulnerable to spoilage or microbiological contamination.
- **Sanitary facilities.** Safe food manufacturing at a commercial scale requires buildings and processing equipment that can be adequately sanitized.
- **Effective processing equipment.** Equipment used for cooking, drying or other safety-related purposes needs to meet certain design and performance specifications.
- **Laboratory capacity.** A well-functioning food safety system should have both public and private laboratory capacity: (a) access to private laboratories is needed in some manufacturing settings to verify that production practices are working safely and applicable safety standards or specifications are being met and (b) accredited government laboratories are needed to produce reliable, consistent results on food safety-related testing during routine inspections as well as for hazard identification following a potential outbreak.
- **Food service facilities.** Food held for sale or prepared for immediate consumption in retail markets or catering facilities requires basic sanitation, cooking at adequate temperatures and proper handling to be safe.

31. The broader, well-known gaps in the physical infrastructure in SSA - for reliable sanitation, electrical power and transport - impose their own constraints on efforts to produce safe food. A majority of rural poor in SSA lack access to improved sanitation facilities and sources of safe drinking water.⁶ According to the World Bank, "only 35% of the population has access to electricity, with rural access rates less than one-third of those in urban areas. Transport infrastructure is likewise lagging, with SSA being the only region in the world where road density has declined over the past 20 years."⁷

D. Governance systems related to food safety

- 32. In SSA, organizational and governance arrangements related to food safety are complex, fragmented and underfunded.** Most nations in SSA divide responsibilities for food safety across ministries (especially Agriculture and Health), but the specific allocation of responsibilities varies. Some governments assign food safety functions such as standard-setting to a National Bureau of Standards, and inspection and compliance responsibilities to yet another entity. Trade and Commerce ministries are often involved in food safety due to the importance of agribusiness to national development strategies. Complexity extends to provincial, state or district agencies that carry out food safety functions at more localized levels.⁸ Other obstacles include misalignment of government standards with the food system reality in SSA. Strict microbiological quality standards for raw meat, for example, conflict with a food system reality in which a large percentage of the food may fail to meet the standard but be cooked or otherwise handled in a manner that substantially reduces the risk.⁹ A further obstacle to risk-based enforcement is the lack of surveillance and other data to assess whether food poses risks that warrant strong enforcement. In addition, there is a generally limited availability of private legal avenues, reducing the incentives for compliance that could supplement government enforcement as a means of accountability for meeting food safety standards.
- 33. External evaluation shows gaps in key elements of food safety systems.** For example, the World Organisation for Animal Health assessed key elements of food safety systems, largely related to livestock products, in 34 countries in SSA.¹⁰ The percentages of countries receiving 'inadequate' ratings on the five elements ranged from 85–97%. Over three-quarters of the countries also rated 'inadequate' on operational funding and capital investment.¹¹
- 34. Funding of the food safety agencies in SSA is complex.** Access to reliable and consistently reported government budgetary information is a major challenge. Some agencies charge fees for their services, such as certifying exports, that generate significant revenue. Others depend on constrained national budgets and donor resources to run their programs,



in an unsustainable manner. It was widely reported in interviews that the agencies commonly lack facilities, human capacity and operating funds needed to operate a modern food safety regulatory system.¹² This appears to be a reflection of the general scarcity of public resources to adequately fund important government functions. It also reflects higher priorities in areas such as providing basic food security, improving nutrition and tackling high-profile infectious diseases.

- 35. Many countries in SSA are drafting new legislation and regulations that reflect modern best practices for food safety.** Some countries are considering organizational streamlining of their food safety systems or have established high-level mechanisms for developing national strategies and coordinating among agencies.¹³
- 36. The regional economic communities (RECs) and the African Union Commission (AUC) are beginning to play important roles in food safety.** The RECs and the AUC add additional layers of complexity, but they are increasingly working together on food safety, especially on regional harmonization of regulatory standards and capacity-building. These regional governance structures are a positive step towards building more consistent and unified approaches to food safety among the 55 sovereign member countries of the AUC.
- 37. Consumer demands and other market forces are emerging as key elements of the food safety landscape in SSA.** There is anecdotal and some survey evidence that food safety awareness is beginning to expand beyond those able to shop in supermarkets and is affecting consumer behavior in informal markets.¹⁴ Food producers are also responding to market demands for food safety assurances on such issues as milk hygiene and aflatoxin in maize.¹⁵ As awareness of foodborne illness builds, consumer demands and market pressures are likely to become central features of the food safety landscape in SSA and drivers of change, as has been the case in other regions of the world.


E. Investors in food safety

38. The international development community is an integral part of the food safety landscape in SSA and adds its own layer of complexity to the food safety landscape. National governments and regional institutions rely heavily on external funding and technical support from donors and other development organizations for initiatives to improve food safety. Table 2.1 lists countries and organizations that play significant roles in mobilizing and managing investment in food safety in SSA. In this report, the term 'donor' is used broadly to encompass organizations in the development community that both fund projects from their own resources (such as the bilateral development agencies) and deploy or manage resources provided by others to deliver expertise, knowledge resources, technical assistance, training and other support functions (such as FAO and WHO).

Table 2.1: International development community involved in food safety

Countries	Organizations
Australia	Alliance for Accelerating Excellence in Science in Africa/
Austria	Wellcome Trust
Belgium	African Development Bank
Canada	African Solidarity Trust Fund
Denmark	AgResults
European Commission	Bill & Melinda Gates Foundation
Finland	Enhanced Integrative Framework
France	FAO/WHO, including Codex Trust Fund
Germany	Food and Agriculture Organization of the United Nations
Japan	Global Agriculture and Food Security Program
Luxembourg	McKnight Foundation
Netherlands	Standards and Trade Development Facility
Norway	World Bank Group
Sweden	World Food Programme
United Kingdom	World Health Organization
United States of America	World Organisation for Animal Health

FAO: Food and Agriculture Organization of the United Nations; WHO: World Health Organization

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- 25
39. **Each donor organization has its own goals, strategies, priorities and accountabilities that guide its food safety work.** Each United Nations agency has its particular role and mission within the United Nations system that affects how it interacts with governments in SSA and approaches food safety. FAO, for example, functions primarily as a repository of knowledge and expertise that is available to member countries and deploys resources from members and other sources to provide technical assistance primarily to governments in SSA. Bilateral development agencies are politically accountable institutions within their national governments and thus must align their food safety investments with their country's development strategy and priorities. The development banks and philanthropic foundations likewise have their own perspectives on how they can contribute to capacity-building. A Global Food Safety Partnership (GFSP) white paper presented in Appendix A provides a snapshot of key organizations in the donor community and the roles they play as well as a brief overview of how African governance institutions and the private sector are approaching capacity-building.¹⁶
40. **The ways donor organizations execute their food safety work – and how they work together – will determine whether their investments have systemic and sustainable impacts on food safety and are aligned with national goals and strategies in countries in SSA.** The relationships among donor organizations and between donors and African institutions are complex and dynamic. 'African institutions' are depicted at the base of Figure 2.1 because they are the foundation for future leadership and progress on food safety in SSA. There are both positive signs of progress and clear opportunities for improvement in how the donor community works together and in relation to African institutions to improve food safety, as discussed in Chapter 4.
41. **Determinants of food safety and investors interact in complex ways.** Box 2.2 illustrates this using the example of aflatoxins.

Conclusion

The complexity and diversity of the food safety landscape in SSA mean that there are no simple, universally applicable solutions. Rather, food safety strategies and investments should be based on an understanding of food systems and food safety needs in SSA at the national and local levels.



Box 2.2: Aflatoxin illustrates Africa's food safety challenge

The case of aflatoxin illustrates how food safety determinants interact in complex ways to create challenges that demand systemic responses. Aflatoxins are naturally occurring poisons produced by fungi that are prevalent in the environment and can infect maize, groundnuts and other staple crops produced in Africa. Aflatoxin can cause liver cancer, is associated with stunting in children and is also correlated with immunosuppression. At high doses, it can cause acute and fatal poisoning. Aflatoxin is a hazard in other regions of the world but is closely managed and generally well-controlled in advanced food systems through regulation and industry practices.

Drivers of the problem

- Climate and other natural conditions conducive to aflatoxin production;
- Low awareness among smallholder farmers of the conditions that contribute to high levels of aflatoxin;
- Insufficient extension capacity to educate and train farmers on prevention methods;
- Scarce drying and storage infrastructure that can reduce aflatoxin levels;
- Few reliable laboratories to test for aflatoxin and lack of affordable, on-farm diagnostic testing;
- Weak regulatory enforcement of aflatoxin standards;
- Generally weak market incentives for farmers and processors to reduce aflatoxin;
- Low awareness among consumers about the dangers of eating contaminated food; and
- Frequent lack of dietary abundance to permit consumers to dispose of potentially contaminated food.

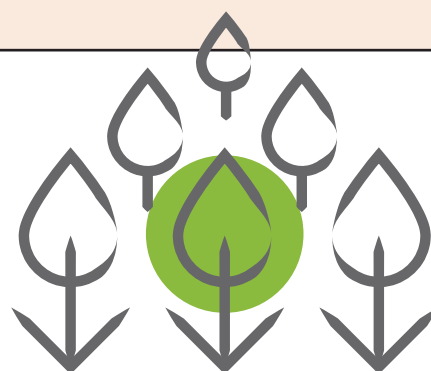
Evidence gaps

- The full public health impacts of aflatoxin are not known because of the difficulty in establishing causal links between the levels of aflatoxin consumed in SSA and health outcomes;
- There are many effective ways to manage aflatoxins, but so far these have all been implemented in niche markets or have required subsidization; and
- At country level, there is lack of information on how to prioritize aflatoxins in the context of other public health problems.

