Food Market Demand & Competitiveness

West Africa Region Report

Analyzing food demand trends, competitiveness of domestic supply chains to develop strategies in enhancing trade flows of key food crops in Southern, East, and West Africa.

JULY 2021

WWW.AGRA.ORG

Acknowledgement

This report was prepared by Cardno in consortium with International Economics Consulting Ltd. The authors of the report are Veepin Bhowon, Paul Baker, Neetish Hurry and Pablo Quiles.

The objective of this consultancy is to inform AGRA (and indirectly its partners) on prioritizing and better targeting its interventions in terms of geography, food commodities, and points of leverage in the market system per region to capitalize on latent opportunities to grow intraregional food trade.

We acknowledge that this consultancy was funded by the UK Government's Foreign, Commonwealth & Development Office (FCDO)[1] through the Africa Food Trade & Resilience Programme. The opinions expressed in this report are those of the authors and do not reflect the official policy or position of the UK Government's FCDO, the Alliance for a Green Revolution in Africa (AGRA) and PIATA partners, their employees, or its affiliates in any way. While AGRA has made every effort to ensure the accuracy and completeness of the information entered in this report, we assume no responsibility for any errors, inaccuracies, omissions or inconsistencies included herein.

The authors would like to gratefully acknowledge AGRA staff, whose contribution in stimulating comments, suggestions and support has helped to improve this report. In particular, we would like to thank Dr. Apollos Nwafor (Vice President – Policy & State Capability, AGRA), Daniel Njiwa (Head – Regional Food Trade, AGRA) and Sunil Dahiya (Senior Program Officer – Markets Regional Food Trade & Resilience, AGRA) for their useful comments and suggestions throughout the study.

The Cardno team would also like to thank Watipaso Mkandawire and Dave Watson from FCDO team who has been instrumental in providing useful comments and suggestions throughout the study.

Finally, we would like to thank all other people and institutions, who have provided support in various ways towards the preparation of this report.

1 *The programme started in 2019 under the Department for International Development, which merged with Foreign and Commonwealth Office to become FCDO on Sept 2 2020.*

Contents

List of Tables

List of Figures

Acronyms

AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
ANaCoR-BF	National Association of Rice Traders of Burkina Faso
ANADER	l'Agence Nationale d'Appui au Développement Rural, Cote d'Ivoire
API	Agency for the Promotion of Investment, Mali
ASARECA	Agricultural Research in Eastern and Central Africa
AU	African Union
BCEAO	Central Bank of West African States
BMGF	Bill & Melinda Gates Foundation
CAGR	Compound Average Growth Rate
CFAF	CFA franc
CGIAR	Consultative Group on International Agricultural Research
CIF	Cost Insurance and Freight
CIP	Crop Intensification Program
CMDT	Compagnie malienne pour le développement du textile, Mali
CNRA	National Agricultural Research Department
COMESA	Common Market for Eastern and Southern Africa
CPC	La Centrale des Producteurs de Céréales du Togo
CPO	Crude Palm Oil
DARS	Degree Audit Reporting System
DATCO	Dutch agricultural trading company
DGIs	Dutch Ministry of Foreign Affairs
DNA	National Directorate of Agriculture
EAC	East African Community
EAGC	Eastern Africa Grain Council
ECOWAS	Economic Community of West African States
EPA	Economic Partnership Agreements
EPAR	European Public Assessment Report
EPCDM	European Centre for Development Policy Management
ESOP	Entreprises Services et Organisations Paysannes
ETD	Entreprises Territoires et Développement
EU	European Union
EUR	Euro
EWS	Early Warning Systems
FAGE	Federation of Association of Ghanaian Exporters, Ghana
FAO	Food and Agriculture Organisation
FARA	Forum for Agricultural Research in Africa
FCDO	Foreign Commonwealth and Development Office
FDA	Foods and Drugs Authority
FEWS Net	Famine Early Warning Systems Network
GAIN	Global Alliance for Improved Nutrition

GDP	Gross Domestic Product
GEPA	Ghana Export Promotion Authority
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoBF	Government of Burkina Faso
IDA	International Development Association
GoT	Government of Togo
GSA	Ghana Standards Authority
GSID	Ghana Seed Inspection Division
HORTIVAR	Horticulture Cultivars Performance Database
HPAI	Bird Flu
HS	Harmonized System
ICCFO	International Cocoa Farmers Organization
ICCO	International Cocoa Organisation
IFDC	International Fertilizer Development Centre)
ICT	Information and Communications Technology
IER	Institut d'Economie Rurale, Mali
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture, Tanzania
IPC	Integrated Food Security Phase Classification
IS	Intervention Stock
ITC	International Trade Centre
ITRA	Institut Togolais de Recherche Agronomique
JICA	Japan International Cooperation Agency
MAFAP	Monitoring and Analysing Food and Agricultural Policies
MIGA	Multilateral Investment Guarantee Agency
MIS	Market Information Systems
MMT	Million Metric Tonnes
MoFA	Ministry of Food and Agriculture, Ghana
MoU	Memorandum of Understanding
MT	Metric Tonnes
NABC	Netherlands-African Business Council
NaCCRI	National Crops Resources Research Institute
NARO	National Agricultural Research Organisation
NBSSI	National Board for Small Scale Industries, Ghana
NDP	National Development Plan
NGO	Non-Governmental Organisation
NTB	Non-Tariff Barriers
OECD	Organisation for Economic Co-operation and Development
OHVN	Upper Niger Valley Rural Development Authority
PARFACI	Projet d'appui à la relance des filières agricoles de Cote d'Ivoire
PCDA	Programme Compétitivité et Diversification Agricoles

PKO	Palm Kernel Oil
PNIASAN	National Program for Agricultural Investment and Food and Nutritional Security
RNA	National Census of Agriculture
SADC	Southern African Development Community
SAKSS	Strategic Analysis and Knowledge Management System
SME	Small and medium-sized enterprises
SNDCV	National Strategy for the Development of Food Crops other than Rice
SNS	National Food Security Stock
SONAGESS	National Society of Security Stock Management
SPS	Sanitary and Phytosanitary Measures
SRID	Statistics, Research, and Information Directorate, Ghana
TFP	Total factor productivity
UCOOPEXCI	l'Union des coopératives exportatrices de café et de cacao de Côte d'Ivoire
UIREVI	Union Inter-Regionale Victoire
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNERIZ	National Union of Steamers of Burkina rice
UNPRB	National Union of Rice Producers of Burkina Faso
UROPC	Union Régionale des Organisations des Producteurs de Cérélaes
USAID	United States Agency for International Development
USD	United States Dollar
USDA	United States Department of Agriculture
WAAPP	West Africa Productivity Program
WAEMU	West African Economic and Monetary Union
WB	World Bank
WCFO	World Cocoa Farmers Organisation
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
ZEF	Center for Development Research

1. Introduction

Agriculture forms a significant portion of the economies of all African countries and, as a sector, it can contribute towards major continental priorities, such as eradicating poverty and hunger, boosting intra-Africa trade and investments, achieving rapid industrialization and economic diversification, sustainable resource and environmental management, and creating jobs, human security, and shared prosperity. This is critically true today since close to 70% of the African population is involved in agriculture as smallholder farmers working on parcels of land that are, on average, less than two hectares. As such, agriculture remains Africa's surest bet for growing inclusive economies and creating decent jobs, especially for the youth. While its importance to the rural population is well documented, recent surveys suggest that agriculture is also the primary source of livelihood for 10% to 25% of urban households.

Agricultural exports are also a key source of revenue and foreign exchange earnings, as well as of inputs for the manufacturing sector. The agro-food sector is the biggest direct employer of all manufacturing industries in the region. Population growth, rapid urbanization, rising income, and shifting diet habits suggest that demand for food in the region will increase as well. Despite the potential and vast opportunities, intra-regional trade in agriculture products remains consistently low compared with inter-continental trade. Market fragmentation, lack of infrastructure, monetary, tax, and trade fragmentation, and red tape for traders are some of the major constraints that limit the region's trade potential. There is a need to boost intra-regional trade in agriculture to counter potential negative impacts from the international market.

The present study has been carried out to support Alliance for a Green Revolution in Africa (AGRA) in framing its future work plan in the context of the Africa Food Trade and Resilience Initiative. Its objective is to inform AGRA and its partners on prioritization and better targeting of its interventions in terms of geography, food commodities, and points of leverage in the market system to capitalize on latent opportunities in growing intra-regional food trade. The aim is to provide the foundation for a framework to prioritize work on trade, infrastructure, energy, and investment along promising economic corridors with strategic significance to food and agriculture.

