

# Part I: Context

SRAI began in response to the 2007-2008 world food crisis. Cereal prices had soared, and many West African countries erected trade barriers, threatening regional integration, food security and agricultural growth.



# CHAPTER 1

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## Introduction

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### Abstract

This chapter explains why this publication was developed and how it is organized. It presents the context surrounding efforts to strengthen regional agricultural integration in West Africa and discusses how those efforts have evolved over the past 30 years, with particular emphasis on changes brought about by the 2007-2008 world food crisis. In response to that crisis, the Syngenta Foundation for Sustainable Agriculture, in collaboration with Michigan State University and its West African partners, launched the Strengthening Regional Agricultural Integration (SRAI) program, which carried out applied research, capacity building and policy outreach on the opportunities and constraints to greater regional agricultural integration in West Africa. The chapter describes the phases of the SRAI program and discusses the major topics analyzed. It concludes with a readers' guide to the publication, outlining the structure and content of the following chapters.

### Résumé

Ce chapitre explique le bien-fondé de cette publication et la manière dont elle a été organisée. Il présente le contexte qui a animé les efforts d'intégration des marchés agricoles en Afrique de l'Ouest et discute de son évolution durant les 30 dernières années, avec un accent particulier sur les changements observés depuis la crise alimentaire de 2007-2008. En réponse à cette crise, la Fondation Syngenta pour une Agriculture Durable, en collaboration avec l'Université d'Etat du Michigan et ses partenaires Ouest Africains, ont lancé le Programme de Renforcement de l'Intégration Agricole Régionale en Afrique de l'Ouest (SRAI). Ce programme s'est consacré à la recherche appliquée, le renforcement des capacités et la dissémination des résultats sur les opportunités et contraintes en vue d'une plus grande intégration régionale en Afrique de l'Ouest. Le chapitre décrit les différentes phases du programme SRAI et discute les différents thèmes qui ont été abordés. Il termine avec un guide d'orientation du lecteur qui présente la structure et le contenu des chapitres qui suivent.

### 1.1. Motivation and Context

This publication synthesizes key findings from the *Strengthening Regional Agricultural Integration (SRAI)* program in West Africa over the period 2009-2017. SRAI was a major agricultural policy analysis initiative, supported by the Syngenta Foundation for Sustainable

Agriculture (SFSA) and implemented by Michigan State University (MSU) and its research partners throughout West Africa. The program included applied policy research, outreach, and capacity strengthening of local research and policy organizations. The aim was to provide a stronger empirical basis for agricultural policy makers in the Economic Community of West African States (ECOWAS) region, particularly concerning efforts to broaden agricultural markets beyond the limits of individual country borders and to improve the access of small farmers to the most dynamic of these markets.<sup>1</sup>

The program grew out of the world food crisis of 2007-2008, when world prices for major staples, particularly rice, skyrocketed and many grain-surplus countries limited exports. Between April 2007 and April 2008, for example, the free on board (FOB) price of the benchmark Thai 25% broken rice nearly tripled, reaching over US\$900/mt (World Bank 2016). India imposed an export ban, and other major exporters, such as Thailand and Vietnam, limited exports to protect domestic consumers. West Africa, as a major importer of Asian rice as well as of commodities such as wheat, oilseeds, and fuel, saw the prices of basic necessities soar. Consumers from Dakar to Niamey protested, sometimes violently, against the rapidly increasing cost of living. Some of the inland countries that traditionally export cereals to the coast, such as Mali and Burkina Faso, imposed their own export bans in an attempt to hold down domestic prices. At the same time, countries across the ECOWAS region launched crash food production programs, especially for rice, aimed at increasing their food self-sufficiency. Most countries in the region also cut import taxes on imported rice in order to slow the rise in consumer prices, a policy that seemed at odds with efforts to boost domestic production.

West African countries thus found themselves, after a period of over 20 years of increasingly open trade following the structural adjustment programs of the 1980s and early 1990s, in a process of *globalization in reverse* (see Chapter 2). Policy makers and the public increasingly viewed international and regional trade as an unreliable means of ensuring a country's access to food. Under the banner of *food sovereignty*, governments implemented policies ranging from fertilizer and seed subsidies to export restrictions, aimed at boosting national food supplies. Initially, individual countries implemented their policies unilaterally, with little coordination with their neighbors. The lack of coordination meant that policy inconsistencies across countries (for example, widely differing rates of subsidy on fertilizer) created incentives for cross-border trade simply to capture the rents arising from the inconsistencies. Furthermore, the export bans, combined with cuts in import taxes on imported rice, seemed to signal to farmers that they were free to produce for the market, but only when prices were low.

All of this took place in the backdrop of ongoing efforts to promote greater regional economic integration and avoid the types of trade restrictions that some West African countries imposed in 2008. Beginning in the early 2000s, the two major economic blocs in West Africa, ECOWAS and the West African Economic and Monetary Union (WAEMU), had launched programs to try to bring about a set of common agricultural policies in their member states.<sup>2</sup> In 2001, WAEMU began developing its regional agricultural policy, known as the PAU–*Politique*

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<sup>1</sup> ECOWAS is a 15-member inter-state organization dedicated to promoting economic and political integration of West Africa. Its member states include Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

<sup>2</sup> WAEMU is also known by its French acronym, UEMOA (Union Economique et Monétaire Ouest Africaine). Its member states are the eight countries in the region that share the CFA franc as their common currency (Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo). All WAEMU countries are also members of ECOWAS, and the two organizations often work together on regional economic integration issues.

*Agricole de l'UEMOA*. In 2002, ECOWAS launched the development of the ECOWAS Agricultural Policy, known as the Economic Community of West African States' Agricultural Policy (ECOWAP), which aimed to be complementary to the PAU. When the African Union launched its Comprehensive Africa Agriculture Development Programme (CAADP) in 2003, ECOWAS incorporated ECOWAP into the process, becoming the West African component of CAADP.<sup>3</sup> Under ECOWAP/CAADP, the regional organization led a process in which each of its member states worked with stakeholders (government ministries, producer organizations, development partners, private-sector representatives, and other civil-society organizations) to develop a mutually endorsed agricultural investment plan. Although ECOWAP was officially endorsed by African Heads of State in 2005, the actual development of country-level and regional CAADP plans only began in earnest in 2008, given a sense of urgency by the soaring food prices. At the same time that the countries were developing their national CAADP plans, ECOWAS developed a regional investment plan and associated policies. These promoted regional integration and trade and addressed trans-border issues, such as management of water and pasture resources that transcended national boundaries. The regional plan also advocated for regional investments in activities such as agricultural research and management of food reserves, where scale economies made it more economical to undertake efforts on a regional rather than just on a national level. Reflecting the impact of the 2007-2008 crisis, most national and regional programs that emerged had a strong import-substitution focus, with a heavy emphasis on staple-food production, particularly rice. While many of the plans saw a role for large-scale agricultural agribusinesses, all the plans also placed a strong emphasis on family farming and the need for inclusive growth.

In this environment of rising prices and a rapidly evolving policy environment, public and private decision makers needed solid empirical information and analysis to help guide the design of the investments and policy programs. These needs included information on the short-term impacts of the crisis on the incentives facing different actors (farmers, input suppliers, traders, and food processors) to invest in building a more productive and robust West African agrifood system. However, they also included the need for analysis of longer-term forces, such as changing consumer demand, that were shaping the evolution of the system. The SRAI program of research and outreach aimed to provide such information and to analyze alternative approaches to addressing the challenges facing West Africa's agrifood system.

It is not surprising that the Syngenta Foundation for Sustainable Agriculture (SFSA) was the initiator of such a program. The foundation had been active for over 30 in West Africa (particularly in Mali) in promoting smallholder-led agricultural development. Its mission is "to create value for resource-poor small farmers in developing countries through innovation in sustainable agriculture and the activation of value chains" via a strategy that focuses on smallholders, productivity and markets (SFSA 2016). The issues of sustainability, value chains, smallholders, productivity and markets were at the heart of the CAADP discussions as well as

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<sup>3</sup> The African Union launched CAADP in 2003 as an Africa-wide effort to boost agricultural growth on the continent. Its implementation in the different areas of Africa is led by regional economic communities (RECs), such as ECOWAS in West Africa. CAADP calls for each country to work with stakeholders to develop a sector-wide approach to agricultural development, in contrast to past project-led approaches. The stakeholders then endorse the plan, via signature of a CAADP Compact, and pledge to align their individual actions with the common plan. At the same time, the relevant REC develops a regional program to deal with spillovers across countries and promote regional integration. As part of the CAADP process, most African Union member states pledged to devote eventually a minimum of 10% of their government budgets to agricultural development. For more details, see ECOWAS (2015) and Hollinger and Staatz (2015).

the debates about how best to manage the consequences of the 2007-2008 food crisis. In 2008, SFSA approached Michigan State University (MSU), which had built, since 1985, an ongoing program of applied food security research, outreach, and capacity building in West Africa from a base in Mali. SFSA and MSU jointly designed a program directly focused on analyzing policy options for addressing both the current food crisis and the longer-term development challenges facing ECOWAP/CAADP. The Foundation was particularly concerned about developing alternatives to trade restrictions, which undermined farmers' production incentives, to deal with the soaring prices facing West African countries. SFSA and MSU launched the SRAI program on January 1, 2009.

## 1.2. SRAI Themes

The SRAI program evolved in two phases. The first phase, known as SRAI 1, ran from 2009 through 2011, and focused on analyzing the impacts of the spike in global food prices on West Africa and on how actors in the food system were reacting to it. During this period, there was strong speculation by the Food and Agriculture Organization (FAO), World Bank, International Food Policy Research Institute (IFPRI) and others that the world had left the previous 40-year era of long-term declines in the real price of food and had entered a period of higher and more volatile prices. The SRAI 1 research and outreach program examined how West Africa's agriculture was reacting to this possible change in the global environment.

### *SRAI 1 Structured its Research and Outreach around Four Themes*

*Price Transmission:* This theme focused on the degree to which fluctuations in international prices were transmitted to domestic markets in West Africa. Not all staple foods consumed in West Africa are widely traded internationally, and hence prices of goods such as cassava and millet would be affected by the higher global prices only to the extent that consumers substituted away from internationally traded commodities, such as rice, towards these goods. Furthermore, West African governments took a number of actions, such as exempting grain imports from import duties, aimed at buffering domestic markets from the price spikes in global markets. This theme examined the effectiveness of such efforts, the impact of the price shocks on non-traded commodities, and their implications for food price and trade policies.

*Supply Response and Trade Flows:* This theme examined the extent to which domestic supplies and trade patterns within West Africa shifted in response to the higher prices, as well as to other forces that had affected trade over the previous 20 years. Research activities included the preparation of a report synthesizing shifts in regional trade flows from 1990 to 2010 and support to CILSS for a study to test a new method of measuring cross-border trade flows.<sup>4</sup>

*Competitiveness and the Revolution of Comparative Advantage:* The higher world prices and the policy emphasis on import substitution raised the question of how competitive West African staple food production was compared to imports and how West Africa's comparative advantage was shifting over time. To address these issues, SRAI partnered with researchers from

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<sup>4</sup> CILSS is the *Comité permanent inter-État de lutte contre la sécheresse au Sahel* [Permanent Interstate Committee for Drought Control in the Sahel], an inter-state organization that includes 11 of the 15 ECOWAS member states, plus Chad and Mauritania. Since the 1980s, it has undertaken efforts to facilitate regional trade and promote food security in West Africa, and it currently coordinates those efforts closely with those of ECOWAS.

AfricaRice and the national agricultural research systems of Burkina Faso, Côte d'Ivoire, Guinea, Mali, Niger, and Senegal to carry out a number of studies to analyze these issues.

*Evolution of Food Consumption Patterns and Their Implications for the Design of Social Safety Nets:* West Africa's food system was being affected not only by shifts in food supply, as exemplified by the change in the international trade environment and the evolution of comparative advantage, but also by shifts in consumers' food consumption habits. Furthermore, these shifts affected the ability of consumers to adapt to changing relative prices for different foods (for example, their willingness to substitute maize for rice in their diet) and the feasibility of designing social safety-net programs that effectively reached the poor and were financially sustainable. Teaming up with researchers from the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) in West Africa and national researchers from eight countries in the region, the SRAI team undertook studies based on national budget consumption studies and food balance sheets to document the changes in food demand in the region and their implications for policy.<sup>5</sup>

Outreach efforts under SRAI 1 cut across all four themes. The involvement of several SRAI team members (Nango Dembélé, Boubacar Diallo, John Staatz, and Abdramane Traoré) in supporting the design of CAADP investment plans, both in Mali and for the ECOWAS region as a whole, led to many of the SRAI findings feeding directly into those processes. SRAI also organized specific outreach efforts such as a major conference co-sponsored with CILSS in Ouagadougou in 2011. This conference brought together representatives of the offices of the Prime Minister and Ministries of Agriculture, Finance, and Trade to discuss the policy implications of the studies on the transmission of international price shocks to West African economies. The findings also fed into two international conferences organized in 2011 by the Organisation for Economic Co-operation and Development's (OECD's) Sahel and West Africa Club (SWAC) on Agricultural and Food Price Volatility and The Impact of Settlement and Market Trends on Food Security, to which SRAI researchers were invited. Based in part on SRAI's analysis of price shocks in West Africa, MSU/SRAI researcher Nango Dembélé was invited to be one of four co-authors of a study by the United Nations High Level Panel of Experts on Food Security and Nutrition on the impact of price volatility on food security (HLPE 2011). The SRAI team was also invited by the Malian Ministry of Agriculture to develop a plan to reform cereals marketing policies in the country, many of whose proposals were subsequently adopted. These various outreach efforts were complemented by numerous articles in the popular press and policy syntheses highlighting key findings.

### ***Phase 2 of SRAI (SRAI 2) Began in 2012 and Continued through Early 2017***

By 2012, the immediate effects of the 2008-09 price spike had passed, but price and policy volatility in the markets remained. Policy debates focused on how to mobilize the investments called for in the CAADP programs and how to ensure that smallholders benefitted from the resulting growth. The second phase of SRAI, building on the findings of SRAI 1, therefore focused on the implications of the changes in West Africa's food economy for agribusiness

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<sup>5</sup> ReSAKSS are research and analysis teams, established under CAADP and based at international agricultural research centers in Africa. They support "efforts to promote evidence and outcome-based policy planning and implementation as part of the CAADP agenda" (<http://www.resakss.org/>). The West African ReSAKSS team is based at the International Institute of Tropical Agriculture in Ibadan, Nigeria.

investment in the region and for inclusion of smallholders in the growth process. SRAI 2 had three themes.