Why aflatoxin is a priority

- Directly causes illness and death from both acute and long-term exposure, but may also interfere with nutrition and thus food security;
- Is of high concern to consumers because of well-publicized lethal outbreaks;
- Has a range of well-tested and technically effective solutions such as biological control;
- Disrupts regional trade within Africa, due to lack of harmonized standards and verification practices; and
- Causes lack of access to export markets due to inability to meet European and USA standards.

Aflatoxin is being addressed in Africa at national, regional and continental levels, including through the AUC's Partnership for Aflatoxin Control in Africa (PACA), which provides a model for integrated, systems-oriented approaches to reducing food safety risks.



Chapter endnotes

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- 8 See, for example, the descriptions of food safety structures in Kenya and Nigeria contained in their respective food safety plans: National Food and Nutrition Security Policy (2011) (<https://extranet.who.int/nutrition/gina/sites/default/files/KEN%202011%20National%20Food%20and%20Nutrition%20Security%20Policy%5B1%5D.pdf>) and National Policy on Food Safety and its Implementation Strategy (2014) (<http://www.health.gov.ng/doc/FoodSafetyPolicy.pdf>).
- 9 Studies find that for some products more than 50%, in some cases more than 90%, of food sampled does not comply with standards. This is a challenge for enforcement because removing all food that does not meet standards is not feasible and would have very negative consequences for food and nutrition security. This misalignment between some regulatory standards and food safety reality in SSA increases the possibility for 'command and control' enforcement that may be reactive to press reports and seem arbitrary. Some experts advocate more strategic and collaborative use of enforcement that focuses on changing practices to reduce risk.
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- 12 Binswanger-Mkhize, H.P. 2009. *Challenges and opportunities for African agriculture and food security: High food prices, climate change, population growth, and HIV and AIDS*. (Available from <http://www.fao.org/docrep/pdf/012/ak542e/ak542e16.pdf>) (Accessed 14 September 2018)
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- 16 See Appendix A

Chapter 3:

Current and recent investments in food safety



Summary

The question for the future: how should current investment patterns change to reflect changing market conditions and growing awareness of food safety as a health and development concern in SSA? The current patterns of investment will likely persist to some degree because they reflect past and still current motivations and priorities of many donors and governments in SSA. They should evolve, however, in response to changing food safety awareness and priorities among consumers, the private sector, governments and donors.

42. This chapter presents key findings on current and recent donor investments in food safety in SSA. The factual findings are drawn from analysis of a project database comprised of 518 projects and activities funded by 31 donor organizations between 2010 and 2017. The approach to the analysis and its focus was informed by the interviews conducted for the project, which helped identify topics and questions for analysis. Key findings from the analysis include the following:

- Donor food safety investments are overwhelmingly focused on supporting overseas market access, trade and formal markets rather than on the public health problem of foodborne illness among Africans as conveyed through the domestic and informal markets.¹
- There is relatively little donor investment to directly reduce the burden of foodborne illness in SSA, such as with surveillance systems, public awareness of food safety issues, research on specific hazards and interventions, and informal market capacity and practices. Less than 5% of projects were identified as addressing microbiological hazards within the context of public health for consumers in SSA.
- Over one-half of all projects primarily address food safety through improvements in government capacity (national control systems) in contrast with support for private sector capacity for hazard prevention and verification (23% of projects) or knowledge generation (21% of projects).
- Aflatoxin and pesticide residues receive significant, targeted investment, with at least 137 million United States dollars (USD) invested in aflatoxin control. Overall, 14% of all projects targeted pesticide controls.





- Most of the investments in national control systems and reduction of pesticide residues focus on overseas export markets, while aflatoxin projects primarily address risks to consumers in markets in SSA.
- Of 518 projects examined, information on the level of food safety funding was available for 323 projects amounting to USD 383 million over 2010–17. This is a significant under-estimate of donor investment in food safety due primarily to lack of separate accounting for food safety elements of the multi-element value-chain or market-access projects. The overall level of investment activity has grown, with projects concentrated in East and West Africa.
- The European Commission (EC), USA, FAO and WHO have been predominant funders, supporters and implementers of food safety projects, contributing at least USD 146 million² in 250 projects for which food safety resource estimates were available.
- Development banks have recently emerged as significant funders. The World Bank Group contributed an estimated USD 96 million in eight value-chain projects for which food safety resource estimates were available, approximately USD 75 million of which was committed since 2016. The African Development Bank (AfDB) has recently funded agricultural development projects that include tens of millions of dollars for food safety.

A. Methodology and data limitations

43. **The project database is composed of key data elements that enabled analysis of patterns and trends in donor investments relevant to the report's policy discussion and recommendations.** Data on each project were extracted from official descriptions and report documents available online or through donors. A complete compilation and accounting of every potentially relevant project was not possible given time and resource constraints and variable levels of donor transparency. The database is, however, the most comprehensive compilation available and provides a fair basis for analyzing patterns and trends.
44. **The most significant data limitation was the general lack of access to budgetary detail on projects in which food safety was one element of**

a broader value chain, market access or food security project. Donors do not generally track food safety-specific budgets for such projects or make them accessible publicly. Thus, much of the report's analysis is presented in terms of numbers of projects rather than dollar amounts.

45. In order to make the units of analysis comparable among donors, projects in the GFSP database were assigned to one of three main groupings. The first grouping included projects lasting one year or longer having a primary focus on food safety (149 projects or 29% of the total). The second grouping included 'short-term' projects or activities, lasting less than one year (207 or 40%), which typically had food safety as the primary purpose. Lastly, the third grouping included projects lasting one year or longer having a 'broader focus' (for example, in promotion of trade or food security) that included food safety activities (162 or 31%).

46. The database does not include projects not specifically targeted at food safety, but which might have had food safety benefits. There have been large investments in SSA which are likely to have positive food safety spillovers including, for example, projects on animal health, water and sanitation, post-harvest management, rural roads, hospitals or general improvement of value chains. However, these projects usually do not measure or report either funding related to food safety or food safety outcomes and impact. As such, it is not possible to disentangle food safety elements. Moreover, these projects will not automatically improve food safety and some may even have negative impacts.

B. Donor overview – Key findings

47. The EC, USA, FAO and WHO have been the most active public funders of food safety in SSA from 2010 to 2017, accounting for 78% of 360 food-safety focus projects and activities and 70% of all projects in the database. In terms of project numbers, the EC and USA dominate. In terms of amount of investment, the most important are the World Bank Group (USD 96 million), the EC (USD 76 million) and the USA (USD 52 million).

48. **FAO and WHO together invested approximately USD 18 million, including USD 2 million in jointly funded projects (including the Codex Trust Fund), USD 9.8 million in FAO projects and USD 6.3 million in WHO projects.** The largest private funder of projects with a primary focus on food safety was the Bill & Melinda Gates Foundation (BMGF), which invested USD 37 million in aflatoxin projects.
49. In recent years, the World Bank Group has made significant investments in value chain projects in SSA, exceeding USD 100 million in some cases, with food safety identified as a significant element of 11 projects.³ Projects in three countries (Ethiopia, Republic of the Congo and the Democratic Republic of the Congo) exceeded USD 20 million each in food safety-related funding, all of which was committed since 1 June 2016. Most involved animal-food value chains and the training of private- and public-sector staff. Two large projects addressed laboratory capacity.
50. The nature of the food safety projects funded by the six major public-sector donors generally reflects the institutional priorities and strategies of the donor organizations.
- **EC.** Focus on public and private capacity to verify compliance of African food exports with EC safety standards.
 - **USA.** Focus on developing value chains and addressing hazards (notably aflatoxin) related to food security and trade in SSA.
 - **FAO.** Focus on technical assistance, policy guidance and other knowledge resources; legislation and standards; and training related to national control systems.
 - **WHO.** Focus on health-related policy development, guidance and training to support national control systems, including on risk assessment and the public health aspects of food safety.
 - **AfDB.** Focus recently on large investment in aflatoxin mitigation in Tanzania, Global Agriculture and Food Security Program, as well as tens of millions of dollars in food safety work within several large agricultural value chain projects.
 - **World Bank Group.** Focus on large agricultural value chain projects with significant economic and poverty reduction potential.

51. Overall, projects of short duration dominate. Fifty-three percent (66) of FAO and WHO food safety focus projects were less than one year in duration, as were 71% of EC projects and 76% of USA projects. At least 67 (32%) of all the 207 short-term investments were 14 days or less. The donor agencies, their project numbers and investment totals (to the extent known) are listed in Table 3.1.