The methodology relies on a meta-analysis of publicly available information, complemented with primary data collection while mapping all relevant elements of the value chains of the agriculture products in the selected countries. The geographical focus of the study covers 14 countries[2] that possess natural complementarities in terms of agro-ecologies: complementary market sheds and the existence of trade infrastructure. The selection of product focus is based on a combination of several available or constructed indexes to create a balance between demand and supply. They include the current and forecasted demand, supply, imports, exports, price volatility, etc. The objective is to cater for food security, promotion of intra-regional trade as well as considering essential aspects such as resistance to climate change and change in consumption patterns in the selection of the top value chains to consider.

This report is one of the three regional reports under this study, covering six countries in West Africa.[3] It is divided into nine sections. Section 2 provides an overview of the broader intra-regional trade and food security in the region, highlighting the key trends and challenges experienced. Section 3 provides an overview of the major trade corridors as well as the planned development. Section 4 explains the methodology behind the selection of the top five value chains of interest for the region. Sections 5-9 delve deeper into the selected value chains, by exploring the key patterns in production, consumption, and trade, the regional trade routes (where information is available), the stakeholders, key findings on competitiveness, and constraints. From there, recommendations are made given coping with the challenges.

2 Within the scope of this study, the focus countries are Mozambique, Malawi, Zambia, Kenya, Tanzania, Uganda, Ethiopia, Rwanda, Nigeria, Ghana, Mali, Burkina Faso; Ivory Coast, and Togo.

3 The six countries are Burkina Faso, Cote d'Ivoire, Ghana, Mali, Nigeria, and Togo.

2. Status of intra-regional trade and food security

The agricultural sector holds great significance in the economy of West Africa, representing approximately 35 percent of the region's GDP and 66 percent of the active labor force. The food economy, including all activities from farm level to processing, packaging, transportation, distribution, and retailing, provides jobs for 82 million people across the region. However, the agricultural industry faces several constraints affecting agricultural productivity, such as under-developed linkages between farmers and markets, limited access to affordable and reliable high-quality seeds and fertilizer, lack of information on new farming technologies and best practices, and transport costs which are among the highest globally. Regionally agreed policies are challenging to implement, leading to constraints in cross-border trade.[4]

Demand for food in West Africa is transforming rapidly, supported by strong population growth, urbanization, youth bulge, rising incomes, and changing tastes and preferences. The population in West Africa will reach an estimated 401.8 million in 2020, and it is forecasted that this figure will grow to 501.6 million by 2030, with an urbanization rate of 59 percent. Linked to the increasing purchasing power and rapid urbanization, this bulging population explains the growth in demand for food in West Africa. These trends also explain the greater dependence on imports of food from outside the region. Intra-regional trade in general, including food trade, is still very subdued and faces challenges in meeting the regional demands due to several hurdles, which are mainly non-tariff in nature. The latter has given rise to significant informal trade in attempts to circumvent the non-tariff measures.[5]

Official trade statistics show relatively positive trends of total regional trade where intra-regional imports have been increasing over the last five years. However, the share of ECOWAS intra-regional imports compared to total ECOWAS imports is still very low, at just 7.8 percent in 2018. The share shows a low level of dependence on products from the region but also tremendous opportunities that could be explored to improve supply from the area.

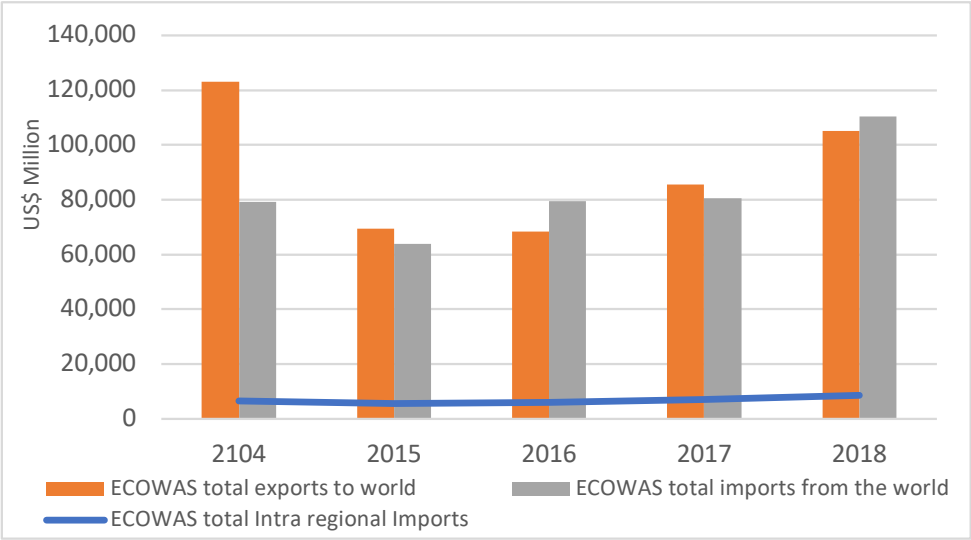
In terms of food trade, Comtrade data indicate that regional food imports have been increasing significantly over the recent years: by 42.6 percent in 2016, 18.1 percent in 2017, and 21.1 percent in 2018. The share of intra-regional imports for food products, however, has been increasing at a much lower rate: by 4.5 percent in 2014 to 7.9 percent in 2018. The products most traded regionally include live bovine and sheep, rice and maize, edible vegetables (onions and beans), and fruits (bananas and cashew nuts). Most studies on informal intra-regional trade in the region suggest that coastal countries (e.g., Côte d'Ivoire, Ghana) mainly export cereals, tubers, fruits, and vegetables to land-locked countries (e.g., Burkina Faso, Mali), who on the other hand, export main livestock to coastal countries.[6]

4 USAID (2019). Agriculture and Food Security. USAID – West Africa Regional, December 27. Available on: https://www.usaid.gov/west-africa-regional/agriculture-and-food-security

5 Torres, C., van Seters, J., Karaki, K., & Kpadonou, R. (2017). An exploratory analysis of measures to make trade facilitation work for inclusive regional agro-food value chains in West Africa, ECDPM, No. 214, August. Available at http://www.ecdpm.org/dp214

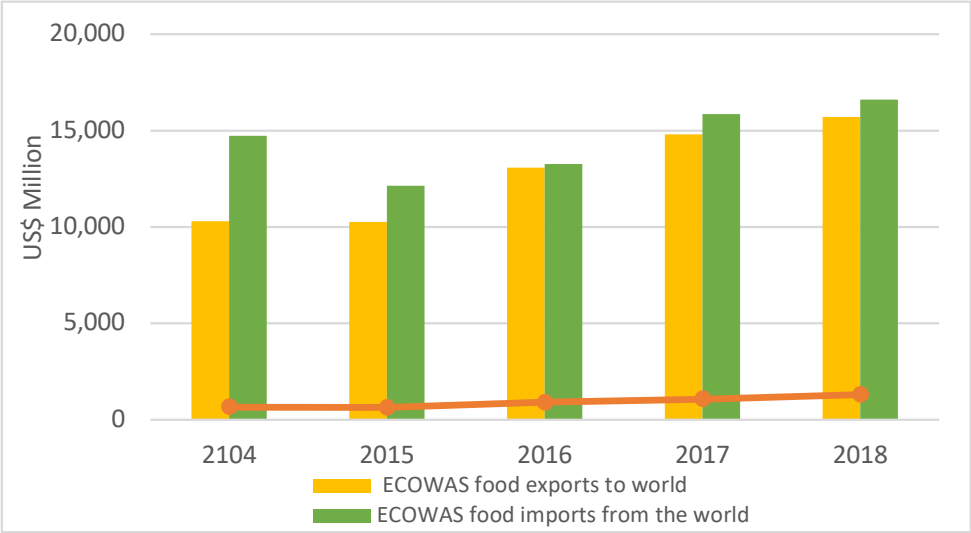
6 Torres, C. & van Seters, J. (2016). Overview of trade and barriers to trade in West Africa: Insights in political economy dynamics, with particular focus on agricultural and food trade. ECDPM Discussion Paper No. 195. Available at http://www.ecdpm.org/dp195

Figure 1. ECOWAS Intra-Regional and Total Trade with the World



Source: UN Comtrade

Figure 2. ECOWAS intra-regional and Total Food Trade with the World



Source: UN Comtrade

The above trends indicate that the West African region is well-positioned to develop further intra-regional trade related to the agricultural sector. The potential also lies in the formalization of the sizeable regional informal agri-food trade, which is estimated to account for up to 75 percent of total trade and is not included in the formal data.[7]

Agriculture lies at the heart of the regional development strategy. The Comprehensive Africa Agriculture Development Program (CAADP) 2014 Malabo Declaration aims to sustain the annual agricultural sector GDP growth rate of 6 percent among all signatory member states to 2025. Additionally, the ECOWAS regional agricultural plan focuses on three core areas: increased agricultural productivity, improved regional trade, and enhanced institutional capacity.