*Evolution of Food Demand in West Africa and its Implications for Development of Agro-processing:* This theme built on the budget-consumption and food-balance-sheet studies of SRAI 1 to identify and quantify the growing demand in the region for foods that are more convenient to prepare and eat and for higher quality products. These demand changes have major implications for both large- and small-scale agro-processors in the region, particularly concerning their ability to source reliable and timely supplies of raw products from West African farmers and traders. Research under this theme identified those challenges and analyzed alternative approaches to resolving them.

*Evolution of the Asian Rice Market and Its Policy Implications for Rice Development Efforts in West Africa:* The national and regional CAADP investment plans that emerged over the period 2009-11 strongly emphasized public infrastructure investments and input subsidies to promote rice production. At the same time, major rice importing firms began exploring the possibility of producing rice within West Africa, taking advantage of the new policy environment and the high global prices, which made local production more attractive. Yet the long-term competitiveness of rice production in West Africa depends not only on conditions in the region but also on those in Asia, the main exporter of rice to West Africa. This theme therefore analyzed the recent and likely future trends in the Asian rice economy in order to identify the principal dimensions of performance that West Africans would need to address in order for their rice value chains to remain competitive with Asian imports.

*Alternative Models of Value-Chain Organization That Link Smallholders More Effectively to Markets:* Theme 1 of SRAI 2's research agenda documented the increasing demand for processed and higher-value food products by West African consumers. Over the past 20 years, demand in the export market has also been growing for higher-value products, such as premium fresh fruits. As large-scale agro-processors and exporters attempt to respond to these growing demands, they often face high transaction costs in sourcing agricultural products from smallholder farmers. Given these costs, there is a temptation either to focus on buying mainly from large-scale farmers or, for agro-processors, to turn to imports for their raw materials. If buyers follow either of these options, smallholders find themselves excluded from some of the most rapidly growing and lucrative markets for agricultural products. Under this theme, SRAI researchers and their West African partners carried out a series of case studies in eight countries, covering a range of crops and policy environments, where processors and exporters contracted with smallholders to produce for these higher-value markets. Some of these efforts failed, while others appear to be succeeding but still face challenges. By comparing across the different studies, the researchers were able to draw lessons about best practices for successfully linking smallholders to higher-value markets.

As with SRAI 1, outreach efforts under SRAI 2 cut across all three research themes. The findings continued to be fed into the ECOWAP/CAADP processes, including efforts to design the next 10-year phase of the program, to be implemented over the period 2016-2025. SRAI 2 results, particularly on food consumption trends, also served as an important input into a major FAO/African Development Bank/ECOWAS study on West African agricultural growth (Hollinger and Staatz 2015), which the organizations are using to help plan future investments. Further outreach included presentations at the OECD/SWAC, the World Bank, SFSa, and

various professional organizations such as the African Association of Agricultural Economics, as well as through various policy syntheses and journal publications.

### **1.3. Readers' Guide to This Publication**

This publication synthesizes key results from the two phases of the SRAI research program.<sup>6</sup> The publication contains five parts. Part I describes the policy context in which the program evolved. After this introductory chapter, Chapter 2 analyzes how agricultural policies initially reacted to the 2008 crisis, both at the national and the regional levels, leading to a process of globalization in reverse. Chapter 3 then outlines the historical patterns of agricultural integration and trade in West Africa. It identifies principal West African staple-food production and trade zones, discusses how they have changed over the past 20 years, and analyzes the impact of the 2008 crisis on agricultural integration in the region.

Parts II and III then analyze major shifts in both demand and supply that are shaping the evolution of West Africa's agrifood system. Part II focuses on the nature and implications for agricultural policies and investment of changing food consumption patterns in the region. Chapter 4 reviews changes in per capita food availability in the 15 ECOWAS countries over a 30-year period (from 1980 through 2009), based on analysis of food balance sheets. Chapter 5 complements this analysis with investigation, based on data from budget-consumption studies, of how food consumption patterns vary based on changes in income, urban vs. rural residence, and household characteristics. Chapter 6 then uses results from budget-consumption analyses to model how consumers in a typical Sahelian country would change their consumption patterns based on changing relative prices of different staples, access to food processing technologies, and varying trade policies. Chapter 7 uses demand parameters estimated from the budget-consumption studies to project changes in the demand for different foods in the ECOWAS region over the period 2010-2040. This analysis highlights the likely rapid growth in demand for high-value products and draws implications for needed agrifood system investments and policies over the coming 25 years.

Part III contains four chapters that analyze factors affecting the competitiveness of West African agriculture in the context of the changing demand and ongoing transformations in the physical, technological, economic and policy environments. Chapter 8 examines the degree to which the international price shocks of 2008 were transmitted to West African economies and how shifts in trade policies dampened or amplified those shocks. The period following 2007 was marked not only by higher international food prices but also by heightened concerns about price volatility. Chapter 9 examines the impact of this price volatility on West African producers and consumers and discusses policy options for managing it more effectively. Chapter 10 examines the implications of changes in the Asian rice economy for the future competitiveness of West African irrigated rice production vis à vis Asian imports. Chapter 11 then analyzes the competitiveness of West African rainfed rice and maize production vis a vis imports in the period immediately following 2008.

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<sup>6</sup> Reports on all the research results are available on the websites of SRAI 1. (<http://fsg.afre.msu.edu/srai/index.htm>) and SRAI 2 (<http://fsg.afre.msu.edu/srai2/index.htm>).



Part IV focuses on policies to promote inclusive agrifood system growth in the coming decade. Chapter 12 analyzes how policies are responding in the post-2008 environment to the evolving challenges facing West Africa, with a particular emphasis on the ECOWAP/CAADP process, and identifies further policy challenges and options. Chapter 13 then examines lessons learned from the case studies of alternative models of linking smallholders to higher value-added markets in the food system.

Part V, consisting of Chapter 14, draws crosscutting conclusions and lessons learned from the various SRAI studies synthesized in this publication and discusses their policy implications.

In order to facilitate comparisons throughout this volume, all the chapters except those presenting introductory material (Chapters 1 and 2) and discussion of the evolution of policy and major conclusions (Chapters 13 and 14) follow the same format. Section 1 of each of these remaining chapters introduces the question to be analyzed, while Section 2 reviews the relevant literature and identifies the knowledge gap that the analysis will help fill. Section 3 follows with a presentation of methods and data. Section 4 presents key results, and Section 5 ends the chapter with the main conclusions and policy implications.

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## CHAPTER 2

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### **Agricultural Globalization in Reverse: The Impact of the Food Crisis in West Africa as Seen in 2008**

#### **La mondialisation agricole à l'envers : l'impact de la crise alimentaire en Afrique de l'Ouest tel qu'il a été constaté en 2008**

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#### **Abstract**

The initial response of most West African countries to the 2007-2008 world food price crisis was to draw back from a reliance on regional and international trade as a key element of their food security strategies and to put increasing emphasis on national food self-sufficiency. This retreat from relying on trade as a key element of food policy—a sort of *agricultural globalization in reverse*—was striking given the over 20 year history of regional organizations such as ECOWAS, WAEMU, and CILSS in promoting greater regional integration and trade. This chapter highlights the factors leading to this initial policy reaction by West African governments, the problems such a reaction created for the region's countries, and policy options for moving forward. The chapter also outlines key questions where empirical analysis was needed in 2008 in order to design and implement more effective food policies for the region. These research questions helped shape the research agenda of the Strengthening Regional Agricultural Integration (SRAI) program, results of which form the subject of subsequent chapters in this volume.

#### **Résumé**

Face à la crise des prix des denrées alimentaires de 2007-2008, la réaction initiale de la plupart des pays d'Afrique de l'Ouest a été de réduire leur dépendance sur le commerce régional et international. Ces pays ont mis l'accent sur l'autosuffisance alimentaire comme étant l'élément essentiel de leur stratégie de sécurité alimentaire. Ce recul par rapport au commerce régional et international a été l'élément-clé de leur politique alimentaire—une sorte de *mondialisation agricole à l'envers*—réaction étonnante étant donné que les organisations régionales telles que la CEDEAO, l'UEMOA et le CILSS ont fait la promotion pendant plus de vingt ans d'une intégration et d'un commerce plus intense à l'échelle régionale. Ce chapitre présente les facteurs qui ont suscité cette réaction initiale des gouvernements ouest-africains, les problèmes qu'elle a engendrés pour les pays de la région et les solutions politiques pour l'avenir. Il met aussi en lumière les questions essentielles qu'il aurait fallu analyser de façon empirique en 2008 en vue de concevoir et de mettre en œuvre des politiques alimentaires plus efficaces pour la région. Ces thèmes de recherche ont contribué à alimenter le programme de recherche sur le

renforcement de l'intégration agricole régionale en Afrique de l'Ouest (SRAI), dont les résultats sont présentés dans les chapitres suivants du présent volume.

## **Preface**

This chapter is a slightly modified version of a background paper written in September, 2008, by a team of MSU researchers for the Geneva Trade and Development Forum (Staatz et al. 2008). The Forum brought together policy makers and researchers from around the world to debate issues linked to the then on-going Doha round of World Trade Organization (WTO) negotiations and related reforms of international trade rules. This contribution to the conference analyzed how West African countries were reacting to the 2007-2008 food price crisis and raised a series of research questions that needed to be addressed to inform future food and trade policy decisions in the region. The paper and discussion of it at the Forum set the initial research agenda for the SRAI program, which was launched three months later, in January, 2009. This chapter is included here to set in historical context the development of the SRAI program and the research questions highlighted in the succeeding chapters of this publication.

## **2.1. Background and Objectives**

Trade bans and high international food prices are pushing many West African countries away from their historical reliance on regional and international trade as a key component of their food security strategies. No longer confident that international and regional markets are reliable sources of basic staples, many countries are pushing for greater food self-sufficiency—a sort of agricultural globalization in reverse. This paper examines West Africa's globalization in reverse and raises a number of questions about what role regional and international trade should play in the region's future quest for food security. The objective is to stimulate discussion about the different strategies available to West African governments for ensuring food security in the current environment of high world market prices for staple foods. The paper also lays out a research agenda highlighting areas where new information is needed to help inform the design of such strategies. These strategies should take into account not only the need to provide safety nets for vulnerable groups who cannot afford the higher food costs but also the need to stimulate production in response to growing regional and world demand.

## **2.2. Evolution of Food Security Policies in West Africa**

West Africa has historically relied on international and regional trade to help assure its food security. Although some governments in the sub-region promoted national food self-sufficiency in the 1980s, by the early 1990s, most West African countries had adopted a broader notion of food security that built upon historical regional and international trade patterns based on comparative advantage. Countries in the sub-region fall into four categories regarding the role of trade in their food-security strategies:

- Countries such as Mauritania, Senegal and Sierra Leone that have historically based their food strategies on large imports of Asian rice combined with imports of coarse grains (millet, maize and sorghum) from neighboring countries, while exporting cash crops and mineral resources;

- Those that were food exporters in the 1960s (most notably Nigeria), but have become major importers of rice, wheat, and some coarse grains, as their economies and population have grown faster than domestic agricultural output;
- Those that have historically been largely self-sufficient or exporters of staples in normal years (e.g., Mali, Burkina Faso, and Chad); and
- Those (e.g., Côte d'Ivoire, Ghana and Guinea) that import significant quantities of rice from overseas and millet from northern neighbors, but that seasonally export significant quantities of maize (and in Guinea's case, fonio) to their northern neighbors.<sup>1</sup>

In reality, most countries, even significant exporters and importers, are involved in some two-way regional trade in staples. For example, Nigeria exports significant quantities of coarse grains to Niger in exchange for cowpeas, while Mali and Burkina Faso import some rice from Asia while exporting coarse grains to their neighbors.

Since the mid-1970s, the countries of West Africa have been linked through a number of trade and monetary organizations, the most important being:

- The Economic Community of West African States (ECOWAS), formed in 1975 and comprising 15 countries,<sup>2</sup> with a mission to promote economic integration in all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial questions, and social and cultural matters. The ECOWAS treaty authorizes free movement of goods and people among the member states.
- The West African Economic and Monetary Union (WAEMU), which includes eight countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo) that share a common currency, the CFA franc. WAEMU, formed in 1994 by enlarging the scope of activities of the previous West African Monetary Union, has as its mission to strengthen the competitiveness of economic and financial activities of member states within the framework of open and competitive markets and to create a common market based on the free circulation of people, goods, services, and capital, as well as on common exterior tariffs and commercial policies.

In addition, two regional organizations play a particularly important role in the coordination of agricultural policies and trade in West Africa. The Council of Ministers of Agriculture of West and Central Africa (CMA/WCA), created in 1991 and including 20 countries,<sup>3</sup> has as its objectives the promotion of regional agricultural trade, the improvement of West and Central Africa's competitiveness in international agricultural markets, and the promotion of sustainable agricultural development through the harmonization of agricultural policies in the region. The Permanent Interstate Committee to Combat Drought in the Sahel (CILSS), which includes nine

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<sup>1</sup> Just because a country exports staples to its neighbors does not imply that it is food secure in the sense of guaranteeing everyone in the country access to a reliable source of food. Indeed, as discussed below, it is the desire to protect the poor's access to food that has led some governments in the region to restrict exports.

<sup>2</sup> Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

<sup>3</sup> Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, and Togo in West Africa and Cameroon, the Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon in Central Africa.

countries,<sup>4</sup> was created in 1973 as a regional effort to promote food security and combat drought and desertification through promoting regional scientific cooperation, policy coordination, and capacity building. Since the 1970s, CILSS has provided both empirical research and forums for policy discussion to promote regional agricultural trade throughout West Africa and has recently been mandated by ECOWAS to help lead the effort for the entire ECOWAS community.

Thus, over 35 years, West Africa has built up an institutional framework that promotes regional agricultural trade and cooperation as central components of national food security strategies. This long history of institutional cooperation makes the current shift away from trade in response to the current food crisis—*agricultural globalization in reverse*—all the more striking.

The current food crisis has shifted the West African trade-based food-security strategy into reverse for several reasons. Soaring prices (e.g., rice selling for over US \$1,000/ton) and export bans from some Asian countries such as India not only threatened the availability of rice imports, but led many West African governments to conclude that the risks were very high in depending on the international market for staples. At the same time, some West African exporters of coarse grains (millet, sorghum, and maize)—most notably Burkina Faso, Mali, Niger, and Nigeria—restricted exports in an attempt to protect domestic consumers from the soaring prices. This in turn has driven up costs in neighboring countries, while depressing prices paid to their own farmers, and having only mixed effects on reducing consumer prices (for details, see Kelly, Dembélé, and Staatz 2008; and Diarra and Dembélé 2008).