Table 3.1: Food safety projects and investments (2010-17), by donor and type of project

Donor (Agency)	Investment (1,000 USD) incomplete estimates	Food safety focus projects (multi-year)	Short-term projects	Projects with broader focus (multi-year)	Total no. of projects in database
European Commission (DG SANTE, DG DEVCO)	76,311	22	53	50	125
United States of America (USAID, USDA-FAS)	51,834	19	62	27	108
Germany (BMZ)	2,643	3	1	18	22
Japan (JICA)	5,313	5	8	2	15
Sweden (SIDA)	2,431	2	2	5	9
France (ADF)	868	2	4	-	6
United Kingdom (DFID)	3,170	3.1	1	4	8.1
Finland (MFA)	3,623	4	-	-	4
Denmark (Danida)	817	1	-	4	5
Norway (Norad)	*	-	-	5	5
Canada (CFIA, IDRC)	1,858	1.5	3	-	4.5
Australia (DFAT)	3,129	2.5	-	-	2.5
Austria (ADA)	*	1	-	1	2
Netherlands (EKN)	*	-	-	3	3
Luxembourg (MFA)	1,666	2	-	-	2
Belgium (BTC)	597	-	1	1	2
Food and Agriculture Organization of the United Nations	9,843	31	27	7	65
World Health Organization	6,340	20	25	-	45
FAO/WHO, including Codex Trust Fund	2,014	7	14	-	21
African Development Bank	32,000	0.4	-	7	7.4
World Bank Group	96,003	-	-	11	11
World Organisation for Animal Health	*	1	-	-	1
World Food Programme	*	-	-	3	3
McKnight Foundation	996	6	-	3	9
Bill & Melinda Gates Foundation	37,120	3.9	-	3	6.9
Standards and Trade Development Facility	11,102	8	5	5	18
African Solidarity Trust Fund	*	-	1	1	2
Enhanced Integrated Framework	*	-	-	2	2
Global Agriculture and Food Security Program	20,200	1.6	-	-	1.6
AgResults	12,680	1	-	-	1
Alliance for Accelerating Excellence in Science in Africa/Wellcome Trust	775	1	-	-	1
TOTAL	383,333	149	207	162	518

In some cases, donors jointly provided major funding for food safety projects. In those instances, decimals have been used to reflect the proportion of the project budget provided by each donor.

USD: United States dollars; DG SANTE: Directorate General for Health and Food Safety; DG DEVCO: Directorate General for International Cooperation and Development; USAID: United States Agency for International Development; USDA-FAS: United States Department of Agriculture – Foreign Agricultural Service; BMZ: Federal Ministry of Economic Cooperation and Development; JICA: Japan International Cooperation Agency; SIDA: Swedish International Development Cooperation Agency; ADF: Association Dentaire Française; DFID: Department for International Development; MFA: Ministry of Foreign Affairs; CFIA: Canadian Food Inspection Agency; IDRC: International Development Research Centre; DFAT: Department of Foreign Affairs and Trade; ADA: Austrian Development Agency; EKN: Embassy of the Kingdom of the Netherlands; BTC: Belgian Technical Cooperation; FAO: Food and Agriculture Organization of the United Nations; WHO: World Health Organization



C. Patterns and trends - Key findings

52. Since 2010, the level of activity and investment in food safety has

grown. The number of total projects underway in any year grew from 116 in 2010 to 238 in 2015, and the number of multi-year projects focused primarily on food safety increased each year through 2016 (numbers for 2017 were incomplete).

53. The 20 projects with the highest budgets for food safety together account for over USD 277 million, or 72%, of the total USD 383 million in food safety funding.

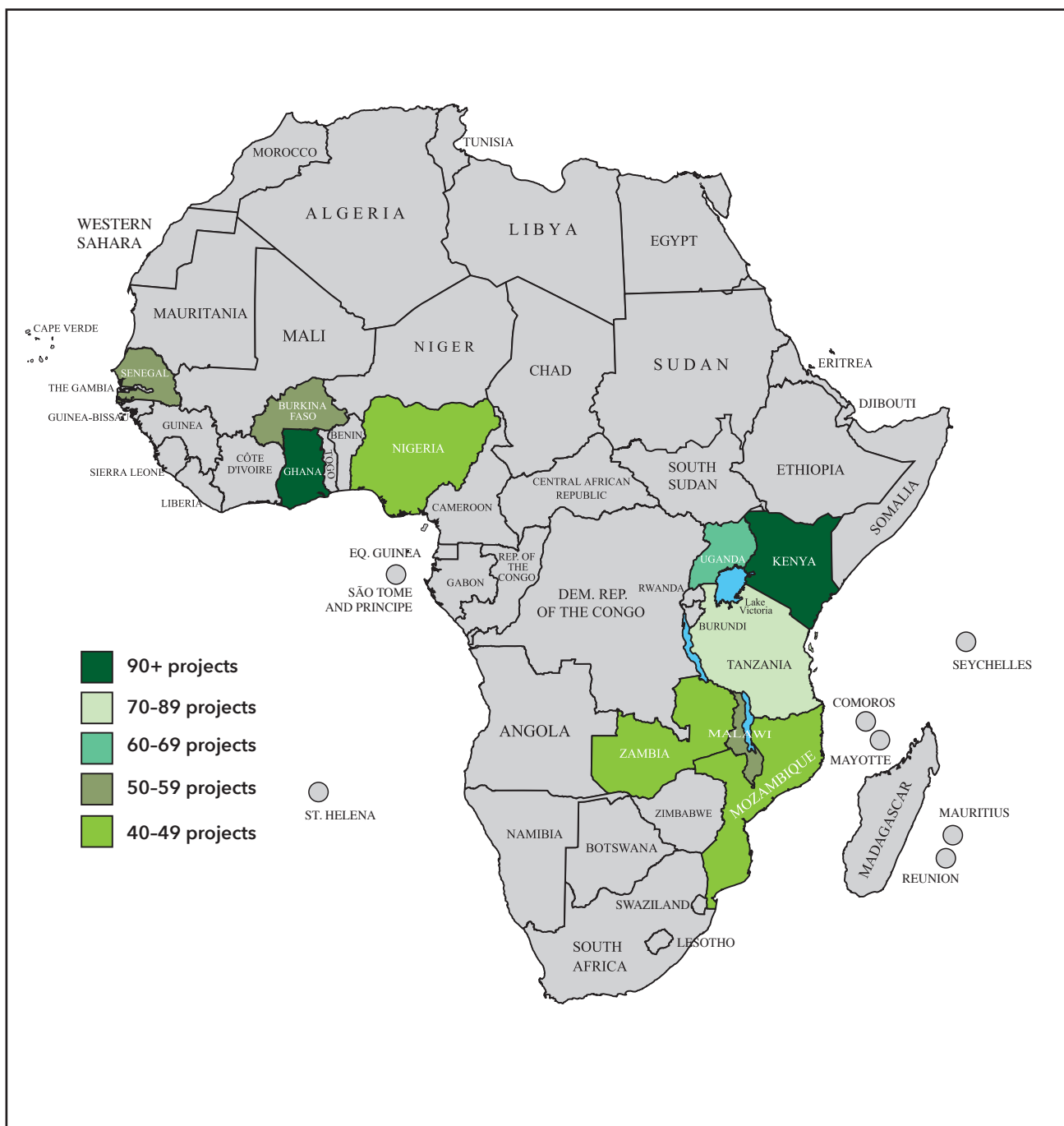
The character of these projects can be described as follows:

- Widely ranging in budget size from USD 3,529,650 to USD 33,600,000;
- Focused equally on both food safety (50%) and value chain development (50%);
- More concentrated in 2014–17 when compared to 2010–13;
- Primarily addressing food safety through the private sector (13 or 65%) as compared to national control systems (4 or 20%) or knowledge generation (3 or 15%); and
- Approximately evenly split between export and domestic market focus.

54. All 48 countries in SSA had at least one donor-funded food safety project between 2010 and 2017.

However, the 518 projects were largely concentrated in 10 countries in East and West Africa (indicated in green on the map in Figure 3.1). Only one-third were implemented in multiple countries and projects tend to cluster in countries with more advanced agriculture-led development strategies and existing relationships with donor partners.⁴ However, there is no obvious correlation between geographic concentration of projects and burden of illness.

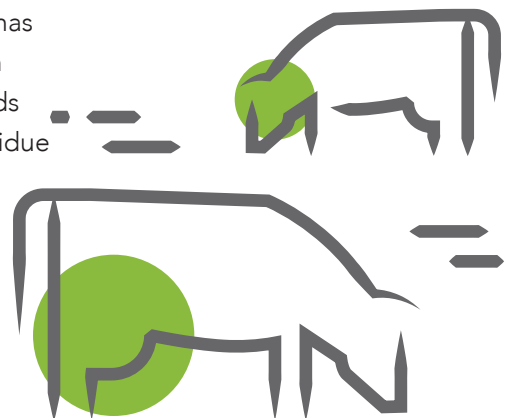
Figure 3.1: Top 10 countries for food safety investment



55. Over one-half (56%) of all projects focus on national food safety control systems, including regulatory legislation and standards, government laboratory capacity and training of government staff. The second most common broad purpose of donor-funded projects (23% of projects) is to improve private sector capacity for hazard prevention and verification such as through farmer and processor training in good food safety practices and private audits or certifications. Approximately 21% of projects focus on food safety-related knowledge generation such as illness surveillance, technological innovation and other research on hazards and interventions (such as sampling and testing). National control system projects tend to be short-term while projects focused on private sector capacity and knowledge generation are more likely to be multi-year investments.