7 World Bank (2015). Connecting Food Staples and Input Markets in West Africa : A Regional Trade Agenda for ECOWAS Countries. Available at https://openknowledge.worldbank.org/handle/10986/2199

Despite their importance and several efforts by both the countries and development agencies, agriculture production and trade in the region are plagued with multiple constraints. The rainfall decrease threatens the future of production in dryland areas. Similarly, economic operators lack the three key elements to ensure the quality of production: selected seeds, fertilizers, and agricultural machinery. The region has experienced a dramatic increase in farmland (nearly 230 percent increase), but which has not resulted in a production increase (which only grew by 70 percent). Slow productivity growth constrains the region's ability to add value to its products and hampers its economic diversification efforts. As reported by the AfDB (2015), "*reliance on subsistence production and weak productivity growth in the agriculture sector prevents the workforce from moving out of this sector into manufacturing and services*".[8] Additionally, the region's exports are subject to a variety of unharmonized taxes, which, linked to the high taxes affecting inputs, foreign exchange regulations, and the high cost of access to energy and financing, reduce the region's agricultural competitiveness.[9] Realizing the region's full agricultural potential may involve palliating the declining soil fertility through the use of fertilizer, increasing productivity through the use of high-yielding seeds, and eliminating market-distorting policies. Specifically, Fuglie and Rada (2013) indicate that the elimination of such distortions would lead to a five percent production increase.[10] Annex 1 provides an overview of the common challenges facing the agricultural sector in West Africa. Some of these challenges are:

Table 1. Key Challenges to Intra-regional Food Trade in Western Africa

Obstacles to production	Constraints related to infrastructure
• Rain-fed production; low fertilizer use; poor quality seeds; inadequate water management; and low soil fertility. • The lack of the transformation and value addition of food staples into agro-industrial food products is mainly due to (a) fragmentation of small-scale transformers, (b) lack of quality control, (c) weakness of the logistics chain, and (d) issues with the cost-effective and reliable supply of raw material for transformation. This would explain the lack of downstream transformation industry in most value chains. • Value chain actors have limited access to market information, related, for example, to prices, demand, service providers, and standards.	• Limitations as a result of physical, infrastructural, and political barriers. Fragmented markets, staple food shortages, and price volatility, and significantly high transportation costs (among the highest in the world). The infrastructure at some land border posts is in a state of disrepair. • Road travel is often burdensome, with numerous checkpoints across trade corridors, which are justified on security grounds. • Harassment and unofficial fees appear to be a regular feature of road travel, and not paying them could lead to deliberate delays by border officials. • Some clearing agents give clients the impression that unofficial payments are official.
Constraints related to the trade measures	**Institutional weaknesses**
• The widespread use of trade-restrictive measures on food staples, such as (a) export and import bans, (b) the use of protective tariffs and nontariff measures such as phytosanitary measures, (c) the use of trade-distorting subsidies, and (d) regulatory standards not applied in transparency and often entirely discretionary.	• Lack of capacity of regional institutions to fulfill their mandates and better serve their member states. A deficit of skills in monitoring and evaluation, financial operations, and coordination. • Lack of knowledge on informal trade makes it difficult for policymakers to address it adequately and effectively.

Source: World Bank (2015) and AfDB (2018)[11]

8 AfDB (2015). Africa Competitiveness Report 2015. African Development Bank.
9 WTO (2017). Trade Policy Review: Members of the West African Economic And Monetary Union (WAEMU). World Trade Organisation, Geneva.
10 Fuglie, K. O. and N. E. Rada (2013). Resources, Policies, and Agricultural Productivity in Sub-Saharan Africa. ERR-145. Washington, DC: US Department of Agriculture, Economic Research Service.
11 AfDB (2018). African Economic Outlook 2018. African Development Bank, Abidjan.

The role of the private sector is crucial for food security in the region as well as for the whole of Africa. It is estimated that 80 percent of Africa's food consumption is marketed and handled through private operators.[12] As such, a vibrant private sector is a powerful market driver for development via the fuelling of innovation, creation of jobs, and poverty reduction.[13] The importance of inclusive public-private dialogue and cooperation at different levels (i.e., local, national, and regional) has been recognized in political frameworks and regional agricultural initiatives. As pointed out by Torres et al (2017), many public-private value chain platforms for structured and regular exchanges exist at local and national levels, but these structures are weak in some value chains and/or countries. At the regional level, many private sector organizations are involved and participate in regional policy processes: Borderless Alliance, the Network of Chambers of Agriculture of West Africa (RECAO), the Association of West-African Agro-Food Exporters (AAFEX), the West-African Grain Network (WAGN or ROAC), the Federation of West African Chambers of Commerce and Industry (FEWACCI), etc. In order to promote more extensive and effective engagement of the private sector in agricultural transformation, support should be made to the public-private value chain platforms by allowing private sector representatives/organizations and companies to be informed and raise their voice in the design and implementation of regional initiatives.[14] An overview of the regional policy for agriculture trade and development in West Africa is presented in Annex 2.

12 AGRA. (2019). Africa Agriculture Status Report: The Hidden Middle: A Quiet Revolution in the Private Sector Driving Agricultural Transformation (Issue 7). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA).

13 Akihiro, N. (2019). The private sector can be a powerful partner in West Africa and the Sahel. World Bank Blog, September 25, 2019. Available at https://blogs.worldbank.org/voices/private-sector-can-be-powerful-partner-west-africa-and-sahel

14 Torres et al (2017), ibid, pp17.

3. Transport and Logistics across the region

Agro-based trade in West Africa comprises product flows between complementary geographic spaces. This creates surpluses and demand areas within national boundaries or those bordering countries with relatively easier access. Despite the costs of informality, border procedures, and diverging domestic policies, cross-border trade still happens and is an important means of access to food for most food-insecure regions.[15] The World Bank (2015) identified three broad groups of intraregional trade flows in food staples in the ECOWAS region:

- 'Arbitrage trade', which is explained by informal transit re-exports and trade deflection. This is driven by variations in import and domestic policy regimes that result in price differences and thus incentives for traders to arbitrage at a profit between these markets.
- 'Border trade' as local trade motivated by proximity, the porous nature of borders, and the local patterns of excess supply and demand; and
- 'Regional trade' occurs along international corridors for a handful of foods (such as livestock and maize) for which important complementarities arise between surplus production and demand areas.

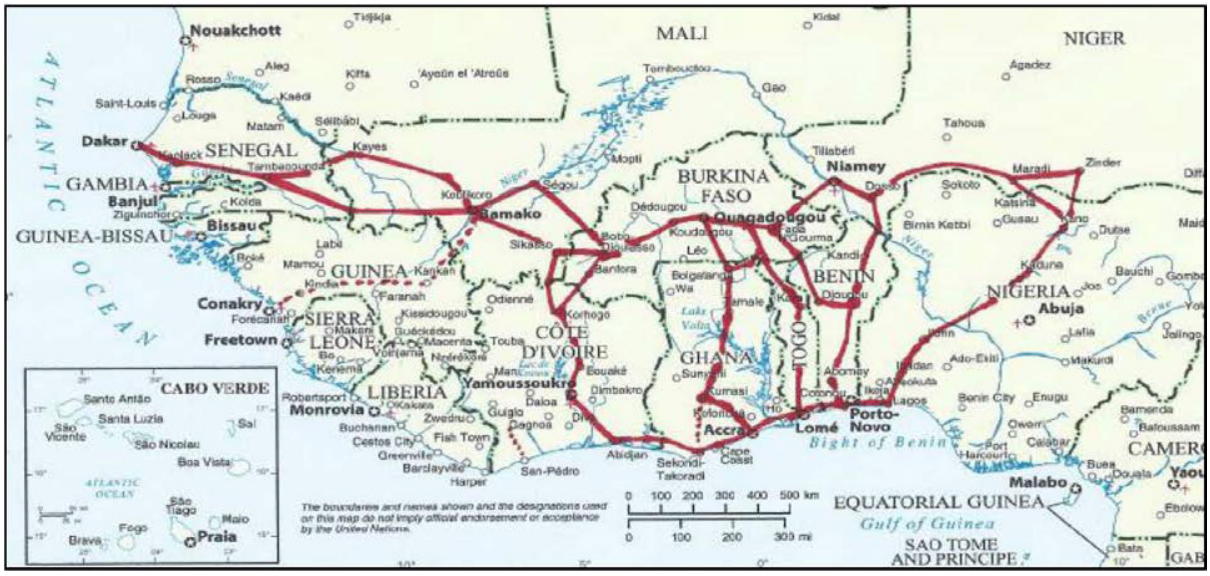
Another prominent characteristic of Western Africa's food trade is the size of the informal sector. It is estimated that approximately 75 percent of intra-regional trade is not accounted for in official statistics, as it takes place on an informal basis. Intra-regional informal trade is mainly conducted by a large number of individual traders. A large proportion of these traders are women, and micro, small, and medium-sized enterprises in border areas and often consist of small consignments, but this sizeable cross-border trade does not necessarily take transport corridors.[16]

The main routes for formal international trade in ECOWAS are the corridors emanating from the six major port cities: (i) Lagos, Nigeria (with two ports, Apapa and Tin Can Island); (ii) Cotonou, Benin; (iii) Lomé, Togo; (iv) Tema, Ghana; (v) Abidjan, Cote d'Ivoire; and (vi) Dakar, Senegal (Figure 3). The bulk of formal trade flows through parts of the main West African transport network, i.e., the West-East Trans Sahelian Highway between Dakar and Ndjamena and the Trans-Coastal highway between Dakar and Lagos, and the interconnecting North-South roads.[17]

The trade routes in West Africa have two leading roles related to trade: they serve trade between ECOWAS member states, the three land-locked countries (Niger, Burkina Faso, and Mali) **with coastal countries and with the rest of the world** (Table 2). Trade-in these corridors is, gens erally, fairly evenly distributed between transit and bi-lateral (intra-regional) trade. Along the ECOWAS trade corridors, the most important products traded (both in transit and intra-regional trade combined) are agricultural and food products, cement, fuel, and iron. The maintenance and proper functioning of these corridors are therefore crucial to ensure adequate regional integration between coastal and inland ECOWAS member states.