### 2.3. The Recent Staple Food Price Situation in West Africa

Cereal supply in West Africa for 2007-2008 was about 5% below the excellent 2006-2007 harvest.<sup>5</sup> Sahelian countries did better than coastal ones, with aggregate 2007-2008 production in the Sahelian countries 1% below the previous year but 17% above average levels for 2002-2006. Nevertheless, there were important pockets of poor production in a number of Sahelian countries (e.g., in Senegal, Mauritania, Burkina Faso, and Niger). Among coastal countries, four experienced production declines from the previous year (Ghana, Benin, Côte d'Ivoire, and Nigeria) ranging from 7% in Nigeria—by far the largest grain producer in West Africa—to 13% in Ghana, while production in Togo and Sierra Leone increased by 3% and 21%, respectively. Various reconnaissance missions and market information reports confirm that initial responses to these various production shortfalls by the private sector were positive, with new trade routes being developed and the relative importance of existing routes changing in response to the emerging demand.<sup>6</sup> Most analysts agree that this relatively small decline in aggregate regional production and the demonstrated ability of the private sector to respond would not, under historical circumstances, have resulted in the cereal price hikes that have been

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<sup>4</sup> Burkina Faso, Cape Verde, Chad, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, and Senegal. [By 2017, the membership of CILSS had grown to 13 members, having added Côte d'Ivoire, Guinea, and Togo.]

<sup>5</sup> All production data come from presentations made by CILSS at the CILSS Market and Trade Opportunity Conference, Cotonou, April 2008. More details are available in Kelly, Dembélé, and Staatz (2008).

<sup>6</sup> See, for example, the discussion in SIMA 2008 and Diarra and Dembélé 2008 about the emergence since 1999 of the new *Kantchari (Burkina Faso) trade corridor* linking producers in Mali and Burkina Faso with growing markets in Niger, northern Nigeria, and northern Benin.

experienced during 2007 and 2008. Thus, it was the combination of slightly lower production in West Africa, higher regional demand, and much higher world prices that resulted in the current high-price situation in West Africa.<sup>7</sup>

Demand for cereals is growing in the region not only as a result of population growth and urbanization but also because as incomes rise, consumers demand more products that require cereals as intermediate inputs (e.g., dairy products, meat, poultry, and alcoholic beverages). Nigeria, for example, had a significant increase in demand for maize in 2007-2008 as its poultry industry recovered from a downturn associated with avian flu. There is evidence that demand for poultry and livestock feed is also growing in Mali, although at a slower rate than in Nigeria. It is not clear that government estimates of cereal needs using traditional “cereals balance” methods are fully accounting for the growth in such intermediate demand.

Generalized inflation is an additional factor contributing to political unrest surrounding rising food prices and concerns about food security. For WAEMU countries, overall prices were 7% higher in May 2008 than a year earlier. This is in contrast to historical patterns of moderate inflation (less than 4%/year) since the late 1990s. Outside the CFA franc zone, inflation in Nigeria and Ghana was higher (5% and 11%, respectively) in 2007, but lower than 1999-2006 rates, which went as high as 19% (Nigeria) and 33% (Ghana) during peak years. The range of products whose price increases have raised consumer concerns is very broad. For example, higher energy prices translate into higher transport costs for food and costs of getting to and from work, school, and markets; transport price hikes can cut into profit margins, reducing the net incomes of artisans, traders, and transporters. Lodging costs and prices of basic household goods are also rising, leaving less money for food.

Food price inflation, of course, is an important component of generalized inflation; for WAEMU countries, food prices increased 14.2% from May 2007 to May 2008. Products such as milk, meat, fish, and cooking oil are frequently cited as major culprits. The degree to which staple food prices are rising varies by country, by product, and by source (regional or world markets). Yet it is important to note that for most countries, cereal prices, even in nominal terms, are not at historical highs, particularly for coarse grains. Prices for coarse grains were higher during the crisis year of 2004-2005, when droughts and locust attacks created a supply shortfall, although rice prices are now at or above the 2004-2005 levels.

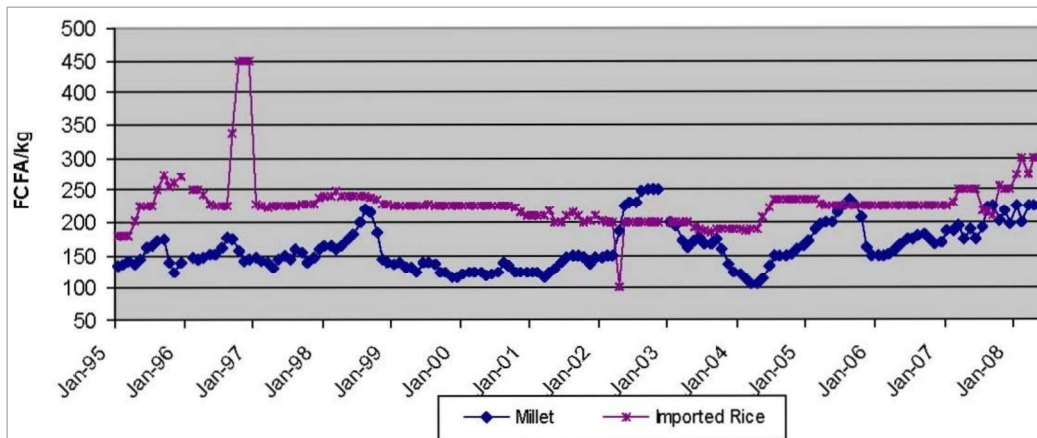
Figures 2.1 and 2.2 illustrate the long-term price patterns for Dakar and Bamako. As recently as July 2008, FEWSNET reported that millet and sorghum prices in northern Nigeria were still slightly below their 2004-2005 levels, although they were substantially above prices following the good 2006-2007 harvest.<sup>8</sup> Thus, it is not high food prices alone, but rather the combination of higher food prices in conjunction with broader generalized inflation, that is leading to consumer unrest.

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<sup>7</sup> For a discussion of the many factors contributing to the high world prices, see the websites on this topic developed by the International Monetary Fund (IMF) : (<https://www.imf.org/external/pubs/ft/survey/so/2008/NEW042808A.htm#top> and Michigan State University (<http://www.aec.msu.edu/fs2/responses/index.htm>).

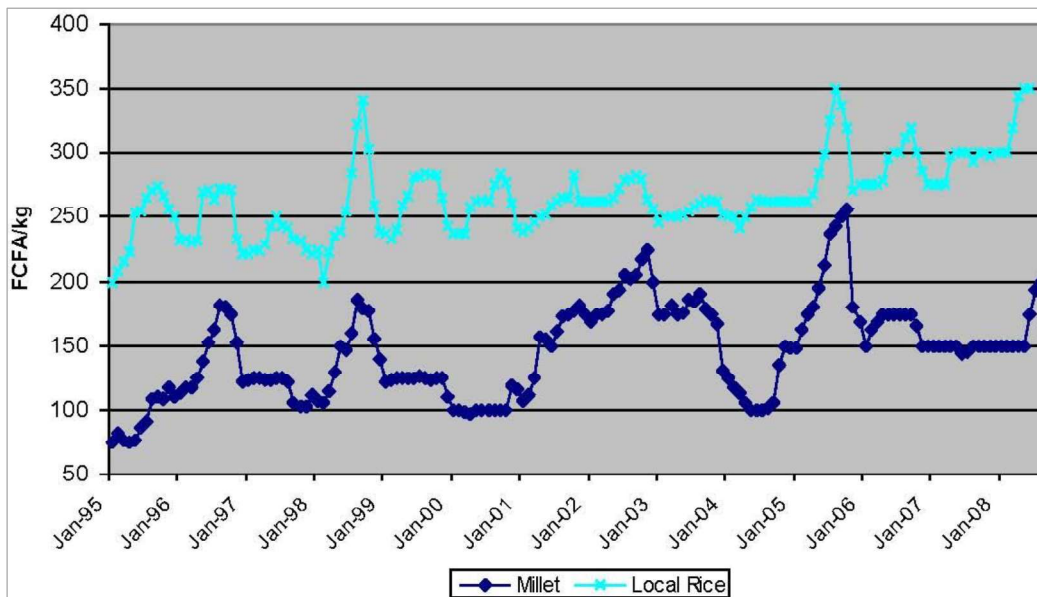
<sup>8</sup> For more details on coarse grain prices see Kelly, Dembélé, and Staatz (2008).

**Figure 2.1. Retail Prices of Millet and Imported Rice in Dakar, 1995-2008**



Source: Authors, based on data from SIM/Senegal and Afrique Verte.

**Figure 2.2. Retail Prices of Millet and Local Rice in Bamako, 1995-2008**



Source: Authors, based on data from the Observatoire du Marché Agricole and Afrique Verte.

Figures 2.1 and 2.2 also illustrate that while rice prices have climbed significantly, locally produced coarse grain prices have not, until very recently, shown a similar price increase. In West Africa, it is important to distinguish between staples such as rice and wheat, which are internationally traded, and those that are not as widely traded internationally but are important in regional markets (often referred to as semi-tradables).<sup>9</sup> The latter include millet, sorghum, fonio, cassava, and yams. Maize is an intermediate case. Historically, relatively little maize has

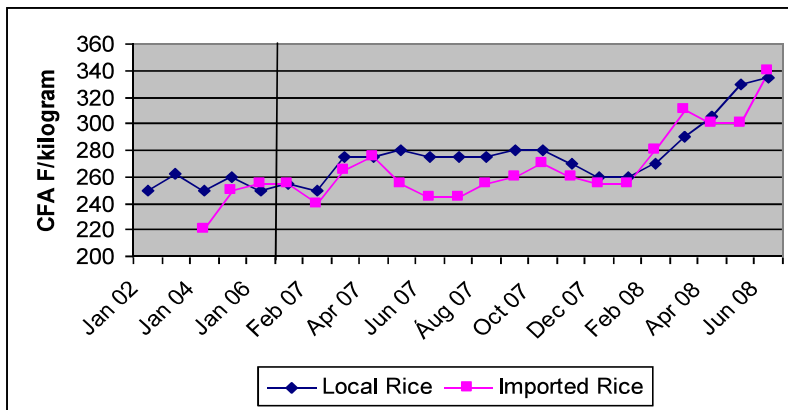
<sup>9</sup> See Delgado et al. 1994 for more discussion of the importance of these semi-tradables in agricultural development in West Africa.

been traded in or out of West Africa, although this situation is beginning to change, particularly with the increasing demand for feed grains for the growing poultry industry.

Over the past 40 years, West African consumers, particularly in urban areas, have shifted their consumption increasingly towards rice and wheat products, in part because they are easier to prepare and consume in time-constrained urban settings. The current high international prices of rice and wheat have been quickly transmitted to West African consumers, as illustrated by Figure 2.3, which shows how prices of domestically produced rice closely track those of imported rice in Mali.

A key empirical question is the degree to which the higher prices of wheat and rice will spill over onto the semi-tradables, driving up their prices as consumers shift consumption to these cheaper locally produced staples. Beginning in April-June, coarse grain prices in Mali, Senegal, Burkina Faso, and Niger, which had been relatively stable earlier in the year, began to rise, suggesting that consumers had begun to overcome their historical reluctance to substitute coarse grains for the easier-to-prepare rice and wheat products (Figures 2.1 and 2.2).<sup>10</sup>

**Figure 2.3. Imported and Domestic Rice Price Trends: Mali**



Source: Authors, based on data from Afrique Verte. The vertical line indicates that monthly, as opposed to annual data, are graphed starting in January 2007.

Imported rice, and to a lesser extent wheat used in bread, are the biggest problems for import-dependent countries such as Senegal; but imported rice prices are also rising in countries such as Burkina Faso and Mali, which are less reliant on imports. Maize is a problem for countries with production shortfalls (e.g., Nigeria and Ghana) and their neighbors (Niger, Burkina Faso, and Mali), whose markets are being used to help fill the shortfalls (Figure 2.4).

## 2.4. Short-Run Policy Responses and Emerging Picture of Impacts

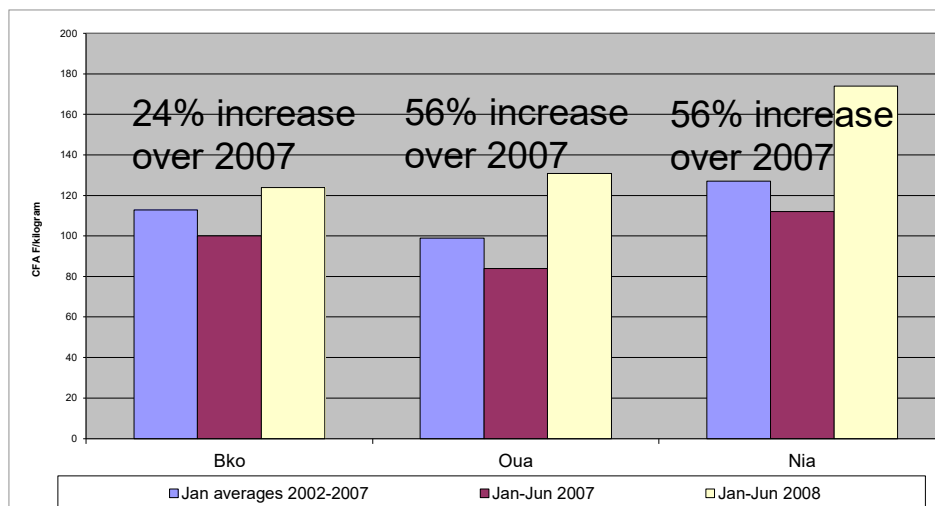
Table 2.1, adapted from a paper by the World Bank (2008), presents a set of policy options for dealing with rising food prices. Four options fall into the category of safety-net programs, and six can reduce food prices in general. The table evaluates each policy option in terms of how

<sup>10</sup> See Camara (2004) and Reardon et al. (1998) for past evidence on substitution of cereals by West African consumers. See also Part II in this volume.



well it targets vulnerable groups and preserves incentives for beneficiaries to work or produce more staples as well as in terms of costs and ease of implementation and management.

**Figure 2.4. Maize Price Trends in Bamako, Ouagadougou, and Niamey**



Source: Authors, based on data from Afrique Verte.

**Table 2.1. Effectiveness of Policies for Mitigating High Food Prices**

Price Reducing Tools*	Safety-net Tools*
<ul style="list-style-type: none"> <li>• Reducing Tariffs/VAT (2, 3, 4, 5)</li> <li>• Subsidies/rations                             <ul style="list-style-type: none"> <li>– Generalized (3, 4)</li> <li>– Targeted (1, 2, 3)</li> </ul> </li> <li>• Release stocks (2, 4)</li> <li>• Export restrictions (4)</li> <li>• Producer price controls (0)</li> </ul>	<ul style="list-style-type: none"> <li>• Targeted cash transfers (1, 2, 3, 5)</li> <li>• Food for work (1, 2, 3)</li> <li>• Food aid (1, 3, 4)</li> <li>• Feeding/nutrition program (2, 3)</li> </ul>

Source: World Bank (2008).