56. Mycotoxin hazards, mainly aflatoxin, attract the most donor investment among projects targeted to specific hazards. Funding for projects addressing aflatoxin contamination of foods comes from a broad cross-section of donors. This funding totals over USD 137 million out of the USD 383 million known to be invested in food safety-focused projects since 2010. Two major projects account for nearly 40% of the aflatoxin-specific funding: the BMGF and United States Agency for International Development-funded International Institute of Tropical Agriculture Aflasafe® Technology Transfer and Commercialization project (USD 20 million, US-96) and the joint GAFSP/AfDB-funded aflatoxin control project in Tanzania (USD 33 million).⁵ Aflatoxin is addressed within the context of all three broad food safety purposes: national control systems, private sector capacity and knowledge generation. Other natural chemical hazards (such as cassava cyanide and arsenic) have not been addressed by donor-funded food safety investments.

57. Other than aflatoxin, pesticide residues are the only specific hazard that attracts significant donor investment (approximately 14% of all projects). Donor investment in pesticide residue control since 2010 has come predominantly from European bilateral donors as well as from FAO, the Japan International Cooperation Agency and the Standards and Trade Development Facility. The EC investment in pesticide residue control has occurred through a range of long-term multi-country





programs (Better Training for Safer Food; Strengthening Food Safety Systems through Sanitary and Phytosanitary Measures; Pesticides Initiative Programme 2 and Fit for Market) and has been a major factor in expanding export of fresh produce from Africa to Europe. Actual donor resources for pesticide residue control in SSA are difficult to estimate because this is commonly a focus of multi-element market access or value chain development projects for which hazard-specific budget information is generally not available.

58. As a class, microbiological hazards are addressed by 16% of projects and less than 5% of all projects focus on these hazards within the context of the African consumer market. Specific microorganisms (such as *Salmonella* or *E. coli*) are rarely targeted for food safety investments.

- Prominent donors and projects addressing microbiological hazards include WHO, EC, Germany and the Safe Food, Fair Food projects.
- Microbiological hazards were most commonly addressed within animal-source foods such as meat (35 projects), dairy and eggs (17 projects) and fish (15 projects).

- Little investment focused on *Taenia solium*, the foodborne pork tapeworm that causes cysticercosis.
- A few projects addressed food safety precautions during the West African Ebola outbreak (beginning in 2013).
- Not included in the analysis are investments in clean water and mitigation of waterborne hazards (Hepatitis A, *Giardia*, cholera), although they are indirectly relevant to food safety.

59. Expanding trade to markets outside Africa is a significant focus of donor investment in food safety.

Among those projects for which a target market was indicated, over one-half are focused on overseas markets and another 16% concern regional exports.

- Over one-half of all national control system projects (61%) and two-thirds of laboratory capacity projects (64%) are focused on overseas markets (of projects where a market was indicated).
- About one of every five projects is focused on developing specific value chains and 60% of those projects are focused on markets outside Africa. Among value chain projects, the commodity focus is predominantly produce; 73% of overseas export-oriented value chain projects address fruits, seeds or tree nuts.

60. Project administration varies depending on the type of donor, with United Nations (multilateral) donors implementing much of their own programming.

Bilateral donors tend to direct funds through government, NGOs and universities. Donors do not commonly use for-profit enterprises; however, some of the largest budget projects are managed by private consulting groups such as Fintrac Inc. and DAI. Prominent NGO implementers include CGIAR centers (such as the International Food Policy Research Institute, the International Livestock Research Institute and the International Institute of Tropical Agriculture), Europe-Africa-Caribbean-Pacific Liaison Committee and TechnoServe.

61. Training of public and/or private sector staff is an activity in over three-quarters of all projects.

Among projects that had a primary focus on food safety and involved training, 63% were short term, typically involving one-time training sessions or workshops. About three-quarters

of projects with training included activities directed at public sector staff and 45% included activities directed at private enterprises. Over one-half (60%) of training projects for which a market focus was apparent addressed practices required to meet the requirements of overseas markets.

62. Several key food safety topics related to public health in SSA receive relatively little donor attention:

- **Disease surveillance** is the foundation for a risk-based approach to preventing foodborne illness – 24 projects (less than 5%) addressed surveillance in any way, of which the majority were short-term training, rather than projects to build surveillance systems.
- **Research on hazards and interventions** informs risk-based prevention strategies at the system and individual operator level – 103 projects (about 20% of the total) included research on hazards and interventions, of which only nine (about 1.7% of the total projects) investigated specific microbiological hazards.
- **Awareness of food safety issues** can help improve both consumer and industry behaviors that affect risk of illness – 53 projects (about 10%) related in some way to public awareness. Only three projects (0.6%) focused exclusively on public awareness of food safety issues.
- **Informal markets** supply a large majority of consumers in SSA at least a portion of their food, including higher-risk animal foods and produce – 14 projects (about 2.7%) related to informal markets, of which five focused on the capacity of national control systems and nine involved some aspect of knowledge generation.



D. Factors influencing current investments

63. Current patterns of donor investment are the product of a complex interplay between donor goals and strategies and the priorities of African governments. The following are possible factors influencing some of the key patterns, as revealed by analysis of the project and activity database and by interviews with key stakeholders and experts.⁶

(a) Pattern: Focus on regional and overseas markets

- The EC is the largest public source of donor food safety investment and its strategic goals are to support development through export trade and to protect European consumers.
- Many African countries have long depended on traditional export commodities (such as cocoa and coffee) and are benefitting from expanded market access for fruits and vegetables, which requires demonstration of food safety compliance.
- Within Africa, food security and nutrition have had higher priority than food safety for donors and governments, with WHO-published burden-of-illness estimates and other factors only recently elevating visibility and concern around food safety.

(b) Pattern: Geographic concentration

- EC food safety investment is concentrated in countries with which it has significant food agricultural trading relationships, including Cameroon, Côte d'Ivoire, Ghana, Kenya, Nigeria and Senegal.⁷
- USA food safety investment is focused in countries that are participants in its Feed the Future Initiative to improve food security through agricultural development and trade, including Ghana, Kenya, Malawi, Mozambique, Senegal, Uganda and Zambia.⁸
- These EC and USA focus countries tend to overlap with each other and with countries in SSA that tend to be more advanced in their agricultural development strategies such as Ghana, Kenya and Senegal.⁹

(c) Pattern: Focus on national control systems

- National governments play a role in overseeing exports and have received significant donor investment in training and laboratory capacity to support that role.
- WHO and FAO are country member-driven United Nations agencies that naturally focus on national control systems and other government capacity as a function of their roles.
- The governments in SSA tend to partner with WHO, FAO and other donors who tend to prioritize government staff training, policy and standard development, and laboratory capacity.

(d) Pattern: Focus on aflatoxin

- Aflatoxin has gained significant visibility in SSA as a toxic chemical hazard posing chronic and acute health risks, especially for the rural poor whose diets depend heavily on affected commodities such as maize and groundnuts.
- Aflatoxin affects commodities with potential opportunities for trade within SSA and overseas that require assurances of food safety to be fully realized.
- African governments are increasingly recognizing the link between aflatoxin and the urgent priorities of food security (as affected by post-harvest loss) and nutrition (based on aflatoxin's possible contribution to stunting among children).

Conclusion

The current degree of donor investment in formal food markets and export-focused national control systems reflects established development priorities that will continue to be relevant. The task ahead is to determine how investment patterns should change to reflect local market conditions and risks, and be consistent with the growing awareness of food safety as a public health concern in SSA.

Chapter endnotes

- 1 Of 518 total projects, 222 (43%) were not categorized as investments in trade or overseas/regional market access. Looking at multi-year projects only, 116 of 308 (38%) were not categorized as trade or overseas/regional market access. Only 116 of the 518 projects specifically addressed food safety in domestic markets, and just 12 investments—2.3% of all projects—focused specifically on informal markets within the domestic context.
- 2 This figure understates the total investment by the EC, USA, FAO and WHO because resource information was not available on about one-third of their 365 projects, consisting mainly of value chain development projects that included food safety as one of several project elements.
- 3 Although the number of food safety projects for certain organizations such as the World Bank Group, AfDB, the World Food Programme and BMGF was comparatively small, these donors play an outsized role in agricultural development and food security in Africa and may fund efforts related to food safety inputs that were not able to be captured by the mapping.
- 4 For example, the six PACA pilot countries are among the 10 with the most food safety projects from all donors; and the top countries for USA-funded projects are current or past Feed the Future countries.
- 5 This investment included a GAFSP grant of USD 20 million and proposed African Development Fund Loan of USD 13 million. AHAI/PGCL. 2018. AfDB Group Tanzania initiative for preventing aflatoxin contamination appraisal report.
- 6 Further context for understanding the patterns of investment is provided in the overview of donor community and African institutions involved in capacity-building presented in Appendix A.
- 7 Report of the Contact Group on Agriculture, Food Security and Food Safety. (Available from https://www.africa-eu-partnership.org/sites/default/files/report_from_the_agri_contact_group_for_2015_c2c_0.pdf) (Accessed 29 August 2018)
- 8 Elliott, K.A. and Dunning, C. 2016. *Assessing the US Feed the Future Initiative: A new approach to food security?* CGD Policy Paper 075. (Available from <http://www.cgdev.org/publication/assessing-us-feed-future-initiative-new-approach-food-security>) (Accessed 14 September 2018)
- 9 These three countries have relatively advanced agricultural systems and development strategies, as reflected in several World Development indicators. <https://goo.gl/FH2vaf>





SAFER **FOOD**
STRONGER **ECONOMIES**
HEALTHIER **WORLD**

Chapter 4:

Policy discussion

Summary

The food safety landscape in SSA is complex and buffeted by competing pressures, resulting in patterns of investment that are not adequately addressing the public health impact of foodborne illness on Africans. The clear message from experts and stakeholders is that the landscape is changing and strategies should be reconsidered and investment increased to meet the new realities of food safety for African consumers and businesses.