15 World Bank (2015), ibid.
16 Torres & van Seters (2016), ibid, pp ix.
17 Torres & van Seters (2016), ibid, pp 24.

Figure 3. Main Trade Corridors in West Africa



Source: Saana (2015)/ EPCDM (2016)

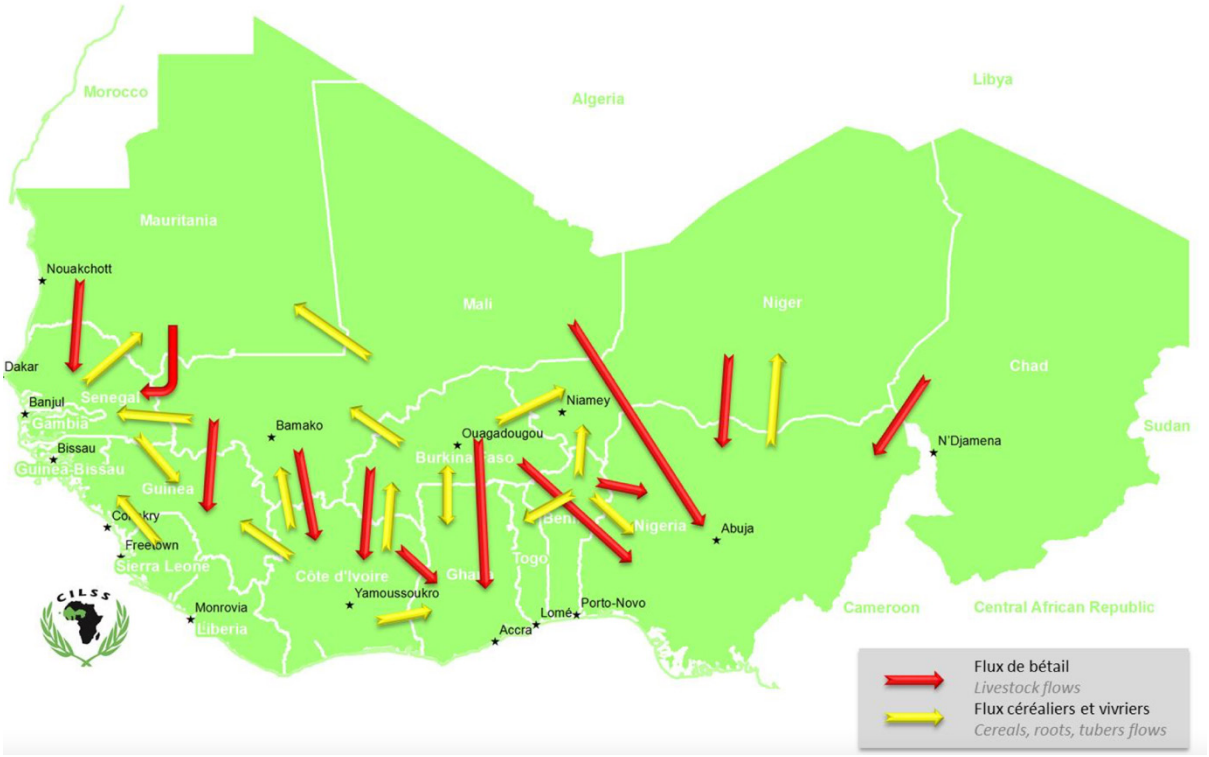
Table 2. Characteristics and Functions of West Africa's Corridors

Corridors	Characteristics
Abidjan-Lagos corridor	• Busiest corridor in West Africa • Mostly used for movement of people and informal trade • Serves a more economically dense region with lots of short-distance transport
Cotonou-Niamey (south-north) corridors	• Busiest in the south-north traffic • Goes via and serves the towns Maradi and Zinder in southern Niger to Kano in northern Nigeria
Lomé-Ouagadougou (south-north) corridor	• 2nd largest traffic after Abidjan-Lagos corridor
Dakar-Bamako corridor	• 3rd largest traffic after Abidjan-Lagos corridor
Senegal-Mali and Mali-Burkina Faso	• Senegal exports a significant number of products, particularly cement, to its hinterland.

Source: Based on Torres & van Seters (2016)

In addition to the main corridors in West Africa, other routes are used for intra-regional trade, especially for agriculture and food products, informal cross-border trade, and arbitrage trade. Numerous roads connect countries and are used for cross-border trade, serving as the most direct route from the production basin to the cross-border market or to circumvent official border points. **The natural complementarities among countries due to the agro-climatic conditions promote sizeable agricultural trade flows between coastal countries and the Sahel-Sudanian and Sahel countries**. The latter are typically exporters of coarse grains (millet, sorghum), cowpeas, and livestock while the coastal countries and the lower Sahelo-Sudanian zones export maize, rice, roots, tubers, and tropical fruits to land-locked countries. Figure 4 illustrates the movement of trade flows that involve livestock and cereals (rice, maize, millet, cowpea, and yam) between the regions.

Figure 4. Intra-regional Trade Flows of Cattle, Cereals, Roots, and Tubers in ECOWAS



Source: CILSS (2013)[18]

Based on an analysis of key characteristics of the regional value chains and linkages with corridors, Torres *et al* (2017) pointed out the major bottlenecks in terms of infrastructure and trade facilitation that affect intra-regional trade flows and the competitiveness of West African. The key issues include (i) inadequacy of road and transport infrastructure; (ii) lack of trade monitoring and market information[19]; (ii) inadequate public-private dialogue and cooperation; and (iv) poorly implemented and unconducive trade policies. To address the identified issues, the below actions were proposed.

18 CILSS. (2014). Cross Border Trrade Flow of Agricultural Products in West Africa. Available at http://portails.cilss.bf/IMG/pdf/Cross_Border percent20trade_of_ percent20Agricultural_Products_Report_ percent20Juin_2014.pdf

19 Two platforms exist with market information in West Africa: Agritrade (which coveres 14 West African countries and includes retail and wholesale prices for 60+ products e supply and demand of agricultural products. Available at http://www.wa-agritrade.net)and Resimao, which covers 390 rural and urban markets (cluster markets, wholesale, semi-wholesale and retail markets), 39 markets of sub regional interest, and the prices of about 50 products (cereals, fruit and vegetables, oil products and legumes and livestock). Available at http://www.resimao.org.

Table 3. Proposed Actions to Address Infrastructure and Trade Facilitation Challenges

Measures proposed	Actions
1. Linking corridors to production/agro-processing areas and key markets.	• Go beyond roads and border-posts and better link corridors to production/agro-processing areas and markets by building and improving feeder roads and secondary routes.
2. Develop a strategic knowledge and communication agenda.	• Setting up Market Information Systems (MIS)[20] around corridors and priority regional value-chains designed to assist smallholder farmers and other value chain operators to better access information on regional input and output markets, prices, and the most efficient available business services. • Enhancing strategic communication activities around the regional value chain agenda and the related coherence agenda between different policy/investment areas.
3. Supporting effective regional public-private cooperation platforms and value chain actors.	• Set up/strengthen systematic and inclusive public-private fora for such dialogue and cooperation. • Include support for regional women and informal traders' associations through resource centres at borders, providing them with information tailored to their needs.
4. Contributing to a stable, conducive, and transparent trade policy environment	• Ensure compliance with signed trade agreements. • Elimination of trade barriers as per agreements. • Set up monitoring systems for illegal practices related to trade.

Source: Torres et al (2017)

20 An overview of Market Information Systems in Africa is presented in Annex 4

4. Value Chain Selection

The selection of value chains for the focused countries is based on a combination of several available or constructed indexes. The chosen indexes are a balance between demand and supply. They include the current and forecasted demand, supply, imports, exports, price volatility, etc. The objective is to cater to food security and promotion of intra-regional trade, as well as consider essential aspects such as resistance to climate change and change in consumption patterns.