\* Numbers following each tool refer to the following *effectiveness criteria*: 1. Targets vulnerable, 2. Preserves incentives, 3. Costs contained, 4. Easy to implement, and 5. Limited management and governance concerns.

As the focus of this paper is the relationship between trade policies and rising prices, the policy tools of most interest are those in the price reducing column, such as tariff adjustments and export bans, although subsidies and stock releases implemented at the national level will also influence both domestic and regional trade decisions made by private-sector actors. The World Bank judged that reducing tariffs and taxes can be more effective (four of five effectiveness criteria are applicable) than export restrictions (only one applicable effectiveness criterion), with subsidies and stock releases falling in the middle (2-3 relevant criteria).

Policy instruments used by West African countries to deal with the high food prices fall primarily in the category of those that are *easy to implement*, although perhaps difficult to enforce (a criterion not listed in the table). Those relating to regional trade include tariff relief policies implemented by Niger, Burkina Faso, Mali, Senegal, Cameroon, and Nigeria and

export restrictions imposed by Mali, Burkina Faso, and Niger—all countries whose production this year has matched historical norms.<sup>11</sup>

### ***Tariff Relief***

A disadvantage of reducing tariffs on imported staples is that unless the reduction is implemented well in advance of a crisis situation, it is unlikely to have the desired impact because traders are usually unwilling to reduce prices of currently held stocks for which the taxes have already been paid. Response also tends to be slow when import markets are dominated by a few large players who face few competitive pressures to pass on cost savings to consumers—a situation that is common in many countries in the region. Furthermore, when implemented in the context of rapidly rising prices, even if wholesalers do pass on the cost savings, consumers may not perceive lower prices because the importers' purchase price may have risen by more than the tax reduction. Or if the importers agree to a fixed selling price in exchange for a tax holiday, they may not be able to honor the agreement if the world prices (and hence the prices they pay) rise rapidly after the agreement with the government is signed. A recent news item (IRIN 2008) reported that prices of rice, flour, and fish were still at their previous levels or higher almost two months after the government of Cameroon lifted import taxes. The government received agreement from wholesalers that they would pass on the five percent reduction in price to buyers, but the impact had not yet filtered down through retailers. A second drawback of the tax holiday on imports is that it reduces government revenues that could be used to support measures to expand domestic production.<sup>12</sup> For example, Cameroon is currently considering reinstating its import tax on staples and using the revenues to subsidize local production. In Mali, where the government has just announced a major new rice production program, funding is constrained by limited resources because of the reduced cereal and fuel import tax revenues.

### ***Export Restrictions***

While there is some evidence that immediately following the introduction of export restrictions regional trade was reduced, recent reconnaissance missions in Mali and Niger (Diarra and Dembélé 2008; SIMA 2008) suggest that trade picked up again and that the main impact of the export bans has been increased transactions costs associated with moving supplies from surplus to deficit zones—costs that are ultimately borne by the consumers in the importing countries and by farmers in the exporting countries, reducing the latter's incentives to invest in agriculture and expand production.

In essence, export bans in West Africa act like very badly designed and poorly implemented export taxes. Like export taxes, they depress producer incentives in low-cost, more efficient producing countries (e.g., Mali and Burkina Faso) and raise producer prices in higher-cost importing countries. They therefore encourage staple food production in areas where such production is more costly while discouraging it in areas that currently have a comparative advantage. This shift in incentives leads to resource misallocation within the region, raising the costs of achieving regional food security. Unlike a fixed export tax, however, the level of illicit

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<sup>11</sup> See the appendix to this article for a list of measures undertaken by five of the countries in the region in the years immediately following the 2007-2008 crisis [Editor].

<sup>12</sup> Loans available to government through the IMF's Exogenous Shock Facility may help them to continue to make these key investments in spite of the budgetary shortfalls brought about by the tax reductions.

payments needed to evade an export ban can vary widely, increasing the risk that traders face and reducing their ability to plan. Furthermore, the revenues generated by these illicit taxes flow into the pockets of private individuals who control access to the border crossings (customs and police officers, etc.), rather than into government coffers, where they could be used to invest in increasing agricultural productivity.

The reconnaissance missions confirmed that cereal flows from Mali to Mauritania continued briefly after Mali's export ban was announced (local authorities permitted traders to export existing stocks) but then stopped due both to stricter enforcement and the implementation of import subsidies in Mauritania that made imported wheat products and rice less expensive than Malian coarse grains. The Niono/Nara to Mauritania trading axis had an overall decline in millet exports of 38% from 2007 to 2008. A similar decline in millet exports was observed between Sikasso (Mali) and Côte d'Ivoire (27%). The situation was reversed, however, for millet moving from Sikasso to Niger (174% increase) and for maize along several other market axes, in spite of the export ban. The volume of maize shipped from the Sikasso region to Senegal increased from 1,880 tons (January to July 2007) to 6,047 tons during the same period in 2008.<sup>13</sup> Along the Kantchari-Niamey axis between Burkina Faso<sup>14</sup> and Niger, maize exports grew from 8,384 tons in 2007 (January–July) to 10,870 tons in 2008, in spite of Burkina's and Mali's export bans. Much of this increased trade seems to have been destined ultimately for northern Nigeria and northern Benin, which in normal years export coarse grains to Niger. This year, because of poor harvests, they are importing, drawing grain from as far away as Mali.

For maize, the Malian trade restrictions, officially introduced in February 2008, were followed by rising, rather than falling, wholesale and retail prices in Koutiala, the heart of Mali's maize production zone, in response to the increased export demand (Table 2.2). Interviews with traders also revealed a significant increase in transaction costs for exports from Mali to Senegal and Niger (estimates ranging from 250,000 to 440,000 CFA francs per truck load of 60 to 80 tons of cereal—an eight-fold increase in illicit payments relative to the period prior to the export bans). An analysis of the differences between wholesale maize prices in Koutiala and destination markets in Senegal and Niger in late August, 2008 however, revealed a large increase in the price differential between these markets, suggesting that the trade restrictions, while not stopping trade, had reduced the degree of market in the region (see Figure 2.5).<sup>15</sup> Dakar prices were 95 CFA francs higher per kilogram and Niamey prices 86 CFA francs higher than in Koutiala. Estimated transport and transaction costs (excluding those associated with circumventing the export restrictions) range from 26 to 28 CFA francs/kg, leaving about 60 CFA francs/kg in Niger and 67 in Senegal to cover importer and retailer margins plus *circumvention* costs. So long as the price differences between markets are high, trade restrictions are unlikely to stop cereal flows from surplus to deficit markets. In this example, it is Malian producers and Senegalese and Nigerien consumers who are being penalized by the

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<sup>13</sup> Improvements in the road infrastructure between Mali and Senegal in 2007 and 2008 undoubtedly accounted for some of the increase, but it is striking to see such a rise in exports at a time when the Malian government was trying to restrict them.

<sup>14</sup> The Burkina market is fed by supplies from Mali, Côte d'Ivoire, Ghana, and Togo, depending on production patterns in a given year.

<sup>15</sup> The price differentials shown in Figure 2.5 are smaller than the differentials mentioned in the text. The figures cited in the text refer to a slightly later period (late August 2008) and to differences in wholesale rather than retail prices. Nonetheless, the story from Figure 2.5 is clear: spatial price differentials have widened sharply since the imposition of the trade restrictions.

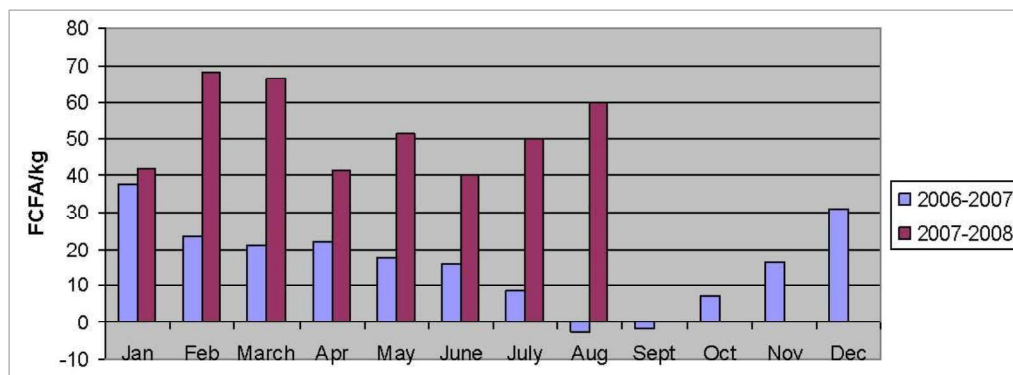
trade bans while those collecting the illicit taxes are benefiting. The result is lower incentives in the system for stimulating production to reduce ongoing food insecurity.

**Table 2.2. Evolution of Wholesale and Retail Prices of Maize in Koutiala, Mali: 2007 and 2008**

Month	2006/07		2007/08		% Variation 2007 to 2008	
	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail
January	70	75	98	103	40	37
February	75	80	97	105	29	31
March	75	80	101	106	35	33
April	75	80	106	112	41	40
May	76	81	118	124	55	55
June	78	83	137	143	76	72

Source: Diarra and Dembélé (2008).

**Figure 2.5. Spatial Retail Price Differentials for Maize: Sikasso (Mali)–Niamey (Niger), 2006 - 2008**



Source: Authors, based on data from the Observatoire du Marché Agricole and Afrique Verte.

## 2.5. Four Emerging Strategies

Four major strategies have emerged or have been advocated as means of dealing with the food crisis in the short run while stimulating agricultural growth in the long run. Below, we briefly discuss the main advantages and disadvantages of each approach.

### *An Emphasis on National Self-sufficiency*

During the mid to late 1980s, most West African countries, especially the francophone countries, shifted from a policy advocating national food self-sufficiency to one of food

security, based on a combination of national production and trade, particularly regional trade that takes account of the complementarity of resources within the subregion. This move away from an autarkic approach to food security was initially strongly pushed by external donors as part of structural adjustment packages, but later was adopted as a central element of the strategies advocated by regional organizations such as ECOWAS, WAEMU, CMA/WCA, and CILSS.

The current crisis, with its trade bans both in West Africa and from Asian rice exporters, has raised the risks of such a trade-based approach and led some countries to aim for greater national self-sufficiency in basic staples. The most striking example is Senegal's Grand Agricultural Offensive for Food and Abundance (GOANA—*Grande offensive agricole pour la nourriture et l'abondance*), which seeks to move Senegal from 20% rice self-sufficiency to 100% by 2015.

A key advantage of a national self-sufficiency strategy, if it succeeds, is that it makes the country less dependent on the vagaries of other countries' export policies for politically important basic staples. Such a strategy also focuses attention on the agricultural sector and may reverse the historical underinvestment in agricultural production in most African countries. In addition, if agriculture is the main provider of employment and source of income for the majority of people, then such policies can promote overall development if they spur increased productive investment in agriculture that allows the country to achieve lower unit costs of production. This is more likely to be achieved if the country focuses on long-term investment in the key drivers of agricultural development rather than just short-term production subsidies.

The costs of such a strategy depend critically upon:

- The degree to which domestic production can be increased through increased *productivity* (driving down the unit cost of production) vs. expanding production through the increasingly costly application of more inputs using the same low-productivity technologies. For example, if production is expanded through the use of subsidized inputs, will those subsidies lead to adoption of new technologies (e.g., more fertilizer-responsive varieties) that eventually drive down unit costs of production? Or will the subsidies have to continue (and be financed) indefinitely as farmers apply the subsidized inputs in their current production systems?
- How stable domestic production will be relative to world market supplies. A traditional justification for trade is that it acts to stabilize domestic supplies, as global or regional production is likely to be more stable than the production in a single country.

The traditional arguments against an autarkic staple food policy are twofold. First, if the country's unit cost of production is significantly higher than the price at which staples can be imported, then either consumers (through higher prices) or taxpayers (through taxes that pay for production subsidies) will bear the higher-cost local production. Those resources, the argument goes, could yield higher returns to the country if they were invested in other sectors of the economy and the revenues thus generated were used to import food. If the production is expanded by subsidies (e.g., for fertilizer), the critical issue is the opportunity cost of the resources going into the subsidy. They likely could have created greater wealth for the economy in other uses; otherwise, they would have flowed into staple food production without government action. Second, as mentioned above, trade can be used as a stabilizer of domestic

markets because global production is generally more stable than production in an individual country. However, to use trade in this way, there must be some trade infrastructure in place and links with reliable trading partners, neither of which are likely to emerge if a country pursues an autarkic food policy. Furthermore, if the country has a surplus, without ongoing trade relations with its neighbors, it may find it harder to find customers for its surplus, leading to more volatile domestic prices.

Yet the recent export bans by countries such as India, Vietnam, Mali, and Burkina Faso bring both of these arguments against autarky into question. Even though the import bans have not really completely cut any country off from foreign supplies, the importing countries have reason to question whether a trade-based food security policy is too risky. If export bans result in staples not being available at any price, then the advantages of a trade-based policy disappear.

### ***Regional Trade Zone with Protection against Outside Imports***

ECOWAS is premised on the notion of the free movement of goods and people within member states, while offering some degree of protection from outside imports. In this sense, it has followed, in principle, the model of most free-trade areas, with the well-known effects of trade creation (expanding trade within the community) and trade diversion (reducing trade from lower-cost exporters that are not part of the community). As noted above, in practice the ECOWAS zone suffers from numerous internal trade barriers, ranging from officially imposed trade bans to bribes extracted along major trade routes. While both ECOWAS and WAEMU practice some degree of taxation of agricultural exports from outside the zone, the levels have historically been modest. For example, the ECOWAS's *prelevement communautaire* (ad valorem tax) on rice imports from outside the zone stood at 0.5% in 2007, while the equivalent WAEMU tax stood at 1%.<sup>16</sup>

More recently, there have been calls for greater regional protection within the community to stimulate West African staple food production. These calls are often framed in terms of promoting *food sovereignty* (Berthelot 2006; Blein 2006) and are reminiscent of the calls in the 1980s for a *regional protected zone* for staples in West Africa. The basic argument is that some period of protection from outside competition is needed to spur investment in West African agriculture, presumably leading to cost-reducing technical change that will ultimately drive down food prices. The regional protected zone proposal was widely debated in regional forums in the 1980s, led by CILSS and the Club du Sahel, and was ultimately abandoned for three reasons: (a) concern about how higher staple food prices, at least in the short-run, would affect the large number of low-income consumers in the region; (b) lack of convincing evidence that higher prices in short run would lead to rapid adoption of cost-reducing technical change in agriculture given all the other constraints facing the agricultural sector (weak infrastructure, macro-economic constraints such as highly overvalued exchange rates, and weak agricultural research and extension systems); and (c) a lack of common interests from potential food exporting countries, such as Mali and Burkina Faso (which had interest in high food prices), and major food importers, such as Senegal (which had interest in low food prices).