"The central strategic issue for food safety capacity-building is to what extent investments should be directed towards addressing the public health problem of foodborne illness in Africa."

64. Four key questions emerged from the data analysis and interviews conducted for this report. These questions frame the policy discussion and recommendations to follow:

Question 1: For donors and national governments investing in food safety, is it time to elevate food safety on the health agenda internationally and in SSA?

Question 2: To what extent are donor food safety investments reflective of modern best practices and achieving sustainable improvement in food safety?

Question 3: To what extent are current donor investments reflective of African strategies and priorities and coordinated to make efficient and effective use of resources?

Question 4: What are likely to be the primary drivers of progress on food safety in SSA over the next decade?



Answers to policy questions

Question 1: *Is it time to elevate food safety on the health agenda internationally and in SSA? Yes. Several drivers are coming together to raise the priority of food safety.*

- 65. For donors and national governments, the central strategic issue for food safety is to what extent investments should be directed towards addressing the public health problem of foodborne illness in SSA.**

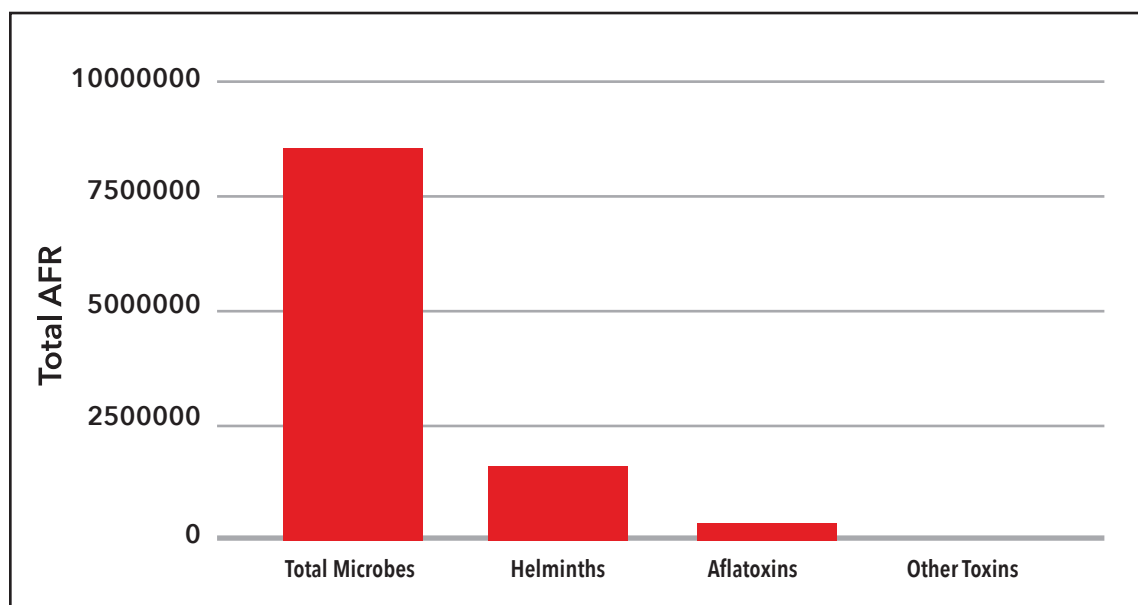
As documented in **Chapter 3**, current efforts are tilted strongly towards meeting the demands of formal and overseas markets. Comparatively little effort is focused on reducing the burden of illness experienced by African consumers, the majority of whom obtain at least some of their food through local wet markets, street vendors and other informal markets.

- 66. African authorities and international experts have long recognized that food safety for African consumers is a critical need, for public health and development reasons.** The proceedings of a 2005 FAO/WHO food safety conference made this clear, even before the burden of illness had been credibly quantified by WHO in 2015.¹ The current investment in trade-related food safety is nevertheless understandable and justified in light of Africa's trade-oriented development strategies and the importance of demonstrating compliance with the pesticide limits and other food safety standards of importing countries.

- 67. Experts interviewed for this report believe public health should have more priority.** Although experts had experience across a range of food safety aspects, most (80%) ranked protection of the health of African consumers as their first priority for food safety capacity-building among eight options. Over 50% of respondents identified food safety capacity-building to foster economic growth through international trade as also important, but not the top priority. In contrast, when asked what they perceived to be the top priority of donors, 70% of respondents answered "international trade promotion" or "the protection of consumers outside Africa". A wide range of stakeholders and experts who participated in informal interviews also expressed the importance of "food safety for African consumers" as a goal of donors.

68. The findings of this report on current donor investments, coupled with the WHO burden-of-illness estimates (Figure 4.1) and the interview results make a strong case for elevating the focus on food safety as a significant health issue for consumers in SSA. The situation is even worse than pictured, because the WHO estimates are known to be conservative and other potentially heavy burdens are not included either because they have not been measured yet (for example, the health burden associated with some bacteria and pesticides) or because there is not sufficient data on causal relations (for example, the role of aflatoxins in contributing to childhood stunting or vaccine failure). For donors, this would mean making foodborne illness in Africa a higher priority on the international health agenda than it is today and increasing investment, commensurate with the magnitude of the harm it causes. For African governments, this would mean elevating the priority they accord food safety as part of their overall food security and health strategies.

Figure 4.1. Foodborne disease burden in Africa, in disability-adjusted life years



69. **The case for increasing investment in food safety includes the severe disparity in investment to prevent foodborne illnesses compared to investment in other diseases and the large negative impact foodborne illness has on human productivity.** In the case of malaria, for example, the rate of annual donor investment in SSA is over four times greater than the rate for food safety when considered in relation to the magnitude of the health burden.² This is despite the fact that malaria incidence is declining (thanks in part to targeted donor investment) at the same time foodborne illness is expected to rise as diets diversify to include more animal products and fresh produce and more food is processed and transported over longer distances. Economists also note that the annual human capital or productivity loss associated with foodborne illness in SSA is about USD 16.7 billion,³ which is over 300 times greater than the annual USD 55 million donor investment in food safety projects for which resource information is available.

70. **A public health-focused program would likely look quite different from one focused on exports.** To be maximally effective, it would focus proportionately less on government capacity for regulation and more on understanding hazards and their associated risks and developing workable, step-wise interventions in informal markets. It would probably focus less on low-burden hazards and more on high-burden hazards. And, where there is high concern but insufficient information to understand if the burden is high or low, generating this evidence would be prioritized. It would also harness levers for change in food safety practices among consumers and private enterprises.



Question 2: To what extent are donor food safety investments reflective of modern best practices and achieving sustainable improvement in food safety? Much has been done and much remains to do.

71. Through their joint work in managing the Codex Alimentarius Commission, FAO and WHO have helped establish a strong foundation of internationally recognized principles and guidelines for farm to table, risk-based prevention of foodborne illness and other food safety problems.⁴ Some Codex guidelines are directly applicable to Africa's emerging formal sector but are not directly applicable or need significant adaptation for the informal sector. The currently relevant central idea, however, is that, to make a lasting difference for food safety improvement, food safety investments and interventions need to be considered in relation to other interventions as part of a holistic, systems-focused plan.

72. There are both strengths and weaknesses in how Codex principles are being implemented in the planning and conduct of donor food safety investments. Strengths include:

- At the government level and in formal markets, there is generally keen awareness of the relevance of Codex for both trade and food safety purposes,⁵ which has helped stimulate growing participation by African governments in Codex standard-setting.⁶
- FAO and WHO food safety training programs for government staff are typically conducted within the Codex framework of risk analysis and risk-based prevention and with reliance on an extensive library of FAO and WHO guidance documents and technical resources.⁷
- Private sector value-chain and market-access projects supported by the EC, USA and other bilateral donors generally embrace Hazard Analysis and Critical Control Point (HACCP) principles for risk-based prevention as the framework for producing safe food and satisfying regulatory standards.⁸
- PACA has taken a systematic approach to analyzing aflatoxin hazards and researching locally effective interventions as the foundation for devising holistic, risk-based strategies for reducing aflatoxin risks (Box 4.1).

Box 4.1: PACA: Elements of a holistic strategy for reducing aflatoxin risks

The PACA aflatoxin control strategy takes the comprehensive, systematic approach to food safety that is fundamental to modern best practices and embodied in Codex principles. Elements include:

- Broad stakeholder engagement and consultation, including value chain participants, governments, experts and consumer organizations;
- Risk assessment to understand populations at risk and the magnitude of the harm;
- Research on interventions to reduce risk that consider the range of on-farm, processing, storage and testing interventions that could reduce risk;
- Training and other capacity-building to support implementation of interventions;
- Consideration of market incentives for implementing interventions;
- Development of legislative and regulatory standards and enforcement measures; and
- Communication to promote consumer and market awareness of aflatoxin risks and risk mitigation opportunities.