The rationale behind this methodology is threefold:

- **Capture production**: production-related indicators ensure that only the products have been cultivated by the countries and prioritize those with (1) high production values and (2) high growth rates.

- **Capture trade:** export-related indicators highlight the potential that the commodities have in the international market, prioritizing those with high demand abroad. Import-related indicators showcase the internal demand for food products, which indicates a potential opportunity for increased production. Similarly, the revealed comparative advantage indicator targets those value chains that have a distinct advantage over international competition.

- **Capture volatility:** the volatility indicator is instrumental in revealing the price-stable commodities.

The different indicators are presented below:

1. Production Value Index

The current *value* of *production* measures value in the prices relating to the period being measured. Thus, it represents the market *value* of food and agricultural products at the time they were *produced*. The data set includes data on production values (gross and net). Our score for the commodity was the percentage of the production over the total production value of all products for the country.

2. Production Growth Index

The production growth index measures change in projected value production from 2015 to 2025 (IFPRI), taking into account increased population and income growth, increases in productivity, and some amount of climate change that affects crop production according to whether it is irrigated or not. The scores are attributed to the overall change in production between the two above-mentioned years.

3. Exports Value Index

The latest export values for the different value chains were analyzed. International reliable sources, such as UN Comtrade or ITC Trademap, provided data for the year 2018 for most countries. Otherwise, data for 2016 or 2017 were available and used. The score attributed to the commodity was a ratio of the value of exports for the product sector over the total value of exports.

4. Demand Growth

The demand growth index is the absolute change in the value of the total demand for the commodity from 2015 to 2025 (IFPRI). Forecasted data on the increase in demand measured in tonnes and value is available from IFPRI. For this index, the value was considered.

5. Imports Growth

The index identifies the projected growth absolute change in imports in the region in which each country is located. The data is from IFPRI.

6. Imports Value Index

The same approach as to the export value index is used for the Imports value index. Conversely, the index looks at imports as compared to exports for the Exports Value index.

7. Volatility Index

The volatility of the price data was taken into consideration in the selection criteria. A coefficient of variation was derived from FAO's monthly producer price data. From the coefficient, a measure of volatility was derived. The least volatile products are given the highest scores.

8. Revealed Comparative Advantage

This index helps to identify value chains where the targeted country has an obvious advantage in international competition. This is of special importance to promoting the trade of commodities that are more likely to be competitive.

The results from applying the methodology are highlighted below:

Production Value %

Commodity	Production Value
Cassava	20.50
Bananas/Plantains	18.52
Maize	13.15
Sweet Potato	9.52
Beef	8.73
Dairy	8.10
Meat indigenous, cattle	5.63
Sorghum	5.29
Beans	4.81
Vegetables	3.96

Production Growth

Commodity	Production Growth
Bananas/Plantains	6,660
Beef	4,279
Vegetables	4,202
Sweet Potato	2,313
Other Roots	2,122
Fruits	1,736
Dairy	1,456
Beans	1,250
Cassava	828
Potato	305

Exports %

Commodity	Exports
Coffee	25
Tea	23
Total Other Oilseeds	13
Tobacco	11
Vegetables	10
Wheat	7
Other Pulses	5
Maize	5
Beans	5
Palm Oil	4
Sugar	3

Imports %

Commodity	Imports
Palm Oil	29
Wheat	18
Sugar	15
Rice	14
Maize	6
Sunflower Oil	4
Poultry	3
Sorghum	3
Nuts	3
Beans	3
Other Pulses	3

Demand Growth

Commodity	Demand Growth
Bananas/Plantains	7,121,587
Vegetables	3,719,379
Beef	3,008,395
Sweet Potato	2,415,910
Beans	2,284,388
Other Roots	1,730,692
Fruits	1,205,669
Dairy	604,904
Lamb	454,548
Potato	349,060

Import Growth

Commodity	Imports Growth
Wheat	14,133
Maize	11,626
Beef	9,345
Bananas/Plantains	8,918
Beans	8,600
Vegetables	7,981
Palm Oil	5,900
Potato	4,784
Other Pulses	4,088
Fruits	1,258

Volatility

Commodity	Volatility
Tea	0
Palm Oil	2
Millet	3
Maize	5
Bananas/Plantains	6
Nuts	8
Sugar	9
Rice	9
Sorghum	11
Sweet Potato	14
Dairy	21

The overall 5 top Value Chain selection approach

For each country and region, the top five value chains with the highest scores were selected for our analysis. There were a series of considerations in the selection.

Re-alignment of commodity coding structure

Since data from different sources were used, mainly from UN Comtrade, ITC TradeMap, IFPRI, and FAO, there was the necessity to use a common commodity identifier. Since IFRPI has already developed a mapping table to FAO, all codes were re-aligned and mapped to a common FAO description.

Scoring and Ranking

The scores of the indexes varied in scale since some of them were absolute changes while others were ratios or percentages. In this methodology, the top ten commodities in each index were given a score ranging from 1 to 10 with 10 for the highest ranked item. For simplicity of analysis, an unweighted aggregation of the rank of the commodities in each index was used as selection criteria for the topmost value chains.

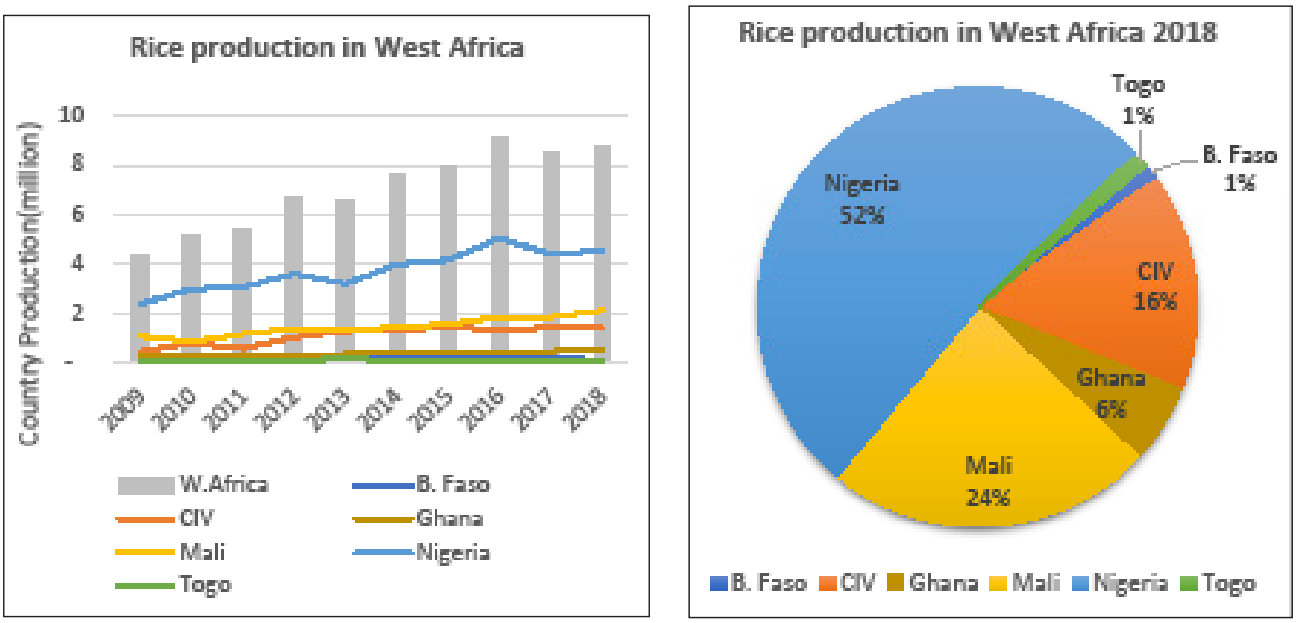
Overall, the methodology leads to the conclusion that Rice, Vegetables, Yams, Cassava, and Beef should be those products on which West Africa should focus to increase intra-regional trade and food security.