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<sup>16</sup> This situation changed in 2016, with the adoption by ECOWAS member states of the ECOWAS Common External Tariff regime. See chapters 9 and 13 in this volume for details [Editor].

Many of these same constraints still exist. Furthermore, the democratization and increased urbanization that have occurred in most West African countries over the past 20 years have given poor urban consumers even greater voice in policy debates, making a heavily protected regional production zone less likely. However, with high transportation costs and rising world food prices, the region may become competitive vis-à-vis imports from the world market even without a high protective tariff. Thus, the scope may be much greater now for creating a regional agricultural market that links production basins (some of which may span more than one country) to the region's growing consumption centers.<sup>17</sup> Examining the potential for such a market and the investments and policies needed to bring it about is an area that merits further research.

### ***A WTO-style Approach, Based on Open Trade***

This approach, while often advocated as an ideal that allows countries to achieve food security at least cost by exploiting comparative advantage, has never been fully embraced by West African policy makers. Now with the collapse of the Doha round, a purely liberal approach to food security seems less likely than ever. The main complaint against this approach is well-known: a belief that the OECD countries stacked the rules of trade in their favor, with the result that the high-income countries flooded West Africa with cheap agricultural goods (subsidized rice, powdered milk, etc.) and subsidized OECD producers (e.g., of cotton) competed with African producers in third countries. While the current high world prices of agricultural commodities have reduced agricultural subsidies for the time being, policy makers remain wary of a completely open policy, especially in light of the recent restrictions on grain exports from major grain exporters such as India and Vietnam.

Nonetheless, if physical availability of basic staples on international markets and reductions in OECD agricultural subsidies could be guaranteed, the advantages of a trade-based food security strategy remain attractive. By focusing its resources in activities where they are most productive, a country and a region can obtain their basic food needs at lowest cost, rather than forcing poor consumers to pay high prices to support inefficient local production. Yet given all the constraints of moving to an equitable and reliable open international trading system, the immediate challenge is to discover paths that allow the West African countries to develop reliable food security strategies that do not require a strong shift back towards autarky. As the example of North Korea shows, autarky is a very costly and seldom effective way to achieve food security.

### ***Bilateral Trade Agreements within the Context of Regional Economic Communities***

Export bans, both by countries within ECOWAS and from Asian exporters, have undermined confidence in regional and international trade agreements. Within ECOWAS, it is apparent that the need for national political leaders to protect consumers (many of them poor) trumps regional obligations to *free movement of goods and people*, particularly in a low-income country such as Mali that fears that its neighbors can outbid it for its staple food supplies. Thus, in the context of the trade bans, countries are increasingly looking to bilateral agreements to assure access to at least some food from the exporting countries. These bilateral agreements often involve a quid pro quo on the part of the importer. For example, Mali is offering its

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<sup>17</sup> See Chapter 3 in this volume.

neighbors the opportunity to invest in its major irrigated rice area, the Office du Niger, which would presumably permit the investor countries (such as Senegal) the right to export the resulting production. The political advantage of such bilateral agreements is that they provide some political recompense to the exporting country in terms of being able to argue to its own consumers that food is not being exported without a compensating increase in national production.

In addition, some West African countries are exploring bilateral trade agreements with food exporters from outside of West Africa. For example, Senegal recently signed a five-year agreement with India guaranteeing access to Indian rice exports. It is not apparent how such agreements will interact with regional agreements, such as the common agricultural policies of WAEMU and ECOWAS, which call for common external tariffs for imports from outside the communities. Will the rice imported from India be subject to these tariffs? Once in Senegal, in principle, there would be no restrictions to its re-exportation to any country within the community. Thus, has India really just signed an agreement with all of ECOWAS rather than with just Senegal?

## **2.6. Which Path(s) Forward, and Why?**

In the current high-price, post-Doha environment, what are the food-security options for West Africa? One approach that may hold promise is that of a regional trade zone, with modest protection against import surges due to major exchange-rate fluctuations or export subsidies. Such an approach would have the following advantages:

- Wider regional markets will eliminate the small size of national markets (thin markets) that make them so volatile. Regional integration will provide more price stability to both producers and consumers, and thus increase incentives for private investment in agriculture. It will also allow scale economies in marketing and processing.
- A regional trade zone will permit the exploitation of ecological complementarities and comparative advantages among countries, e.g., between the inland Sahel and coastal countries (Badiane and Resnick 2005).
- The region provides the opportunity to pool research resources and achieve scale economies in technology generation around different production basins, which often span national borders.
- The region can also allow the creation or strengthening of existing regional agricultural training centers.

In principle, the regional approach described above sounds very much like the vision embraced by ECOWAS under the New Partnership for Africa's Development's (NEPAD's) Comprehensive African Agricultural Development Program (CAADP). However, the history of regional trade agreements in West Africa has shown that moving from vision to reality is not easy. In particular, overcoming the political pressures that restrict trade (both through trade bans and the persistence of non-tariff barriers) will require addressing the following questions:

- Can trade policy alone protect the poor's access to food without undermining incentives and resources to invest in agricultural productivity growth? If so, how?
- What mix of national and regional trade, investment, and subsidy policies are politically feasible, financially sustainable, and most likely to lead to more food security in the



West African context of porous borders and diverse national production, resource, consumption, and income patterns?

- What policy changes are needed to transform the current high-price environment into an opportunity to attract private investment including foreign direct investment (FDI) into agriculture? Should West Africa adopt national or regional approaches to attract FDI into agricultural production (e.g., regional production basins)?
- Is it possible to move to more predictable, rule-based food policy decision making at the national and regional levels? If so, how? Does West African experience (particularly with WAEMU) in making central bank actions politically independent, transparent, and rule-based provide a relevant model for food security decision making?
- What are the appropriate domestic, regional, and international policy responses to the risks and uncertainty created in the global food markets by export bans?

## **2.7. What We Do Not Know: Implications for Further Research**

Responding to the above questions will depend not only on good political judgment but also on answers to key empirical questions that will help determine what is feasible and what would be the tradeoffs involved in different policy options. The following empirical issues need to be addressed both at the regional level and in terms of variations by country and production basin:

- What is the degree of substitution between imported and regionally produced food products (wheat and rice versus local semi-tradables like millet, sorghum, and cassava)?
- To what degree have the higher prices been transmitted back to farmers as opposed to being captured by other actors in the value chains? Can we do better?
- If world prices stay higher for the coming 10 years as projected by the Food and Agriculture Organization, how is comparative advantage in producing different commodities going to be distributed among countries in West Africa? How competitive will be the regionally produced commodities vis-à-vis imported food items?
- What are the major producing basins for staple crops in the region and what are the likely supply responses in those basins given the enduring high-price environment? What are likely to be the major constraints to supply response?
- Which among the technologies now available on the shelf are most likely to increase regional food supplies quickly?
- What are the food assistance programs to the poor that are most compatible with improved production incentives?

## Appendix

### Summary of Measures Taken in Individual Countries and Their Impacts: 2008-11\*

Country	Principal Measures Taken*	Impacts	Results
Burkina Faso	3,6,7,8,11	Strong price increases despite the measures	Limited effects on production and prices
Côte d'Ivoire	5,6,7	Strong price increases despite the measures	Under-performance of the emergency rice program
Mali	3,4,7,8,9,10	Prices trending higher in spite of the export bans Production stimulated by the input subsidies, but less than anticipated	Exonerations on import taxes benefitted the poor very little. High cost to the public coffers
Niger	1,3,4,5,6,8,10,11,12	Vulnerable groups not protected much Prices trending higher in spite of the measures	High cost of the social safety nets Limited impact on production and prices
Senegal	2,3,5,6,8,11,12	Strong increase in prices in spite of the measures to revive production (GOANA)	Suspension of import taxes insufficient to stem the price increases High cost to the public coffers Good cereal production

Source: SRAI (2011).

\* This table covers a period longer than that discussed in the chapter, which was originally written in 2008, but includes many measures initiated in 2008.

\* Numbers following each tool refer to the following principal measures taken:

1. Authorization to import rice and other foods
2. Price controls and combatting speculation
3. Negotiation with traders in an attempt to reduce margins and prices
4. Strengthening the monitoring of food security indicators
5. Subsidies on the price of petroleum products and other sources of energy
6. Suspension of the value added tax and other indirect taxes
7. Agricultural production support
8. Suspension of import taxes
9. Export bans on cereals and other products
10. Sale of inventories from cereal banks
11. Subsidized sales of cereals from public reserves
12. Free food distribution.

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## CHAPTER 3

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### **Historical Patterns of Agricultural Integration and Trade: The Case of Cereals in West Africa**

### **Tendances historiques de l'intégration agricole et commerciale : Le cas des céréales en Afrique de l'Ouest**

Boubacar Diallo, Bio Goura Soulé, and John M. Staatz

#### **Abstract**

This chapter provides the context for much of the rest of the publication by describing the patterns of production and intraregional trade of cereals in West Africa and how they have evolved since the 1980s. As much as three-fourths of intraregional agricultural trade goes unrecorded in official statistics, and the analysis examines the factors that push those involved in such trade to remain in the informal sector. The chapter identifies the major production and consumption basins for cereals in the region and the trade corridors that link them. It then analyzes the forces that have driven production, consumption, and trade dynamics since the 1980s. The world food crisis of 2007-2008, when global cereal prices spiked to record levels, strongly influenced food policies in the region, including efforts of ECOWAS and WAEMU to promote regional agricultural integration and trade. The high prices stimulated efforts to boost local food production, and the rising value of the US dollar relative to West African currencies since 2008 has further boosted the incentives of West African consumers to *buy local* rather than resort to imports. On the other hand, transaction costs of intraregional trade have increased since 2008 due to rising insecurity in several parts of the region (e.g., due to Boko Haram in Nigeria and jihadist activity in Mali), raising the price of regionally traded goods. Political leaders have also been reluctant to try to boost farm prices further in order to expand local production (favoring instead input subsidies), as they face a *food price dilemma*, in which they have to balance consumer and farmer interests regarding the price of food.

#### **Résumé**

Ce chapitre dresse la toile de fonds du reste de la publication en décrivant les tendances de la production et du commerce intrarégional des céréales en Afrique de l'Ouest et leur évolution depuis les années 1980. Jusqu'à trois quarts des échanges agricoles intrarégionaux ne sont pas enregistrés dans les statistiques officielles et l'analyse examine les facteurs qui poussent ces commerçants à rester dans le secteur informel. Ce chapitre répertorie les grands bassins de production et de consommation de céréales de la région et les couloirs commerciaux qui les relie. Il analyse ensuite les forces qui agissent sur la production, la consommation et les dynamiques commerciales depuis les années 1980. La crise alimentaire de 2007-2008, au

moment où les prix des céréales ont atteint des niveaux record, a fortement influencé les politiques alimentaires de la région, notamment les initiatives de la CEDEAO et de l'UEMOA visant à promouvoir l'intégration et le commerce agricole régional. Les prix élevés ont stimulé les initiatives de renforcement de la production de denrées alimentaires locales et la hausse du dollar des États-Unis depuis 2008 par rapport aux monnaies d'Afrique de l'Ouest a davantage incité les consommateurs de l'Afrique de l'Ouest à *acheter des produits locaux* au lieu de recourir aux importations. En outre, les coûts de transaction des échanges intra régionaux ont augmenté durant la même période en raison de la montée de l'insécurité dans plusieurs parties de la région (par exemple, Boko Haram au Nigeria, Niger, Tchad, Cameroun et l'activité djihadiste au Mali). Cela a engendré une hausse des prix des produits échangés dans la région. Les responsables politiques ont aussi hésité à relever les prix à la ferme pour stimuler la production locale (préférant plutôt subventionner les intrants). La région a ainsi été confrontée à un véritable dilemme sur les prix alimentaires car ils doivent dorénavant trouver un équilibre entre l'intérêt des consommateurs et celui des agriculteurs face à la hausse des prix alimentaires.

### 3.1. Introduction

In West Africa, the poor quality, high cost, and elevated time/distance ratio of road and rail networks play an important role in determining the spatial configuration of markets and agricultural production. In addition to problems related to these networks, poor infrastructure in areas not directly linked to transport (marketing, processing, electricity, telecommunications, etc.), delays at borders, administrative barriers and the corresponding transaction costs are serious obstacles to the development of trade within the region (OECD 2013). Administrative hassles are one of the factors that cause operators to avoid checkpoints and remain in the informal sector (Hollinger and Staats 2015). According to major sources, the volume of officially recorded intraregional trade in West Africa is lower than that of informal trade, for which few precise statistics exist. Data from the ECOWAS Commission indicates that in 2014 the total value of intraregional trade was US\$42.2 billion for exports and imports combined, or around 17% of all foreign trade by Community member countries (Blein et al. 2016). In addition to the factors cited above, analysts also attribute the relatively low level of intraregional trade to other factors, such as the similarity of the countries' output mix, diverse monetary systems, and fragmented trade and tax policies across the region. Nevertheless, despite these obstacles, recorded intraregional trade of agrifood products in West Africa has grown significantly over the past 20 years (Soulé and Gansari 2010).

This expansion is mostly due to rapid population growth and urbanization, and the corresponding increased demand for food, changes in eating habits, and, most importantly, efforts to harmonize trade policies (Hollinger and Staats 2015). In particular, since 1990 there has been a dramatic increase in intra-Community commercial transactions involving live animals and off-season vegetables (potatoes, tomatoes, and onions). There are also significant flows of cereals and cowpeas from Nigeria to Niger and Benin and vice versa, while the coastal countries sell large amounts of roots and tubers (yams and cassava) to the Sahelian countries. The area around Nigeria unquestionably comprises the biggest trading area for cereal products in West Africa (Soulé and Gansari 2010; Hollinger and Staats 2015).