Implementation of aflatoxin control measures is a work-in-progress that requires long-term commitment. Multi-stakeholder PACA steering and technical committees in six focus countries (Gambia, Malawi, Nigeria, Senegal, Tanzania and Uganda) provide a vehicle for fostering implementation at country and value-chain level.

On the other hand, weaknesses include:

- Beyond aflatoxin, donors make extremely limited investment in locally relevant research and analysis of hazards, risks and interventions needed to implement preventive measures and other Codex principles. Only 13 projects in the GFSP database (less than 3%) addressed a specific microbiological organism.⁹
- Codex principles and preventive practices are rarely applied in the informal sector. Much work remains to be done to adapt them for feasible implementation in the wide range of settings where technical expertise, physical infrastructure and resources are often lacking. Yet, only 14 projects (less than 3% of the total) were found to address informal markets, of which nine (less than 2%) focused on addressing some aspect of knowledge generation related to informal markets.

- As documented throughout this report and its appendices, donor investment is to a large extent reactive to external regulatory standards or involves training, laboratories and other capacity needs that are not elements of a comprehensive food safety strategy or prioritized in accordance with Codex principles of risk analysis and risk-based prevention. Many countries in SSA have developed food safety plans or included food safety as an element of their nutrition or agricultural development strategies, but these typically have not prioritized policy actions and investments based on principles of risk-based prevention.¹⁰

73. While managing food safety in the informal sector is challenging, there is also some evidence of successes. A systematic literature review of food safety interventions in Africa¹¹ found that a majority of interventions achieved some success. Most experiments evaluating the effectiveness of technologies were successful (for example, spraying carcasses with vinegar reduced contamination). Many training interventions were successful (for example, simple hygiene messages were given to mothers and microbial quality of complementary food improved). Interventions around introducing new processes could lead to improvements (for example, the introduction of HACCP to an ice-cream making plant resulted in a reduction in microbial contamination of the product). Finally, some willingness-to-pay experiments have been conducted indicating consumers in informal markets were willing to pay for safer food.¹²

Question 3: To what extent are current donor investments reflective of African strategies and priorities and coordinated to make efficient and effective use of resources? There is significant room for improvement.

74. Experts consulted in our survey believed that donor co-ordination was of high importance but that donor activities were largely un-coordinated. Overall, 50% of experts interviewed considered donors were “not coordinated at all” and no respondents considered donors were “highly coordinated.” Donor co-ordination mechanisms have been put in place that move in the right direction, towards implementation of the Paris Declaration principles, such as GAFSP, GFSP, AgResults and other multi-donor trust funds. Indeed, aflatoxin is a good example



"As in other regions of the world, food safety progress in SSA will be primarily market driven, including what the private sector and consumers do every day, and what they demand of their governments."

of leadership on strategy by AUC, RECs and national governments through PACA as well as donor alignment of efforts and pooling of resources.¹³ However, existing donor co-ordination mechanisms lack a clear mandate and the ability to make donor investments more strategic and aligned with African priorities.¹⁴ Lack of capacity for surveillance and risk analysis means countries generally lack good evidence to underpin systematic prioritization and foster informed dialogue and alignment among diverse stakeholders.¹⁵ Compounding the problem is the limited capacity of governments in SSA to exert leadership on food safety strategy and investment priorities due to their human and financial resource constraints and organizational fragmentation.¹⁶ Again, there is room for optimism with SSA-based institutions emerging as potential focal points for African leadership. In many countries, they are helping governments forge national food safety plans and working with donors to guide investments into better alignment with those plans.

- 75. An additional issue identified by interviewees was that investments by the most active public funding and implementing organizations (EC, USA, FAO and WHO) continue to reflect mostly on the traditional missions, strategic goals and priorities of those organizations.¹⁷**

This can produce a useful division of labor among development organizations, but it can also drive resources to what they have traditionally done and thus reinforce the inertia around the status quo. A significant number of training and laboratory capacity projects are undertaken without clear exit strategies or other provisions for the sustainability of their benefits as part of a holistic, market-relevant food safety strategy and multi-year funding plan.¹⁸

Question 4: *What are likely to be the primary drivers of progress on food safety in SSA over the next decade? Consumer awareness and demand.*

- 76. Clarity about the likely drivers of progress on food safety is essential to planning capacity investments that will make sustainable improvement in food safety.** This includes clarity about (a) the limits on what donor assistance can do and (b) the importance of consumer awareness and market pressures to catalyze and complement the government's role.

77. Limitations on impact of donor assistance. The limitations on what donor assistance can achieve stem in part from the massive scale and complexity of the African food system in relation to any reasonably foreseeable level of donor resources available for food safety. Hundreds of millions of individuals and millions of mostly small enterprises — farmers, traders, processors and retailers — engage in behaviors every day that affect food safety. As outlined in Chapter 2, they work in highly diverse settings and serve a range of different markets. And they face a well-known litany of (a) significant gaps in food safety expertise and skills, (b) a general lack of adequately funded government extension services and other support and technical assistance for food safety, (c) poor physical infrastructure for personal hygiene, safe water, cold chain and reliable electrical power and (d) lack of incentives and rewards for producing safe food. Even doubling or tripling current investment levels would not by itself solve the food safety capacity problem in SSA.

78. Consumer and market drivers of progress. The key drivers of food safety progress globally are consumer awareness and demand and market pressures. Over the last 25 years, food safety modernization in Europe, the USA and some low- and middle-income countries, such as China, India and Vietnam, has been driven by a combination of high overall consumer expectations for food safety and significant illness outbreaks that further intensified consumer demands for improvement. Consumers have expressed these demands through the marketplace, which has resulted in significant efforts by food enterprises to improve their practices. These consumer demands and the ensuing market pressures have also sparked the regulatory modernization efforts that have occurred and had ripple effects globally. The combination of marketplace pressures and regulatory oversight has sustained continuing progress on food safety in other regions.

79. African stakeholders and experts see the consumer-market dynamic being applicable in SSA, with rapidly increasing potential to drive food safety progress. Consumer awareness and demand for safe food are emerging not only among Africa's growing middle-class purchasing from formal markets, but also to some extent in informal markets as in the reactions of Ethiopian consumers to reports of aflatoxin in milk,¹⁹ and





"Government plays a crucial role in providing the 'public goods' that support the private sector's capacity to produce safe food... [including] regulatory incentives and private sector accountability..."

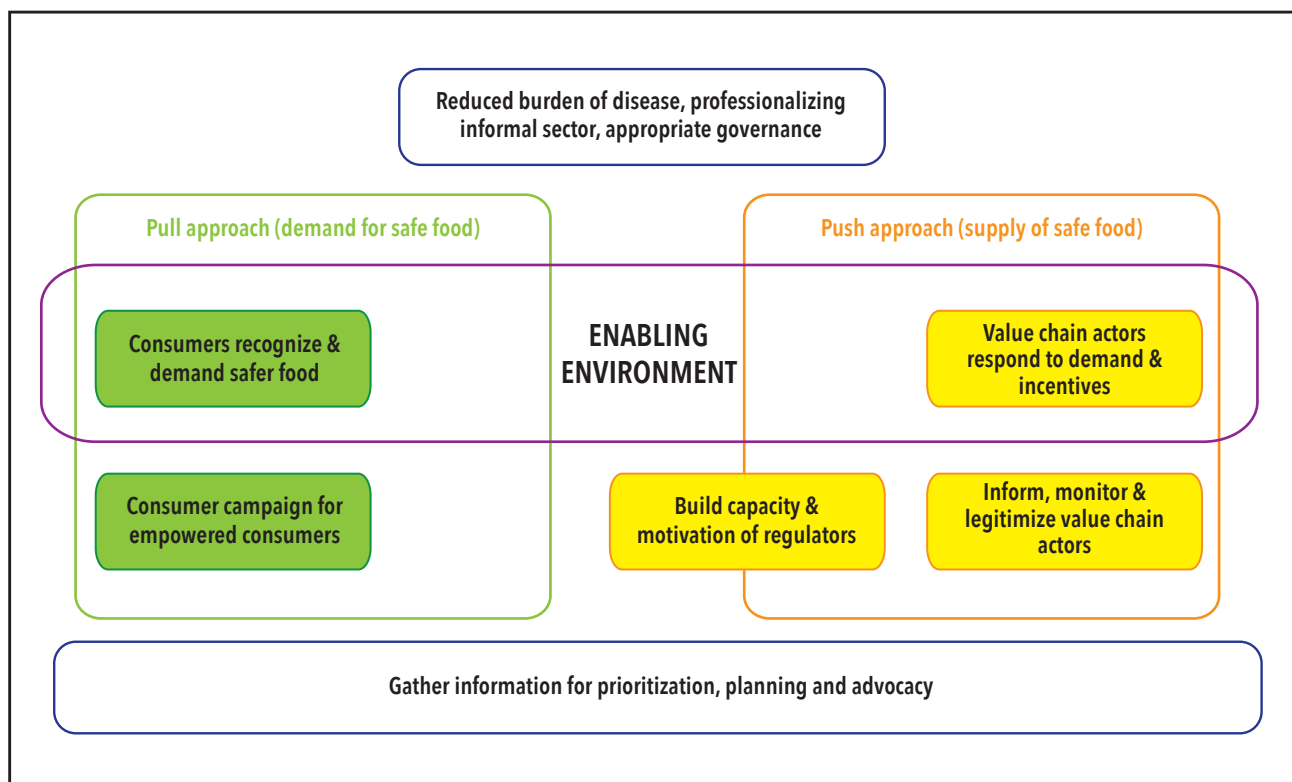
efforts by Kenyan dairy traders to improve hygiene and milk handling practices in the informal sector.²⁰ In interviews with African industry leaders and non-industry experts alike, consumer awareness and demand are commonly cited as potentially the most powerful drivers of progress on food safety, in both informal and formal markets, but they also stress that consumers need more information and empowerment to make their demands known and have effect.