5. Rice Value Chain

5.1. Key consumption and production trends

In West Africa, rice is a strategic commodity for food security[21] and an important source of calories. Since 2009, the production of rice has been increasing in the West African region with an average annual growth of 8.5 percent, doubling its volume between 2013 and 2018 – from 4.3 million tonnes to 8.8 million tonnes. The highest growth has been observed in Ghana (17.7 percent), having tripled the production rates since 2009. In terms of volume, Nigeria is the largest producer (4.5 million tonnes) with 52 percent of the market in 2018, followed by Mali (24 percent, 2.1 million tonnes) and Côte d'Ivoire (16 percent, 1.4 million tonnes). Domestic production has increased as a result of favorable market prices and also the implementation of farm and industrial support measures.[22] [23]

Figure 5. Rice Production and Consumption in West Africa



Source: FAO

In Nigeria, the biggest rice consumer in the region, the main rice-growing areas are in the North Central zone (47 percent), followed by the zones of the North West (29 percent), the North East (14 percent), the South East (9 percent), and the South West (4 percent). In particular, Kaduna state has the largest producing area (22 percent of domestic output), followed by Niger state (16 percent), Benue state (10 percent), and Taraba state (7 percent).[24]

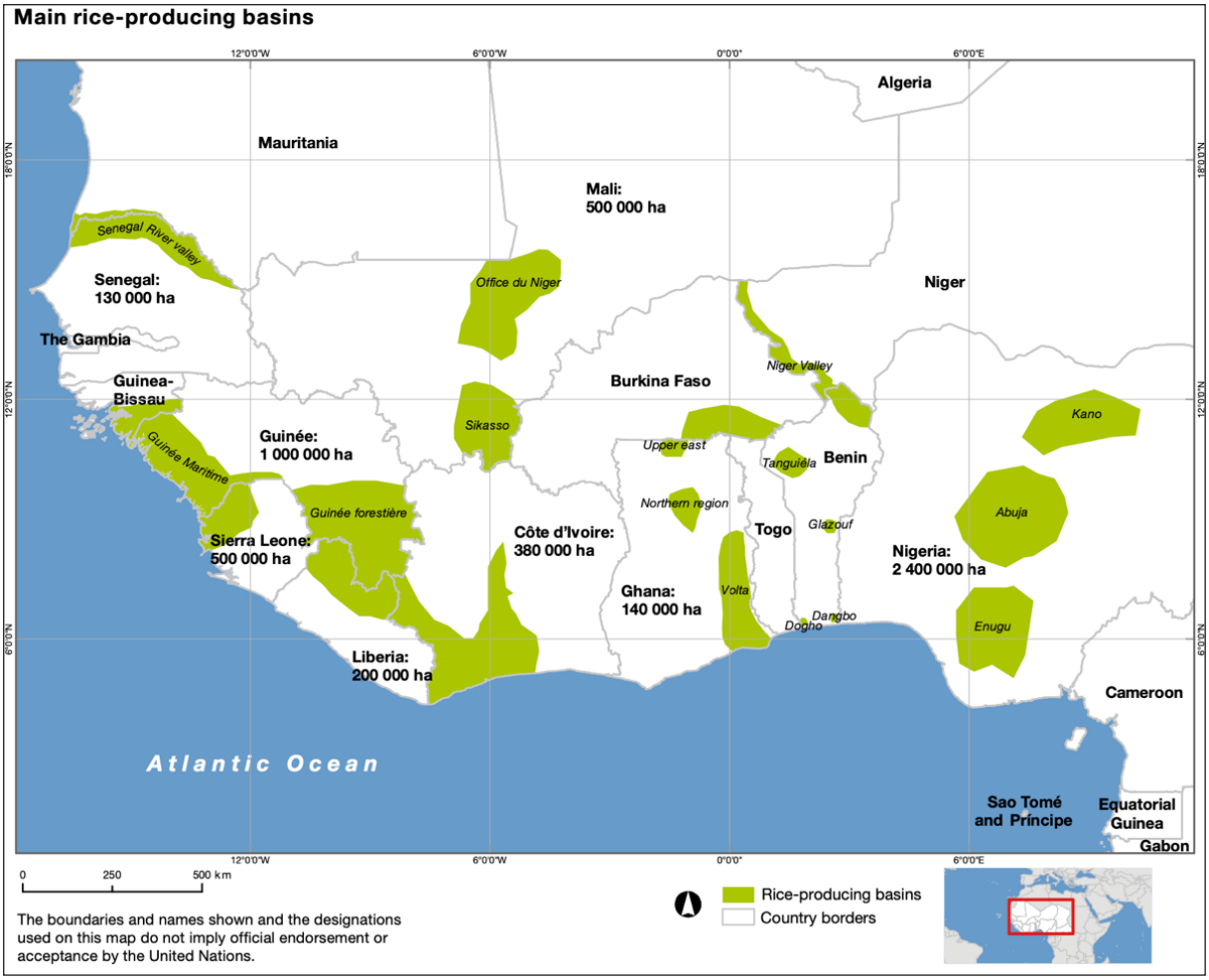
The regions of western and southwestern Burkina Faso are one of the main rice-producing areas in the country. Production is concentrated around four irrigation schemes: the valley of Kou and Banzon area in the Hauts-Bassins; and Douna and Karfiguela areas in the Cascades region accounting for

21 Soullier, G., Demont, M., Arouna, A., Lançon, F., del Villar, P.M. (2020). The state of rice value chain upgrading in West Africa, Global Food Security, Volume 25, June 2020, 100365.
22 Blancher, C., D'Alessandro, C., & Tondel, F. (2020). Promoting West African rice: The crucial role of coherent trade policies, ECDPM blog, 31 January 2020
23 An overview of Market Information Systems in Africa is presented in Annex 4
24 Tondel, F., D'Alessandro, C., Hathie, I., and Blancher, C. (2020). Rice trade and value chain development in West Africa: An approach for more coherent policies, ECDPM, Discussion Paper No. 283.

26 percent of domestic rice output in 2011. In the same year, in the Boucle du Mouhoun region, also in western Burkina, bordering Mali further north, the Sourou valley produced 17 percent of domestic rice output.[25]

In Mali, where per capita rice consumption is among the highest in the region, rice production is highly concentrated in the irrigated areas in and around the Inner Niger Delta, which includes the Ségou and Mopti regions. This area produces 70 percent of domestic output. In contrast, most of the rest of the national territory has a deficit in rice production. In particular, the area stretching along the border with Burkina Faso (the cercles of Yorosso, Sikasso, and Koutiala in the Sikasso region, and the cercles of San, Tominian, and Bla in the Ségou region) has a large deficit in rice.[26]

Figure 6. Main Rice Producing Basins in West Africa

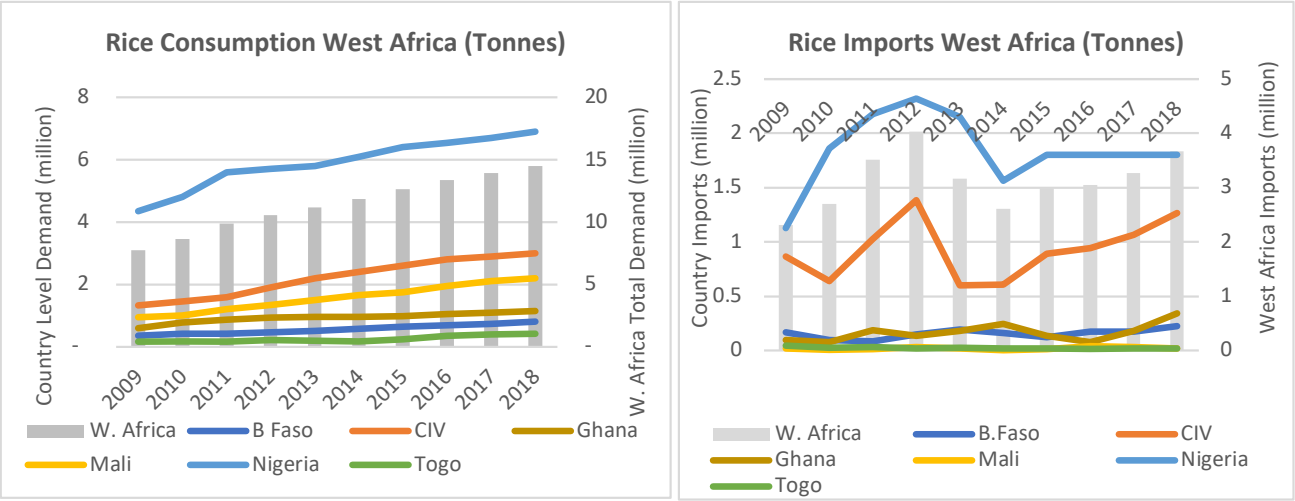


Source: OECD

FAO figures indicate that the average per capita consumption for the selected West African countries was 37.4 kg per year. Cote d'Ivoire and Mali have the highest consumption with 119.7 kg/year and 115.2 kg/year. Consumption has been growing at an average annual rate of 7 percent for the last 10 years. Compared to 2009, all countries, except Nigeria, have more than doubled their total consumption of rice in volume terms. This can also be explained by the increase in population, especially in Burkina Faso and Mali. In Burkina Faso, rice consumption in urban areas is three times higher than in rural areas. Rice also accounts for a large share of cereal consumption[27].

25 Tondel et al (2020), ibid
26 Tondel et al (2020), ibid.
27 Blancher et al (2020), ibid.

Figure 7. Rice consumption and imports in West Africa



Source: USDA & FAO.