Today, the volume of agricultural trade flows between the countries of West Africa is an important indicator of economic integration. Therefore, information about the type of products traded, trends in flows, and the quantities imported or exported by destination is indispensable to defining and implementing food policies. The many changes caused by the global rise in food prices in 2007-2008 transformed the configuration of the agricultural production and consumption basins within the region. For example, the West African rice sector was revitalized to some extent because the surge in world prices gave it a degree of protection from imports. The proactive policies implemented by West African governments revived production for a number of other products as well. This was particularly true for cereals, which benefited from several initiatives, such as the Great Offensive for Agriculture, Food, and Abundance (GOANA) in Senegal. GOANA set extremely ambitious, and at times unrealistic, production targets for 2008: 2 million tons for maize (12.6 times more than in 2007), 500,000 tons for rice (2.6 times more than in 2007), and 2 million tons for rainfed cereals (1.6 times more than in 2007). While the targets were not reached, production did increase significantly due to the heavy input subsidies and other government expenditures that accompanied the program. Another example was the Rice Initiative in Mali, through which the government planned to produce 1 million tons of commercial rice (i.e., 1.5 times more than in 2007) by making inputs (fertilizers, seeds, and agricultural equipment) available at subsidized prices.<sup>1</sup> In Burkina Faso, during the 2009-2010 crop year, about 100,000 ha of rice were sown for an estimated production of 300,000 tons, or a 20% increase over the previous year (Diallo, Dembélé, and Staatz 2012).

This chapter outlines the evolution of trade patterns for cereal crops in West Africa over the past 30 years, including the changes brought about by the 2007-2008 surge in global grain prices. It is based primarily on the results of an in-depth study, *La dynamique des échanges régionaux des céréales en Afrique de l'Ouest*, conducted by LARES (Soulé and Gansari 2010) at the request of Michigan State University and with financial support from the Syngenta Foundation for Sustainable Agriculture. The study drew on existing literature on intraregional cereals trade to analyze changes in production zones and consumption centers and the direction and size of trade flows in the region. The overall objective of this chapter is to reassess the dynamics of the reconfiguration of these zones by updating information about production, consumption, and trade and factoring in the effects on these dynamics of the increase in world food prices in 2007-2008.

### 3.2. Literature Review and Knowledge Gap

The trade of food products in West Africa has received a lot of attention, especially from ECOWAS, WAEMU, and their partners, who have made market integration one of their top priorities. However, little research has quantified the actual volume of inter-regional trade, and the bulk of the literature has expressed the size of the regional market in monetary rather than tonnage values. FAO statistics identify low trade volumes; these, however, stand in stark contrast to field observations, which report much more activity (Josserand 2013; OECD 2013). The vast disparities observed can mainly be ascribed to the exclusion of informal transactions in official statistics, but also to the limited ability of the national planning and statistics units

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<sup>1</sup> The fertilizer subsidy rate in Mali is 50%, with the fertilizer sold to farmers on credit. The subsidy for NERICA (New Rice for Africa) rice seed is 60% of the retail price.

for rural development (the FAO's main source of data) to produce adequate statistics for the sector. According to Hollinger and Staatz (2015), the elimination of export taxes within the WAEMU and ECOWAS to encourage integration also played a role in the reduced recording of flows by customs agencies.

Estimates from various sources illustrate the uncertainty about the volume of intraregional trade. The African Development Bank estimated total intra-African exports within ECOWAS at US\$8.6 billion in 2008, while ECOWAS itself put the figure at US\$7 billion (OECD 2013). With respect to regional agricultural trade, the MISTOWA project assessment report estimated its value at US\$305 million in 2005 and US\$635 million in 2007 (Soulé and Gansari 2010). A study by the foundation FARM postulated that inter-regional trade is underestimated by about 200% to 300% of total traded volume (OECD 2013). This underestimate was confirmed by CILSS, which, between 2009 and 2013, ran a project to track the cross-border trade of livestock, cereals, and vegetable products at 50 observation points across West Africa. The CILSS study provided information about trade volumes between certain production basins, but did not characterize the overall dynamic in the region. Overall, the results demonstrated that there was much more trade volume than previously assumed (Josserand 2013; Hollinger and Staatz 2015). For example, Josserand (2013), drawing on the CILSS data, estimated that official livestock export statistics from Burkina Faso and Mali capture only about one-fourth of those countries' total intraregional livestock trade. He reached similar conclusions for several other agricultural products.

Some of the literature also focuses on the factors that influence the trade of agricultural products in West Africa. According to the OECD (2013), the growth in trade of food products and the directions of flows are driven by agroecological complementarities, policies, and, above all, settlement dynamics. This literature sees the demand from urban areas as the main factor driving the spatial organization of intra-regional flows and the transformation of agricultural production systems. Urbanization is creating opportunities that are changing the rural economy, while the demand expressed by large cities is strongly influencing agricultural production and trade flows. This view is the basis for the approach used by the OECD (2013) to estimate the direction and relative importance of intra-regional flows. The approach is founded on the principle of estimating the quantities placed on the market, then superimposing consumption and settlement data on these estimates to identify the interdependencies between production and consumption basins. This approach of linking information on the spatial distribution of urban and rural populations with data on agricultural surpluses was also used by Haggblade et al. (2012), who mapped the markets and corridors linking cereal production and deficit zones in West Africa. By combining data on population, production, grain consumption (for millet, sorghum, maize and rice), and prices, the methodology helped to identify the direction of flows connecting production basins to consumption centers.

Finally, some authors have focused on the influence of trade agreements on intra-regional trade, particularly on structural differences influencing aggregate trade volumes within the WAEMU countries compared with those within the ECOWAS countries.<sup>2</sup> Both regional organizations are, in principle, free-trade zones. Diarra and Ndong (2015) used a gravity model to analyze bilateral trade between countries within the two zones. They showed that trade among

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<sup>2</sup> All eight WAEMU countries, which are also ECOWAS members, share a common currency, the CFA franc, which is not used by the other seven member states of ECOWAS.



WAEMU countries is more dynamic than ECOWAS intra-regional trade. These results suggest that membership in a single currency zone (as is the case for the WAEMU countries), influences the intensity of intra-regional trade.<sup>3</sup> However, as numerous other studies have shown, measures beyond common currencies and declarations of free-trade zones are needed to promote greater regional trade: harmonization of structural reforms, rules, and procedures; coordination of macroeconomic policies; and the search for economic complementarities (see Hollinger and Staatz 2015, chapters 11 and 12, for details).

### **3.3. Methods and Data**

In order to identify and attempt to quantify volumes of intraregional trade in cereals, Soulé and Gansari (2010), upon which this chapter draws heavily, analyzed data and information up to 2008 that focused on the work of IRAM in the east (Nigeria and its neighbors), of SADAOC in the central region (Côte d'Ivoire, Ghana, Togo, Burkina Faso, and Mali), and of ENDA-Tiers Monde in the Senegambia region, as well as the efforts of Nigerian universities and the previously-mentioned CILSS program on market access.<sup>4</sup> Since the time of the Soulé and Gansari study, trade dynamics have evolved with the advent of new phenomena such as conflicts with armed groups and residual insecurity in the region, the drop in oil prices, and the relative appreciation of the U.S. dollar against other international currencies, including the Euro. The additional analysis set forth in this chapter updates the Soulé and Gansari finding, drawing mainly upon recent information (2008-2015) collected through the work of FEWSNET, the OECD, FAO, and CILSS relating to cereal balance sheets, price trends, and cross-border flows (Bauer et al. 2010; OECD 2013; CILSS – AGRHMET 2015; FEWSNET and CILSS 2015; FAOSTAT 2016).

The trade of cereal products in West Africa is well documented. The methodological approach consisted of reviewing the literature on intra-regional trade to determine the composition, volume, and direction of cereal trade flows in the region. Analysis was difficult because of the instability of flow directions and prices from one year to the next and because of policy measures taken by national governments, which encouraged operators to stay in the informal sector to avoid the measures. These factors weakened the reliability of the statistical data.

Historical benchmarks in the literature made it possible (when data were available) to cull information from the 1980s to the present day to: (i) analyze production dynamics for the main cereals (millet, sorghum, maize, and rice) and cowpeas, as well as the direction of flows, their magnitude, and changes observed; (ii) analyze consumption centers relative to demographic and settlement dynamics; and (iii) map trade patterns that clearly depict flows amongst Sahelian countries and flows between Sahelian and coastal countries.

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<sup>3</sup> This conclusion needs to be nuanced, however, as Côte d'Ivoire, a WAEMU country, trades more with Nigeria (a non-WAEMU country) than with any other country in WAEMU. It should be noted, however, that Côte d'Ivoire and Nigeria have the two largest economies in West Africa, so it is not surprising that they have strong trade relations with each other.

<sup>4</sup> See Soulé and Gansari (2010) for details.

### 3.4. Results

#### *Overall Dynamic of Consumption Centers*

West African demand for cereals has changed over the past 30 years in response to three main factors (Hollinger and Staatz 2015):

- a very swift increase in population (2.6% per year for the ECOWAS zone, with spikes of 3% in some countries) accompanied by profound changes in settlement patterns and eating habits;
- the booming demand from the agri-food industry, which is expanding rapidly despite the high-price crisis; and
- the demand for animal feed.

According to the OECD (2013), the population of West Africa, which was estimated at 77.6 million in 1960, rose to 132.3 million inhabitants in 2000, and reached approximately 300 million in 2010. Analysts project that West Africa will be home to 353 million residents in 2025 and 455 million in 2030. This dynamic, combined with urbanization, the growing purchasing power of a significant portion of the population, and the effects of food aid, has caused a profound, long-term transformation in eating habits. These phenomena have expanded consumption of many foods, such as rice and wheat products, for which the region is a large net importer.<sup>5</sup> The changes, however, have not been uniform across all of West Africa. Dietary patterns, while slowly converging across the region, remain segmented geographically, with the coexistence of two main consumption zones having quite distinct characteristics, as illustrated in Figure 3.1.

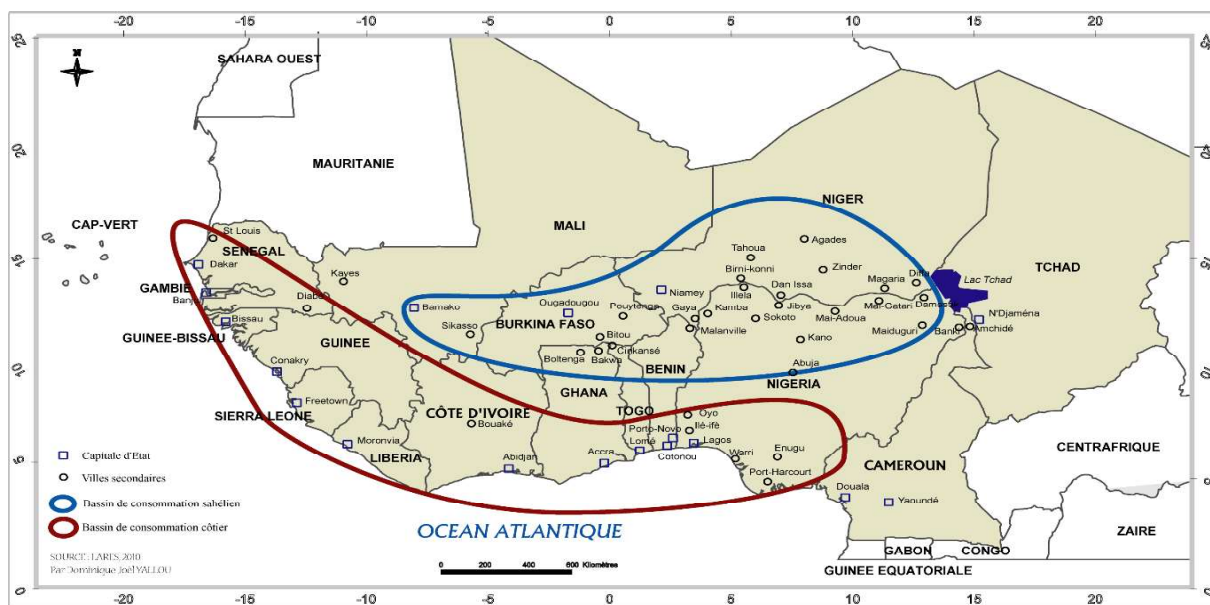
The *Sahelian basin* encompasses the large urban areas that range from northern Nigeria to Niger, Burkina Faso, and Mali. This basin is characterized by the prevalence of a consumption model that is strongly dominated by local cereals, including millet, sorghum, and rice, which have been supplemented in recent years by maize. The average cereal consumption per capita in this region is 220 kg. The share of local cereals in the total volume of cereals consumed often exceeds 60% and can range as high as 70% to 80% in certain countries, such as Niger and Mali.

The *coastal basin* corresponds to a region that stretches from southern Nigeria to Senegal. It is the most urbanized area of West Africa and includes the vast conurbation that extends from Abba in southeast Nigeria to Abidjan in Côte d'Ivoire. This basin has seen a marked change in the eating habits of its inhabitants, who are gradually replacing tubers and roots (yams, sweet potatoes, and cassava) with cereals, most of which are imported from the international market. The demand for cereals for other uses (agrifood industry and animal consumption) has also risen in this zone. This demand, which is essentially for maize, is quite substantial in countries such as Nigeria, Côte d'Ivoire, Ghana, and Senegal.

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<sup>5</sup> See Part II of this volume.

Figure 3.1 Main Consumption Centers



Source: Soulé and Gansari (2010).

The dramatic rise in food prices on the international market in 2007-2008 was transmitted to the food markets in West Africa, with increases in the prices of both imported and locally produced staples, though to a lesser extent for the latter (Diallo, Dembélé, and Staatz 2010).<sup>6</sup> The region is generally self-sufficient in local cereals (millet, sorghum, maize), roots and tubers (cassava, yams, sweet potatoes, etc.), and fruits and vegetables.

Measures taken to stimulate food crop production in response to the crisis, along with the good rainfall recorded in 2008, led to a 28% increase in the region's maize production in 2008 over average production levels from 2000 to 2007. Despite increases in rice production in 2008 (up 35% compared to 2000-2007) and 2009 (up 14% over 2008), the region still has a rice deficit. This structural deficit persists despite the region's production potential. With the exception of Mali, which produces about 75% of its consumption on average, the rate of rice self-sufficiency ranged from 15% in Niger to 41% in Togo over the period 2001 to 2009 (Taondyande and Songré 2011).

### ***Overall Dynamics of Cereal Production Basins***

The response of the domestic cereal supply to demand in West Africa has been relatively strong, but not enough to meet fully the growing demand for cereals. Thus cereal imports rose from 39% of food imports in 1990 to 41% in 2010 (Hollinger and Staatz 2015). Since the 2008 crisis, however, growth of production of some staples has accelerated. Between 2009 and 2013, the annual growth rate in the production of rice, maize, and cassava averaged 7.3% within the ECOWAS region (Table 3.1), driven in part by heavy input subsidies. Production trends for various staples, however, varied strongly by type of staple and country (Table 3.2). To continue robust growth in a financially sustainable way (i.e., not just dependent on subsidies), West African countries must boost agricultural productivity, develop infrastructure, and improve the business climate to attract investments in technological innovations and food processing

<sup>6</sup> See Chapter 8 in this volume.

systems. The objectives of the ECOWAS agricultural policy (ECOWAP) align with this strategy, but West Africa has still made only partial progress with regard to adopting the strategies and political commitments necessary to implement it (Hollinger and Staatz 2015).