- 80. Consumer awareness and demand for food safety can result in strong market incentives for producers, traders, processors and retailers to improve their food safety practices.**²¹ For those producing for formal markets within SSA or for export, market access may depend on verifying compliance with good agricultural or manufacturing practices (such as through a private certification scheme) or standards for pesticide residues and aflatoxin. Such compliance can also yield a higher price, which provides further incentive for proper food safety practices. In informal markets, incentives for enterprises to invest in food safety are not nearly as well-developed, but they will continue to emerge and have potential to drive progress on food safety as consumer awareness and incomes grow,²² though the quality of information available to consumers remains an obstacle to progress.
- 81. Consumer awareness of food safety and their practices at the household level can be significant in reducing foodborne illness.** In addition to being drivers of improved producer practices, consumers also need the capacity at the household level to choose, handle and prepare food safely.²³ Household behaviors are particularly important, and particularly challenging, to food safety in SSA because a large portion of the population produces food for itself and faces economically constrained choices in informal food markets. The personal motivation to protect the well-being of the family can, however, with the right awareness and information, be a powerful driver for food safety. Given the knowledge, women in particular have been shown to be responsive to food safety hazards in decision-making for household food consumption.²⁴

82. In an optimal food safety system, government plays a crucial role in providing the 'public goods' that support the private sector's capacity to produce safe food. This includes adding regulatory incentives and private sector accountability to the incentives provided by the marketplace. The public goods also include locally applicable research on hazards and interventions, disease surveillance and outbreak investigation, extension, training and technical assistance for food producers seeking to produce safe food, and credible accredited laboratories to verify compliance with standards. The regulatory incentives for private food safety investment include quality inspections and meaningful enforcement.

83. Strengthening weak African governments is an important but long-term objective, making consumer awareness and market pressures the most likely drivers of food safety progress for the foreseeable future. One of the most persistent themes in the interviews conducted for this report was the weakness of governments in SSA in providing sufficient and relevant technical support and regulatory oversight for food safety due to lack of funding, organizational fragmentation and overall weak governance, including instances of corruption. As discussed elsewhere in the report, this is partly a reflection of the relatively low priority of food safety for government funding compared to many other legitimate health and development priorities. Figure 4.2 shows how government enablement, private sector capacity and consumer demand can combine in a 'push-pull' approach to sustainably improve food safety.

Figure 4.2: Push-pull approach to improving food safety through public and private sector



Conclusion

The data analysis and interviews conducted for this report point strongly towards a new direction for food safety investment in SSA — a direction in which the health of Africans is a more central focus; investment is guided by an enhanced, locally relevant understanding of hazards and workable interventions; investments are better coordinated among donors and governments to be more systematic and impactful; and consumer demand and market incentives are harnessed to drive progress.

Chapter end notes

- 1 FAO (Food and Agriculture Organization of the United Nations). 2005. *FAO/WHO regional conference on food safety for Africa*. Rome, Italy: FAO. (Available from <http://www.fao.org/docrep/meeting/010/a0215e/A0215E00.htm>) (Accessed 14 September 2018)
- 2 This result is arrived at by comparing the ratios between the dollars invested and the burden of illness, as measured in disability-adjusted life years, for foodborne illness and malaria. Malaria spending estimates are from the WHO 2016 World Malaria Report (<http://www.who.int/malaria>) and malaria burden estimates are from the WHO 2016 Global Health Estimates (http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html).
- 3 S. Jaffee, personal communication, 15 March 2018
- 4 The large volume of Codex standards, codes of practice, guidelines and principles are available on the Codex website: Codex texts (<http://www.fao.org/fao-who-codexalimentarius/codex-texts/en/>); code of hygienic practice for fresh fruits and vegetables (<https://goo.gl/nJsfDG>); code of practice for the prevention and reduction of mycotoxin contamination in cereals (<https://goo.gl/eenNtE>); general principles of food hygiene (<http://www.fao.org>); guidelines for the design of control measures for street-vended foods in Africa (<http://www.fao.org/docrep/w6419e/w6419e05.htm>); and working principles for risk analysis for food safety for application by governments (<http://www.fao.org/3/a-a1550t.pdf>).
- 5 National food safety standards that align with Codex standards are presumed to comply with national obligations to avoid non-tariff trade barriers under the World Trade Organization (WTO) Agreement on Sanitary and Phytosanitary Standards (https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm). All WTO member countries engaged in international trade in food thus have an incentive to consider how their food safety standards align with Codex standards.
- 6 Many governments in SSA incorporate Codex standards into their national regulatory systems and, through the Codex Trust Fund (<https://goo.gl/GUXmYS>), the Codex Alimentarius Commission has promoted the participation of developing countries in setting Codex standards.
- 7 See Appendices C and D, the FAO food safety and quality web page (<http://www.fao.org/food/food-safety-quality/home-page/en/>) and the WHO food safety webpage (<http://www.who.int/foodsafety/en/>).
- 8 See Appendix E.
- 9 See Chapter 3 and Appendix E.
- 10 See, for example, Namibia's 2014 food safety policy (http://www.atf.org.na/cms_documents/a40-namibiafoodsafetyjune2014.pdf) and Nigeria's 2014 national policy on food safety and its implementation strategy (<http://www.health.gov.ng/doc/FoodSafetyPolicy.pdf>).
- 11 Grace, D., Alonso, S., Mutua, F., Roesel, K., Lindahl, J. and Amenu, K. 2018. *Food safety investment expert advice: Burkina Faso, Ethiopia, Nigeria*. Nairobi, Kenya: ILRI. <http://hdl.handle.net/10568/91963>
- 12 Grace, D., Alonso, S., Mutua, F., Roesel, K., Lindahl, J. and Amenu, K. 2018. *Food safety investment expert advice: Burkina Faso, Ethiopia, Nigeria*. Nairobi, Kenya: ILRI. <http://hdl.handle.net/10568/91963>
- 13 See the PACA website (<http://www.aflatoxinpartnership.org>)

- 14 Existing mechanisms, such as the CAADP Development Partners Co-ordination Group, provide a forum for information sharing and discussion but do not have food safety-focused mechanisms and processes for aligning donor and national government investment strategies and priorities.
- 15 As documented in Chapter 3, donors have invested little in generating data to guide priority setting by donors and national governments. In formal interviews, generating evidence on food safety hazards, risks and management options were cited as high priorities by a significant majority of respondents.
- 16 The weakness of African governments on food safety due to resource constraints and organizational fragmentation was a recurrent theme in interviews with both public and private sector representatives.
- 17 See Appendix C. Multiple interviews with donor organization representatives documented the extent to which their food safety investment priorities are influenced by their traditional mission and roles and by broader strategic goals, such as the EC focus on import safety and the USA's focus on food security.
- 18 The lack of sustainability of training and laboratory capacity investments was a pervasive theme of both formal and informal interviews, with trainings often described as 'one-off' and lacking evaluation of effectiveness and with multiple reports of laboratory infrastructure being built without provision for operating funds or a well-defined role in the food safety system.
- 19 Sebsibe, M. 2015. Milk Malaise. (Available from <https://archiveenglish.thereporterethiopia.com/content/milk-malaise>) (Accessed 14 September 2018)
- 20 Kenya Dairy Traders Association, personal communication, 2018
- 21 Ortega, D.L. and Tschirley, D.L. 2017. Demand for food safety in emerging and developing countries: A research agenda for Asia and sub-Saharan Africa. *Journal of Agribusiness in Developing and Emerging Economies* 7(1): 21–34. <https://doi.org/10.1108/JADEE-12-2014-0045>
- 22 Alimi, B.A. and Workneh, T.S. 2016. Consumer awareness and willingness to pay for safety of street foods in developing countries: A review. *International Journal of Consumer Studies* 40(2): 242–248. <https://doi.org/10.1111/ijcs.12248>
- 23 Food handling practices at the household level are widely recognized by experts as a significant factor in both increasing and mitigating the risk of illness. See, for example, Adebawale, O. and Kassim, I.O. 2017. Food safety and health: A survey of rural and urban household consumer practices, knowledge to food safety and food related illnesses in Ogun State. *Epidemiology, Biostatistics and Public Health* 14(3): e12568. <https://doi.org/10.2427/12568>
- 24 Grace, D., Roesel, K., Kang'ethe, E., Bonfoh, B. and Theis, S. 2015. *Gender roles and food safety in 20 informal livestock and fish value chains*. International Food Policy Research Institute Discussion Paper 1489. Washington, DC: International Food Policy Research Institute. <http://hdl.handle.net/10568/72831>

Chapter 5:

Recommendations and implementing ideas

Concluding summary

The following recommendations flow directly from the data analysis and interviews conducted for this project and the foregoing discussion of their policy implications. They call for a significant shift in strategic direction of food safety investments in SSA and new approaches to making investments effective to achieve food safety goals that are important to all stakeholders including donors, governments in SSA and Africa's food producers and consumers.