Table 4. Rice Consumption per Capita and Rice Dependency on Imports

Countries	Annual Average kg/Year	Dependency on Imports
Burkina Faso	41.01	-69 percent
Côte d'Ivoire	119.67	-49 percent
Ghana	38.63	-57 percent
Mali	115.32	-9 percent
Nigeria	35.23	-32 percent
Togo	53.36	-67 percent
Average WA	48.69	-37 percent

Source: FAO

The West African region is highly dependent on imports. Most of the countries in this group have had a negative rice trade balance over the last 10 years despite efforts to increase rice production. The regional trade deficit in rice increased from 3.4 million tonnes to 5.7million tons in 2018. On average, the region relies on 37 percent of imported rice to cater to local consumption. Burkina Faso has the highest dependency (with 69 percent) on rice imports followed by Togo, Ghana, and Côte d'Ivoire. This high dependency is partly due to increasing purchasing power, increasing population, and changing consumption patterns.[28] For example, in Ghana, rice consumption in rural areas is much lower than in urban areas due to the higher price, and thus more vulnerable to price fluctuations.[29]

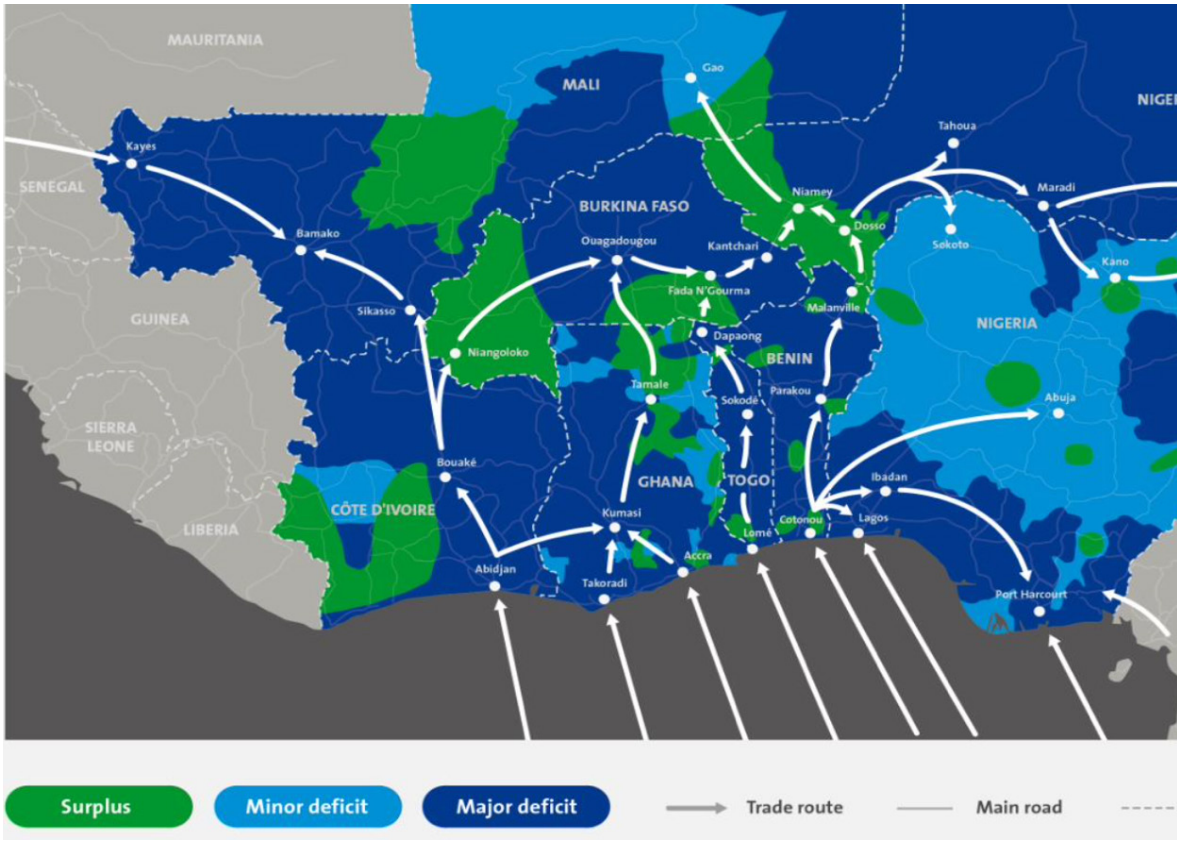
28 Nhemachena, C., Murwisi, K., & Njiwa, D. (2020). Intra-African food trade. Chapter 7, Africa Agriculture Status Reo port. Feeding Africa's Cities: Opportunities, Challenges, and Policies for Linking African Farmers with Growing Urban Food Markets (Issue 8). Alliance for a Green Revolution in Africa (AGRA). Available at: https://agra.org/wp-content/uploads/2020/09/AASR-2020-Feeding-African-Cities.pdf

29 Inusah, M. & Anthony, C. (2017). Willingness of Local Rice Producers to Supply and Participate in the Ghana School Feeding Programme Market: A Case Study of Selected Districts in Northern Ghana, International Journal of Economics and Financial Research, 2017

Imports of rice in West Africa have been increasing at an annual average rate of 7 percent in the last decade with the highest growth in Mali and Ghana. With an import volume of 1.8 million tonnes in 2018, Nigeria was the largest importer in the region (and third in the world) due to its population size. Rice imports in Nigeria represented 49 percent of the regional imports, followed by Côte d'Ivoire with almost 35 percent of the total imports in 2018. The main suppliers of rice for the West Africa region are China, India, Thailand, Vietnam, Pakistan, and Myanmar. Côte d'Ivoire is the only major rice exporter in the region and exports the majority of its rice to Ghana (36 percent of total rice exports), Mali (35 percent), and Burkina Faso (21 percent). Discussions with Olam (one of the largest importers of rice in West Africa) indicated that almost all of the Côte d'Ivoire rice exports are re-exports to the region.

The entry points for rice imports in West Africa are through the ports of Abidjan, Takoradi, Accra, Lomé, Lagos, and Port Hartcourt. In several cases, imported rice crosses borders illegally (or informally), evading customs duties and regulations.[30] Figure 8 illustrates the main import coastal ports and the main formal and informal transshipment for rice. It also provides an indication of the rice surplus and deficit areas, trade flows, and markets (assembly, wholesale, and retail) contributing to supply chains for locally produced rice. Estimates suggest that up to 85 percent of Beninese imports are re-exported to Nigeria through highly ramified smuggling networks over which the two states have little control.[31] Aimed at boosting the local industry particularly during the 2016 economic recession, Nigeria banned rice imports from all its neighbors. However, rice imports continued to enter Nigeria through its land borders especially from Benin, which reduced its tax on imported rice from 35 to 7 percent. This caused a surge in rice imports in coastal countries in West Africa.

Figure 8. Rice Surplus and Deficit Areas and Import Trade Flows in West Africa



Source: ECPDM

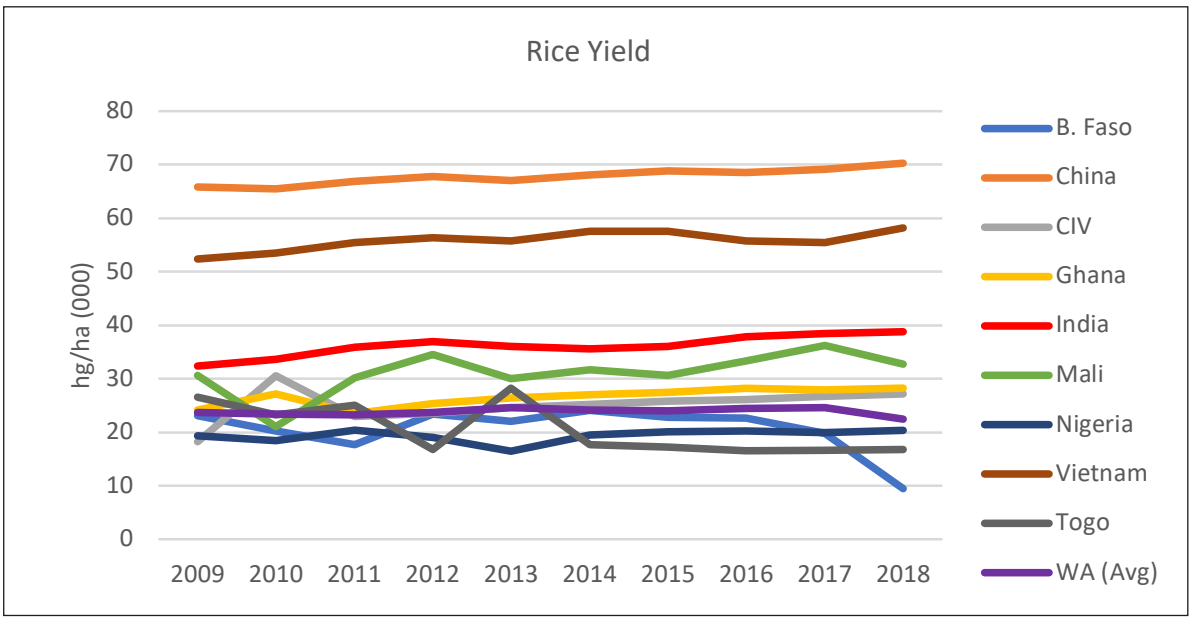
30 Tondel et al (2020), ibid.
31 Tondel et al (2020), ibid.