In addition to the productivity gains achieved for rice and maize, the expansion of their production zones since the increase in food prices in 2007-2008 is also noteworthy. The traditional surplus cereal production zones continued their dominance (Middle Belt and northern Nigeria, Mali, and Burkina Faso).

**Table 3.1. Annual Growth Rates in Production, ECOWAS Region: 2009-13**

Commodity	ECOWAS	Nigeria	ECOWAS excluding Nigeria
Rice	7.9%	7.9%	7.9%
Cassava	7.6%	9.5%	4.4%
Maize	6.6%	8.5%	4.6%

Source: Authors' calculations based on FAOSTAT (2016) data.

**Table 3.2. Annual Growth Rates in Production, by Country: 2009-2014**

Commodity	Millet	Sorghum	Maize	Paddy rice
Benin	-	-	+25%	-
Burkina Faso	0%	+12%	+59%	+63%
Ghana	-	-	+9%	-
Mali	+23%		+18%	+11%
Nigeria	-72%	+28%	+23%	+90%
Niger	+25%	+93%	-	-

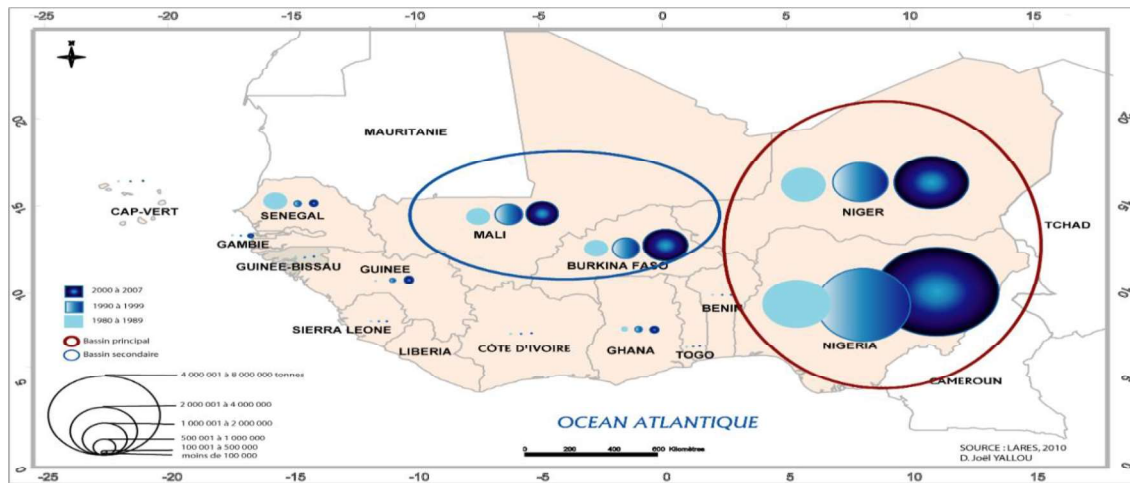
Source: Authors' calculations based on FAOSTAT (2016) data.

Nigeria is by far the largest overall cereals producer; in a normal year, it grows about 40% of all West African cereal output (FEWSNET and CILSS 2015).

*Millet production* remained concentrated in the Sahelian countries, especially in northern Nigeria, Niger, Burkina Faso, and Mali (Figure 3.2). This basin's share in total regional output edged up from 69% in 1980-1990 to 73% in 1990-2000 and 74.5% between 2000 and 2006. Millet and sorghum production is highly variable and strongly correlated with rainfall.

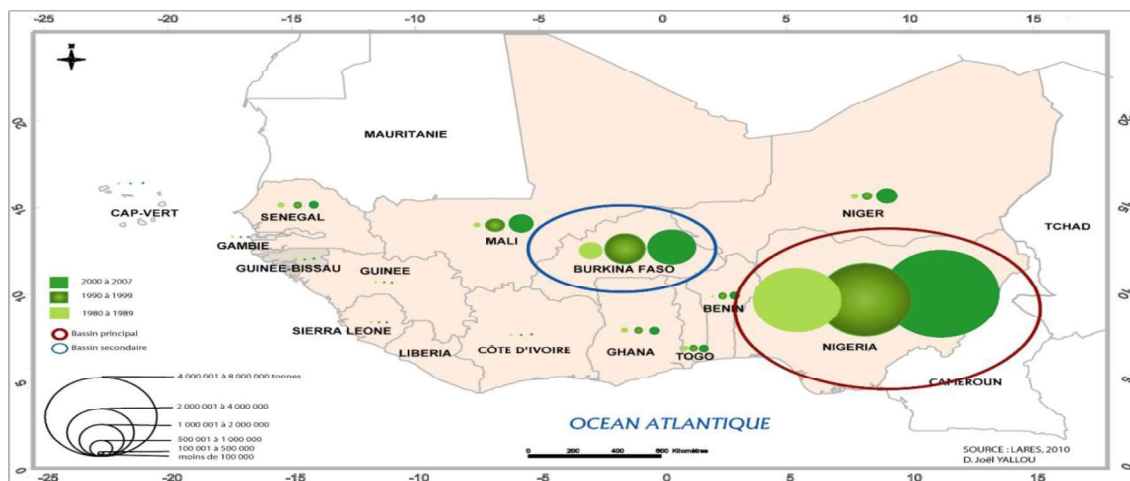
The *sorghum production basin* is less homogeneous than the millet production area (Figure 3.3). Two countries, Nigeria and Burkina Faso, are the main producers and have contributed in virtually the same proportions for 30 years; they are trailed by Mali and Niger. Niger saw a slight improvement in its output between 1980 and 2006.

**Figure 3.1. Dynamics of Millet Production Basins in West Africa (1980-2007)**



Source: Soulé and Gansari (2010).

**Figure 3.2. Dynamics of Sorghum Production Basins, 1980-2007**



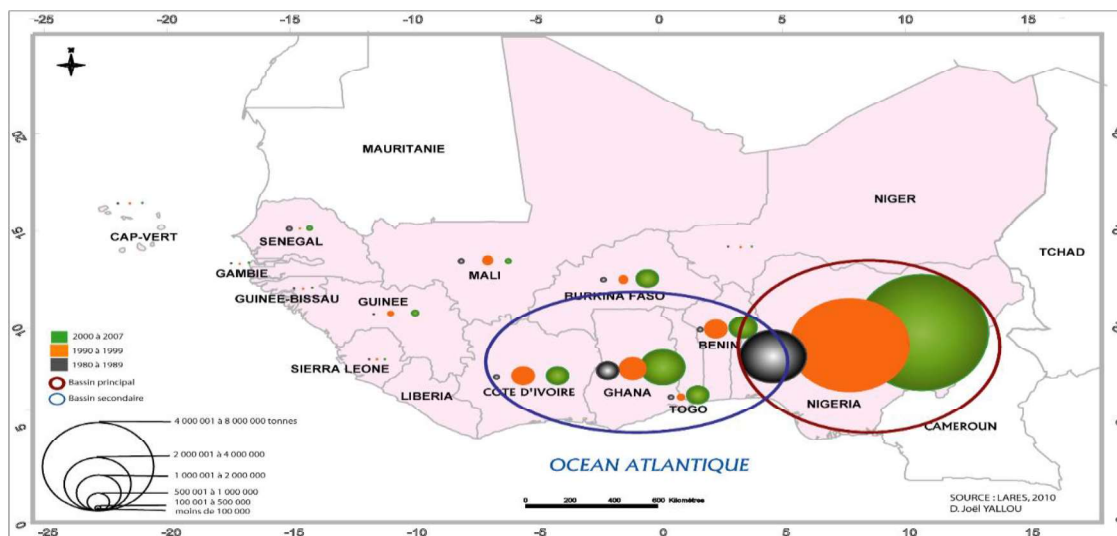
Source: Soulé and Gansari (2010).

*Maize production.* Under the influence of cotton production programs, which also support (directly or indirectly) maize growing, the maize production basin (Figure 3.4) has expanded into inland production regions in the last few years, including areas that traditionally grew millet and sorghum. Nevertheless, maize production is still concentrated mainly in the coastal countries, i.e., Nigeria, Benin, Togo, Côte d'Ivoire, and Ghana, which supply between 83% and 90% of the region's maize output. Southern Mali and southwest Burkina Faso also saw relative growth in their production since 2009.

*Rice production* (Figure 3.5) is less concentrated than the production of other cereals, although there are three well-defined basins. The leading basin is indisputably Nigeria, which supplies over 40% of regional production. The second basin is composed of Guinea and Mali, which currently produce about 30% of regional supply. The third, less significant, basin comprises Côte d'Ivoire and Liberia. Before the 2007-2008 rice crisis, these basins all had a rather weak dynamic, due essentially to: (i) the slow transformation of production systems, which were mostly dominated by small family farms; (ii) the low rate of use of inputs (underuse of

fertilizers and improved seed); and (iii) limited mechanization. Since 2008, these basins have been targeted with significant investments, leading to major advances in yield improvement (Diagne 2011; Hollinger and Staatz 2015).

**Figure 3.3. Dynamics of Maize Production Basins, 1980-2007**



Source: Soulé and Gansari (2010).

*Cowpea production* occurs primarily in three countries: Nigeria, Niger, and Burkina Faso, which account for over 70% of worldwide production of the legume. Production of cowpeas, perceived as the food of the poor, has been booming in some countries, especially in Niger, over the last ten years. Cowpea production tripled thanks to government incentives.<sup>7</sup> Indeed, Niger's domestic supply surged from an average output of between 250,000 tons and 300,000 tons per year through the late 1990s to more than one million tons in 2008 and 2009.

Table 3.3 in the Appendix gives more details about the basins by country. In general, yields for all four of the major cereals (maize, sorghum, rice, and millet) produced in the region are still very low at about 1,179 kg per hectare compared to 6 tons to over 12 tons in Asia and Europe for wheat, maize, and rice.

### ***Dynamics of All Regional Trade in Cereals and Cowpeas***

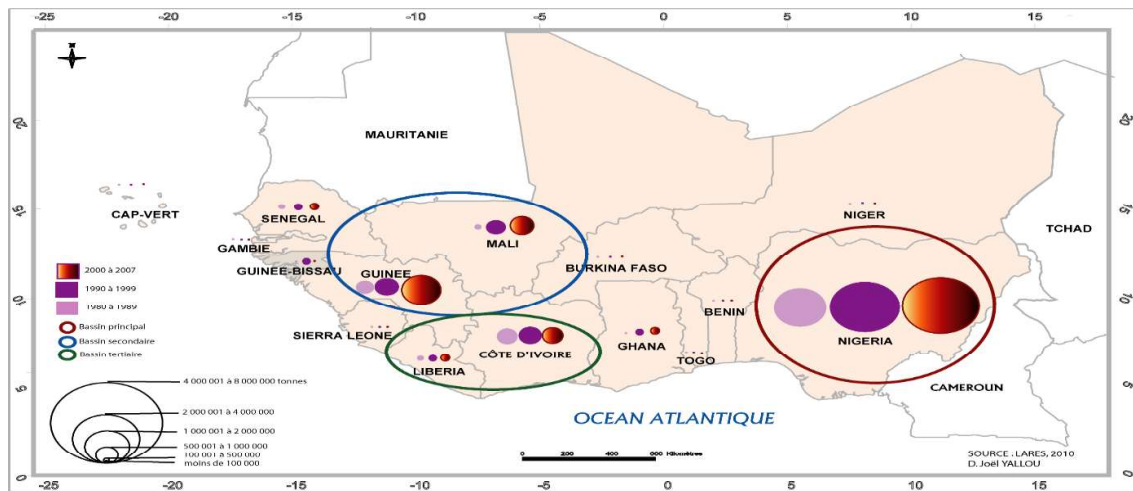
The West African road and railway network suffers from dilapidated infrastructure. Due to the long distances and the poor state of roads, it is mostly nearby countries that trade with one another through five trade areas, which are shown in Figure 3.6.<sup>8</sup>

- The Western Basin (Mauritania, Senegal, Guinea-Bissau, Gambia, Guinea, Sierra Leone, and Liberia) is marked by flows of local rice, plus millet and sorghum.

<sup>7</sup>In 2007, the government of Niger decided to encourage cowpea production by buying at an incentive price of 25,000 CFAF per 100-kg bag compared to the 12,000 CFAF to 15,000 CFAF offered by traders in periodic markets.

<sup>8</sup> See also FEWSNET and CILSS (2015).

Figure 3.4. Dynamics of Paddy Rice Production Basins, 1980-2007



Source: Soulé and Gansari (2010).

- The Eastern Basin (Chad, Niger, Nigeria, and Benin) sees major flows of millet, sorghum, maize, cowpeas, and re-exported rice. More than 60% of local cereal transaction flows for all of West Africa occur in this space.
  - The Nigeria-Benin-Togo-Ghana conurbation zone has low maize flows and between 300,000 tons and 500,000 tons of re-exported rice from Benin to Nigeria.
- The Sahel Belt is characterized by millet/sorghum flows between Mali, Mauritania, Burkina Faso, Nigeria, and Niger.

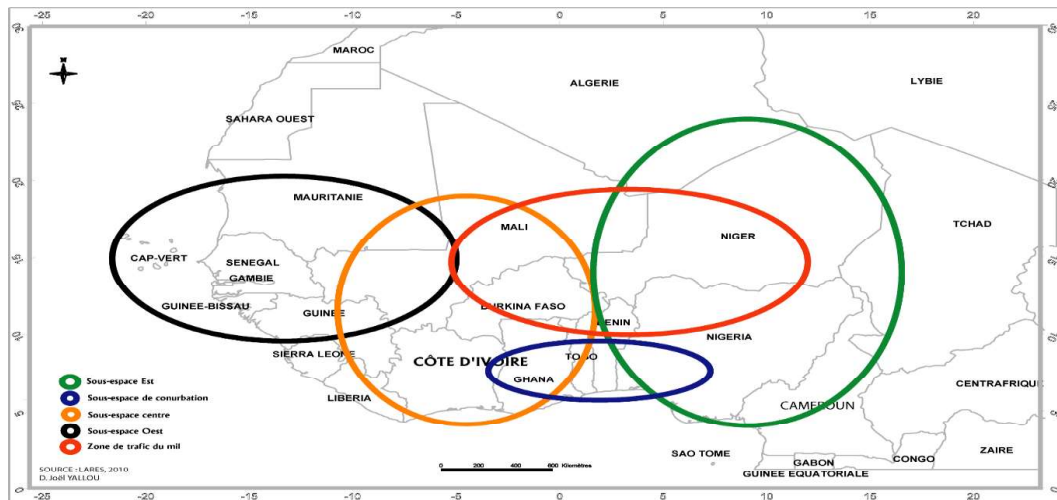
Regional trade in cereal products has intensified since the 1970s because of the famine crises that rocked the Sahelian region, changes in eating habits and increased output. Regional trade flows are supplied by both regional products and those imported from the international market.