1. Better address the health of domestic consumers dependent on informal markets:

84. Recommendation. Governments in SSA and international donors should put citizen health at the heart of national food safety systems. National governments and regional institutions in SSA, in dialogue with the donor community, should establish health-based goals, priorities, metrics and implementing strategies and help generate the missing evidence needed for rational planning.

85. Discussion. Most of the burden of foodborne illness in SSA falls on most of the population that depends on their own food production and informal markets. However, only a small fraction of donor investment in food safety capacity is focused on this sector. This means that there is a lack of data and proven strategies to address food safety as it affects the health of most African consumers. The 2015 WHO burden-of-illness assessment and the perspectives of African stakeholders and experts make a strong case for a greater focus on reducing the risk of illness for the general population in SSA.

86. Doing so would imply a re-orientation of national food safety systems.

This would entail establishing health-based goals, priorities and targets. As the evidence base is currently insufficient for rational and systematic approaches, a key early task would be the generation of country-level data on hazards, risks, economic costs and management options. This would not exclude food safety investments in trade but rather would seek to build a more balanced portfolio which would include building



synergies between capacity for food safety in export and domestic markets. Under the auspices of national governments, relevant stakeholders should be involved in the development of locally tailored goals, priorities and implementing strategies for capacity-building that more directly benefit public health. These need to be accompanied by metrics, at both the continental and national level, to monitor progress towards food safety goals, including for public health.

87. Food safety investments would include generation of evidence, re-orientation of food safety systems and building capacity at the continental, regional and national levels to collect, analyze and report data showing progress on food safety.

Appendix B sets out a range of implementing ideas for each recommendation targeted to different stakeholders. A few examples are provided here.

Implementing ideas



1. To help mobilize commitment and resources and inform future investments, a continent-level follow-up to the 2005 FAO/WHO Africa regional food safety conference for the purposes of:
 - a. reviewing progress since 2005;
 - b. highlighting the public health problem in Africa's informal and formal markets;
 - c. establishing continental and regional goals, priorities, metrics and implementing strategies that consider public health; and
 - d. supporting informal markets alongside trade and formal markets.
2. At country-level, convene multi-sector stakeholder conferences to forge locally tailored goals, priorities, metrics and implementing strategies for food safety investments that directly benefit public health.
3. Support efforts in SSA to elevate the domestic public health aspect of food safety, including building the political will for addressing food safety in informal markets.

2. Build capacity for well-governed, evidence- and risk-based food safety systems:

88. Recommendation. The donor community and national governments should endorse principles of science- and risk-based prevention, adapted to local conditions. Donors and governments in SSA should mutually commit to improving food safety governance. These include: SSA country ownership of building food safety; government commitment to improving institutions and tackling corruption; donor harmonization and alignment with national priorities; and managing for results and mutual accountability.



89. Discussion. Codex principles and guidance embody modern best practices for food safety and are increasingly the operational norm, or aspiration, among governments worldwide and responsible firms that produce for formal markets, including in SSA. They include the idea that food safety interventions should be assessed and implemented from a holistic systems perspective rather than in isolation. For informal markets, some Codex best practices, such as implementation of formal HACCP systems, are not realistically applicable to many enterprises and there is a lack of proven approaches to assuring food safety. However,



the general principles of knowing what hazards and risks exist and understanding how to mitigate them are relevant in all markets, and the risk analysis framework recognized by Codex is applicable to all government food safety strategies and decisions.

- 90. Improved governance is required by the public sector, the private sector and donors.** Governments need to commit to mutual accountability, performance management and tackling corruption. Participation and transparency of the food safety system must increase. Donors can build on existing co-ordination mechanisms to better harmonize initiatives in alignment with government priorities and better prioritize and leverage funding.
- 91. Experts from the public and private sectors acknowledge that the current food safety system fails at managing food safety in the informal sector and new approaches are needed.** Over the next few decades, the informal sector in SSA is likely to evolve gradually towards a more formal model for food production, processing and retailing. In the meantime, it is important for food safety and the economic well-being of hundreds of millions of Africans to respect the role that informal markets play in Africa's food system and in reducing the burden of foodborne illness.

Implementing ideas

1. Build on experience with stakeholder engagement to strengthen and, where necessary, establish effective, inclusive and empowered country-level mechanisms aimed at meaningful collaboration among food safety stakeholders to guide investments in and implementation of modern and results-driven food safety systems.
2. Enhance government and non-government surveillance of foodborne illness, testing of food and the environment for foodborne hazards and analysis of the risks posed to consumers in local settings.
3. Invest in projects in SSA to (a) identify locally-applicable, holistic interventions for reducing risks in both informal and formal markets, (b) implement large-scale pilots of such interventions and (c) establish platforms for sharing of best practices developed through such projects.

Box 5.1 Policy innovation for the informal sector

Policy innovation is needed to facilitate progress on food safety in the informal sector. This could include:

- Addressing the legally ambiguous status of street-food vendors to reduce their vulnerability to punitive actions (such as confiscation of milk cans) and make it easier to reach, organize and train them on food safety.
- Creating economic and social incentives for small-scale farmers, traders and retailers to improve food safety practices, such as public recognition for traders who are trained or who otherwise demonstrate commitment to food safety.
- Reducing regulatory burdens on the informal sector that make it economically more difficult for operators to invest in food safety, such as multiple licensing requirements unrelated to food safety.
- Recognizing the complex and variable correlation between gender and individual roles in the informal sector, which vary across countries and value chains, and tailor food safety training and other technical assistance to be sure it reaches the people, including women, who will benefit most and makes the greatest difference for food safety.

3. Harness today's marketplace drivers of progress on food safety:

92. Recommendation. Donors and national governments should use their resources and standing to recognize, catalyze and support the consumer and marketplace drivers of progress on food safety. This requires well-informed and empowered consumers, able to demand food safety, and a private sector that has capacity and accountability to respond to consumer demand.

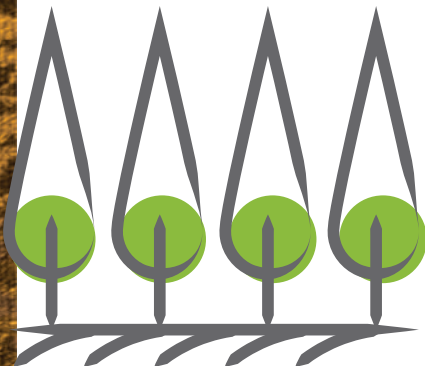
93. Discussion. Implementing this recommendation would mark a fundamental shift in strategy. It would move from a 'push' strategy of gradually building up capacity, focused on government systems and trade goals towards a 'pull' strategy encompassing (a) greater focus on the health of African consumers, driven by consumers themselves, (b) mobilization of the private sector to improve its practices independent of regulation and (c) advocacy by consumers and industry for the necessary 'public goods' investment to support private efforts. The resulting food safety progress would be more decentralized and diffused, and more rapid.

Implementing ideas

1. Convene and collaborate with stakeholders to elevate consumer awareness of food safety problems and solutions through education, the media and other communication channels and build national-level capacity for consumer advocacy to improve food safety.
2. Identify through research and implement through the marketplace and public policy feasible market-based incentives and strategies to stimulate improved food safety practices by the private sector.
3. Support the capacity of farmer organizations and industry associations to provide leadership on food safety through both member-oriented training and capacity-building programs and public advocacy for stronger government food safety systems, extension and other support for improving private sector practices.

Conclusion

The central theme of this report and its recommendations is that food safety happens at the ground level, in the dynamic interplay between food producers, sellers and consumers within an enabling physical and regulatory environment. Internationally recognized standards and the public sector play important roles, but the key to food safety is what consumers and markets demand and what all of us — food producers and consumers alike — know to do and are empowered and incentivized to do to make food safe. Improvements in food safety will be catalyzed by investments that (a) address the health of domestic consumers dependent on informal markets, (b) build capacity for well-governed, evidence- and risk-based food safety systems and (c) harness marketplace ‘pull’ drivers of progress on food safety, such as consumer demand and private sector accountability. Donor initiatives that are responsive to the current and changing food safety landscape in SSA can make a tremendous difference.





Appendices are provided online at www.gfsp.org

Appendix A. Institutional landscape for capacity

Appendix B. Implementing ideas

Appendix C. Food safety expert survey summary of responses

Appendix D. Contributors to report

Appendix E. Supplementary material - all in one annex

- Data collection methodology
- Donor contributions to food safety
- Country activities in food safety
- Anonymized detailed responses from experts
- Food safety and the Sustainable Development Goals

*The Global Food Safety Partnership (GFSP) is a public-private partnership dedicated to promoting global cooperation for food safety capacity building in developing countries. Hosted at the World Bank, the GFSP promotes food safety systems based on prevention underpinned by science to reduce the public health burden of food borne disease and advocates that the Sustainable Development Goals (SDGs) are unattainable without the achievement of **safe**, adequate and nutritious food for all.*

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