The dynamics behind these transactions reveal:

- Strong growth in infra-territorial flows arising from the increasingly extensive connections between production basins and the consumption centers created by rampant urbanization and by industrial and animal feed demand.<sup>9</sup>
- Accentuation of spatial and structural segmentation of the market, which manifests itself in two ways: pronounced differences in the types of flows occurring in different areas and the increasingly marked presence of imported rice in urban cereal transactions.
- Interruption in the long period of relative stability in food product prices in general and in cereal prices in particular, linked to the overall trends in the international market. Indeed, the traditional inter-seasonal and annual fluctuations in local cereal prices were exacerbated by the brutal spike in import prices beginning in late 2007 and early 2008.

<sup>9</sup>Infra-territorial trade refers to trade within an area smaller than the entire West Africa region, such as trade within a greater urban area, within a rural area, or within a subnational unit, such as a Department.

Figure 3.5. Cereals Trade Areas in West Africa



Source: Soulé and Gansari (2010).

Locally produced rice moves very little within the region because of two constraints: the supply shortage and the mediocre quality of rice milled by West African facilities. While the precise volume of regional trade is unknown because so few flows are recorded, official statistics since the crisis—from all sources combined—point to a significant increase in rice, wheat, and wheat flour imports. For example, according to FAOSTAT (2016), total cereal imports in West Africa rose from 10.8 million tons in 2008 to 16.1 million tons in 2013 despite strong growth in regional output. In part, the increase in imports was stimulated by a dramatic decline in world grain prices since 2008. For example, from its peak in April, 2008, the FOB price of the benchmark Thai 25% broken rice fell from US\$904/ metric ton (mt) to US\$354/mt in November, 2016 (World Bank 2016; FAO 2016).<sup>10</sup>

Estimates made by various teams show a relative uptick in Nigerian and Beninese cereal exports to Niger. According to Bauer et al. (2010), "The Sudanian zone ships about 10,000 tons of rainfed cereal to the eastern Sahel each week, a flow that alleviates the region's cereal deficits. Of the 10,000 tons, between 1,500 and 2,000 tons are supplied by Benin, the rest comes from northern Nigeria." That country is still the largest exporter of cereals in the region.

Rice is the leading imported cereal in West Africa. According to FAOSTAT (2016), between 1980 and 1990, rice imports rose from approximately 1.6 million tons to 1.8 million tons, or an increase of 16%. In 2000, they grew to 2.9 million tons, or a 54% increase over 1990. In 2007, they reached 5.5 million tons, or a 92% increase over 2000. In 2008, they slipped to 5.4 million tons, for a decrease of 1.5% compared to 2007, due largely to the increase in import prices. After 2008, imports continued to rise. In 2013, they grew to 8.4 million tons, or a 54% increase over 2008.

Imports of wheat and wheat flour were considerably lower than those of rice, although their pattern of increase was similar to that of rice through 2005. According to FAO statistics, wheat and wheat flour imports grew by 290% between 1980 and 2005 before declining by about 25% between 2005 and 2007. Over the period 2004 to 2006, imports of cereals and derivatives,

<sup>10</sup> As noted below, the appreciation of the U.S. dollar relative to major West African currencies between 2008 and 2016 made this price decline less dramatic in terms of West African local currencies.



including wheat flour, accounted for about 18% of the gross total supply of cereal products in the region. This proportion reached approximately 20% in 2008 because of the rise in tax-free rice imports to resolve the food crisis caused by soaring commodities prices. The re-exports that originated in the 1980s from disparities in trade and tax policies and involved about 10 countries, are increasingly restricted to the eastern sub-region. The amount of rice re-exported by Benin to Nigeria ranges from 150,000 tons to 400,000 tons per year and Niger re-exports between 100,000 tons and 150,000 tons of rice and wheat flour to Nigeria (Soulé and Gansari 2010).

### ***Impact of Recent Changes: Dollar Appreciation and Growing Insecurity***

Since 2008, the strong appreciation of the U.S. dollar relative to West African currencies and the growing insecurity in the region due to jihadist and terrorist actions have both affected regional trade and food prices in the region.

*Recent changes in exchange rates.* Between April, 2008 (the period of peak world cereal prices) and November 2016 the U.S. dollar appreciated by 31% relative to the CFA franc and 140% compared to the Niara. This appreciation to some extent offset, in local currency terms, falling world cereal prices over this period, which are typically denominated in U.S. dollars. Thus, while in U.S. dollar terms the FOB price of 25% Thai broken rice in November 2016 was only 39% of its peak price of April, 2008, it was 56% of that level when measured in CFA francs and virtually the same level (101%) when measured in terms of Naira.<sup>11</sup> The fall in the value of local currencies relative to the dollar therefore offered some protection for local cereal producers from competing imports. The CFA franc has a fixed parity with the Euro, so its exchange rate with the U.S. dollar is completely out of the hands of the eight West African countries that use this currency. The Niara's value is strongly influenced by the price of petroleum, which is also largely outside of Nigeria's control. Thus, should the U.S. dollar depreciate in the future relative to the Euro/CFA franc or the Niara, these countries would face the full brunt of future declines in world cereal prices. This observation emphasizes the importance of these countries taking actions over the variables they can control (such as improving yields and reducing marketing costs) to ensure their future competitive position relative to cereal imports.

*Growing insecurity.* The security crises (e.g., Boko Haram in Nigeria, the Malian crisis) and the political tensions and their repercussions in the region have significant effects on economic activities and West African intra-regional trade. In the conflict areas, many farms are abandoned and thefts of livestock and the recurrence of conflicts between crop farmers and herders have increased. The effects of this situation are reflected in the food prices and the cost of transport. According to Fan (2016), "The price of food products and the intensity of civil conflict are linked: the number of consecutive months during which the price of food products were abnormally high from 2000 to 2013 is highly correlated with both the number of situations of violent civil conflict and the number of deaths due to these events." The displacement of people has led to the reduction of food products coming from these production areas and an increase in the demand for food in urban areas in the conflict zones, which are relatively more secure. According to the FAO and WFP, "About 6.7 million people are affected by food and

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<sup>11</sup> FOB rice prices are taken from World Bank (2016) and FAO (2016). Exchange rates are taken from [www.oanda.com/currency/converter/](http://www.oanda.com/currency/converter/).

nutritional insecurity, of which 4.2 million are displaced persons in the Sahel and in West Africa because of civil insecurity that is striking the Lake Chad Basin, northern Mali, Libya, the Central African Republic, and Sudan.” Price increases stem in part from the shortage of products coming from northern Nigeria and the impossibility of certain countries (Niger, Chad, and Cameroun) to export their products there, affecting the balance of trade in this area (FAO and WFP 2016).

### ***Institutional Dynamics of the Regional Cereal Market***

The existing literature on the West African market focuses on the roles of stakeholders, on flows, and on overall price trends, all of which paint a clearer picture of how trade works. Analyses rarely address the institutional framework, which, while certainly disparate across different countries, is evolving markedly. Indeed, the institutional and regulatory framework underlying cross-border transactions in agrifood products in general and cereal products in particular, has changed dramatically over the past 30 years. There have been significant changes in the regional market, in both national and regional regulations and regarding where and how stakeholders organize and intervene (Soulé and Gansari 2010).

*Changes in the regulatory framework.* Liberalization in the 1990s pushed governments to remove themselves from marketing operations and resulted in the elimination of import monopolies and price controls. At the regional level, ECOWAS and WAEMU, the two institutions in charge of the regional integration process, implemented market liberalization schemes that, in the case of the WAEMU, culminated in a customs union that has been up and running since 2000. However, although the market liberalization process within ECOWAS began in 1993 and concluded in 2000, there are still challenges to the customs-free movement of agrifood products (Soulé and Gansari 2010; Hollinger and Staatz 2015).

In the West African cereals market networks, the ways and levels at which market actors intervene evolved considerably in response to: (i) the growing regionalization of markets; (ii) steadily rising imports; and (iii) the development of road infrastructure connecting cities in different countries.

*Traditional networks.* Traditional networks have emerged as essential players in the cross-border cereals trade. The most prominent one is the Hausa network, which extends to Nigeria, Niger, northern Benin, Cameroon, Togo, and Ghana. Participants in these networks have developed a strong capacity for market regulation (early cereal collection, storage), which sometimes causes government authorities to liken them to *disreputable speculators*, or even *famine brokers*, during food crises.

There are usually three to four *cereal importers* who dominate each national market; these merchants are generally affiliated with major international corporations, for which they serve as the local outposts. These merchants have close ties to the government, strong financial backing and extensive storage and transportation infrastructure, all of which enables them to exert influence over the functioning of the local market. Analysts have pointed to these importers as the major beneficiaries of the tax exemption status granted to imports by public authorities during the 2008 crisis. These cereals merchants acted with little transparency and passed on only a small share of the tax-exemption measures to consumers, instead preferring to boost their profit margins (Soulé and Gansari 2010).

*Producers are often organized* into marketing structures, such as cereal banks, warehouse receipt systems, and mini-commodity exchanges, to ensure better market access for their output. The scope of these structures rarely exceeds the production basin in which they exist, but they are likely to play an important role in activating the market regulation instruments planned as part of the implementation of ECOWAP, especially when it comes to supplying cereals to *regional storage operators* and the planned regional commodities exchange (ECOWAS Commission 2012).

*Public grain boards and aid agencies*, such as the World Food Program, make purchases either from public production agencies, from national grain merchants or from producers, who may or may not be organized into associations, under the management or supervision of said agencies. The overall volumes purchased are still modest, but they play an important educational role in promoting market performance.<sup>12</sup> Purchases are made in conformity with technical specifications that define, in addition to quantity, the quality standards and deadlines to be met.

### **3.5. Conclusions and Policy Implications**

The West African cereals market has undergone significant changes over the past 30 years. The overall structure of the supply of cereal products has experienced major changes in quantity and quality. In addition to the remarkable rise in domestic production, which tripled, imports from outside Africa also increased by approximately 500% over the same period. Over the period 1980 to 1982, foreign cereal volumes accounted for about 18% of the region's total supply, whereas they comprised 21.5% of available cereals from 2006 to 2008. In this regard, the region's food dependence rose despite efforts made to bolster regional production.

However, the structure of demand is still not thoroughly understood. For example, cereal-based animal feed for livestock and poultry farms has contributed to the growth in cereal consumption. The demand for cereals has become very complex because of intense segmentation and changes in the eating habits of an increasingly large swathe of the population.<sup>13</sup> Indeed, little is known about substitutions between local cereals and imported cereals, which are more and more common on local markets.

Infra-territorial flows significantly exceed regional flows, which are related to the rise in urban demand (40% of the region's population), the use of cereal for other purposes, improvements in geographic access, and proactive policies implemented by government authorities. The slow growth in regional trade compared to infra-territorial flows can also be attributed to the many shortcomings of the regional market and to the obstacles that still hinder the movement of products. Very few political leaders in the region believe in the ability of the regional market to play a meaningful role in resolving the cyclical food insecurity problems that face their countries.

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<sup>12</sup> See Chapter 12 in this volume for more details.

<sup>13</sup> See Part II of this volume.

One question, however, is on everyone's mind: In the medium- and long-term, how can the lack of an assured market for West African producers (e.g., weak tariff protection and tax-exempt imports) be reconciled with the stated strategy of fostering a lasting recovery in regional cereal production? It seems that government authorities must address two concerns that are occasionally at odds with one another: meeting the immediate needs of urban consumers and raising the income of smallholders by boosting output and promoting the regional market. The only long-term solution to this food price dilemma is to increase productivity throughout the agrifood system, which can permit farm incomes to grow while still keeping food affordable for consumers.

## Appendix

**Table 3.3. Main Cereal Production Basins in West Africa**

Country	Main Cereal Production Basins*	Comments
Benin	Borgou department 1, 2, 3; Alibori department 1, 2, 3; South Benin 3: Ilara, Sakété-Pobè, Ketou area); Ouémé Valley 4 (Bonou, Adjohoun, etc.); Malanville area 4; Niger and Sota valleys; Koussin Lélé area 4; Covè and Zagnanado	Abundant maize production but output for other cereals is low. Rice production in the areas developed as part of agricultural promotion projects
Burkina Faso	Tapoa Province 1, 2, 3; Boucle du Mouhoun 1, 2, 3; Hauts-Bassins 3, 1, 2; Cascades 3 (on border with Côte d'Ivoire)	Abundant millet and sorghum production
Cape Verde	ND	Maize monoculture
Côte d'Ivoire	Northern Côte d'Ivoire 3	Abundant maize and rice production
Gambia	Senegambia basin 1, 4, 2, 3	High maize production, low for other cereals
Ghana	ND	Significant production of maize and rice
Guinea-Bissau	Senegambia basin 4, 1, 2, 3	Significant maize production and low production for other cereals
Guinea-Conakry	Fouta Djallon area 4	Very abundant rice and maize production, but low output for other cereals
Mali	Southern Mali (cotton zone) 2, 3; Sikasso Region 3; Ségou Region 1; Koutiala area 2; Kayes Region 2; Niono area 4	Abundant production of millet, sorghum, and rice
Mauritania	Rosso-Mauritania area 4	Relatively abundant rice production concentrated in the rice-growing areas
Niger	Lake Chad basin 4; North-Central Maradi 1; North-Central Zinder 1; Along the Niger River 4; Diffa Region 3	Abundant production of millet, sorghum, and cowpeas (alternative crop to millet and sorghum)
Nigeria	Niger Plateau states 2, 3; Lake Chad basin 3; Sokoto State 3; Kano State 3; Adamawa State 3; Borno State 1, 4; - Kebbi State 1, 4	Nigeria is the largest producer in West Africa of all studied cereals
Senegal	Senegal River area 4; Boundoun and Debi areas (in the Delta) 4; Mbagam and Waalo areas 4; Rosso area 4; Nioro du Rip 1; Kaolack region 1 (groundnut and millet basin)	Abundant rice production concentrated in the rice-growing areas of the Société d'Aménagement et d'Exploitation du Delta (SAED)
Togo	Centrale region 3, 2; Kara Region 3, 2; Savane Region 3, 2, 1; Maritime Region 4	Significant maize production and relatively low production for other cereals

Source: Soulé and Gansari (2010). \* Cereals key: 1 = millet, 2 = sorghum, 3 = maize, 4 = local rice (paddy).

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