Discussions with large rice importers indicated that rice is distributed to both urban and rural areas and even in areas where rice is produced. The same importers indicated that rice imported in West Africa is of different varieties, with broken rice being dominant, and this mostly depends on the countries' tastes. Some countries, such as Mali would import the cheapest quality of rice available. The same importers claimed that there is no direct competition between locally produced and imported rice as the qualities are different. Locally produced rice is mainly consumed and distributed to areas surrounding the production locations due to high transport costs. This would include cross-border rice trade happening between production areas and markets close to geographical borders.

5.2. Key regional competitiveness drivers and challenges

West Africa represents a huge opportunity for expansion of the rice sector, as the region imports more than 8 million tonnes of rice on an annual basis, equivalent to nearly USD 4 billion.[32] Although low-quality imported rice is cheaper, mainly coming from Vietnam, India, and Thailand, the preferred local Gambiaka rice is cost-competitive compared to imported rice of comparable quality, such as basmati and jasmine rice.[33]

Figure 9. Rice Yield in West Africa



Source: FAOStats

The yield rates in Africa are much lower compared to the world's largest producers/exporters. The average yield rate for the selected West African countries is lower by 3.1 times that of China, 2.6 times that of Vietnam, and 1.7 times that of India. This is mainly due to low adoption of improved varieties, lack of good quality seed, low use of inputs, and low adoption of agricultural practices.[34] According to West African Challenges, "[low] *productivity and high processing and marketing costs are impediments to the competitiveness of local rice in the regional market. While yields have been improved, the farm-rate price of a tonne of paddy – which is already attractive in many West African countries compared to prices in major exporting countries – could be further reduced.*"[35]

32 According to ITC Trademap data.
33 Crossboundary (2018). On the functioning of agricultural markets in Mali: Strategies for Development, USAID.
34 Soullier et al (2020), ibid.
35 WAC (2011). The 2008 rice crisis: Shock and new challenges, OECD, Sahel and West Africa Club Secretariat, No. 02 June 2011

Many factors are hindering the development and further reform of the regional trade of rice. According to Blancher et al (2020), "*while some cross-border marketing channels for locally produced rice have emerged in several parts of the region, the development of mutually beneficial intra-regional trade is hindered by high transport and logistics costs between producing areas and consumer markets, including harassment and illegal payments along roads*". The authors also mention that "*this trade potential is overlooked by policymakers*". There is less interest in tighter regulation of rice trade due to strong vested interests from both the private and public sectors, which in turn makes it difficult to change the current trading system.

According to Soullier et al (2020), upgrading the domestic rice value chain in West Africa is a challenge because consumers in coastal countries and cities generally prefer imported rice. Research-based on field experiments has revealed that domestic rice can compete with imported rice if its quality is tailored to urban consumer preferences.

To compete against imports, two comparative advantages that could "shield" countries from world market pressures and mitigate exposure to rice imports are (i) the remoteness from a seaport and landlocked status (ii) the proximity to the primary (middle Niger delta in Mali) and secondary centers of origin of rice domestication (lands in Guinea and the Gambia and Casamance rivers) which tend to preserve indigenous preferences for local rice. The absence of competitive advantage from the demand-side tends to make rice more vulnerable to import pressure, which triggers competitive responses in terms of investments in variety, processing, packaging, and labeling.

Table 5. Investment in the Rice Sector

	No. of Investment Projects Operational in 2019	Aggregate Upgraded Milling Capacity (tons/hr)	Origin of Investments	Contract Farming (No. of Farmers)	Share of Contracted Farmers (percent)	Vertical Integration (hectares)	Share of Area under Vertical Integration	Import Barriers
Burkina Faso	1 industrial mill & 1 semi-industrial mill	7	DPI*	140	0.08	-	-	Physical
CIV	2 industrial mills & 1 semi-industrial mill	15	PI*	10 Experimental	0	-	-	Cultural
Ghana	1 industrial mill & 3 semi-industrial mills	26	FDI, DPI	4000	9.09	750	0.34	None
Mali	4 industrial mills	20	FDI, DPI	-	-	3200		Physical, Cultural
Nigeria	24 industrial mills	177	FDI, DPI	3000	0.61	20400	0.69	None
Togo	15 ESOP*		DPI	100	0.24			None

** DPI: Direct Private Investment; FDI: Foreign Direct Investment; PI: Public Investment; (ESOPs) Enterprises de Services et Organisations de Producteurs Traditional processing units in which farmers have the opportunity to gradually become shareholders.*

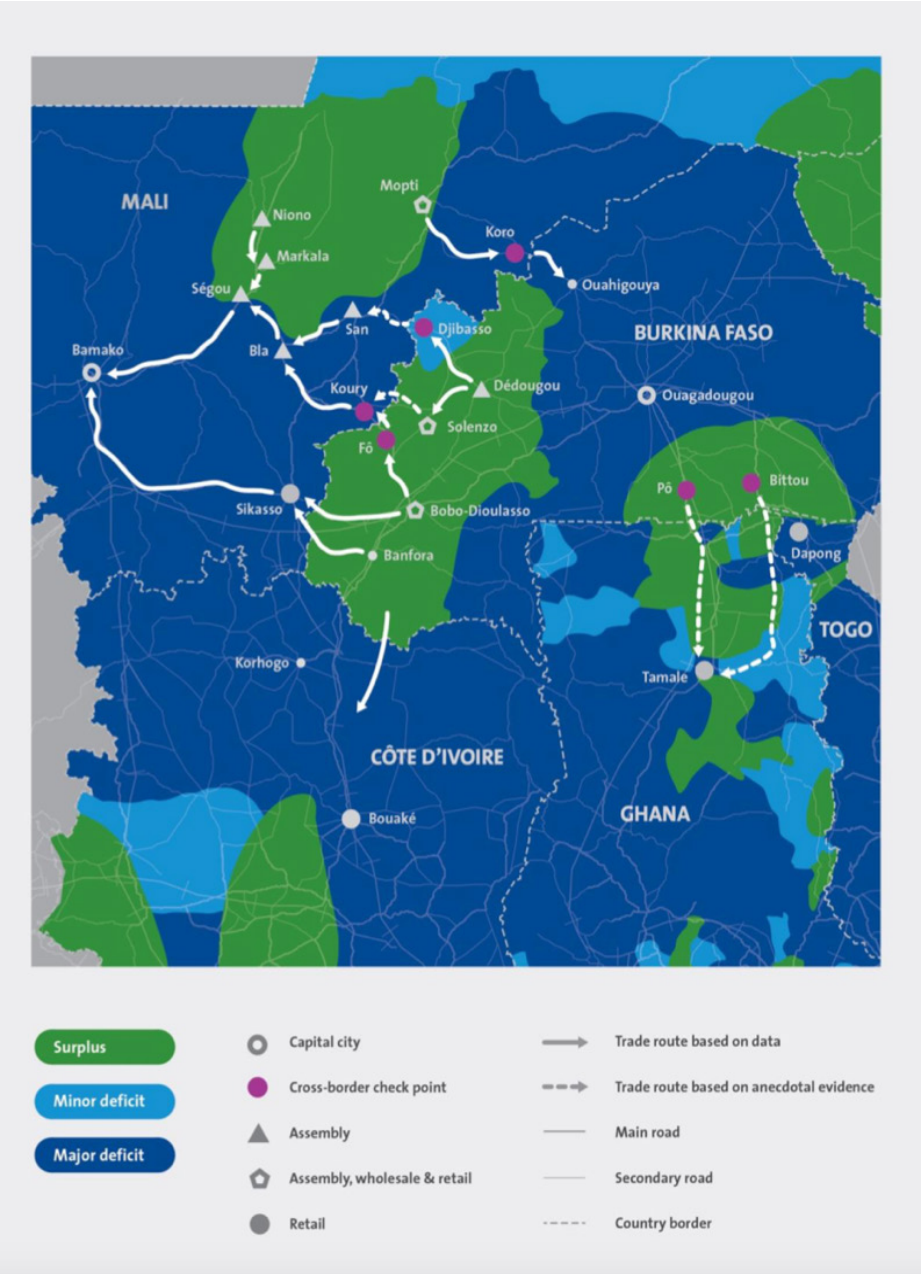
Source: Soullier et al (2020)

Table 5 indicates that a country is more likely to upgrade its rice value chain if that sector is capable of attracting Foreign Direct Investment (FDI). While both cultural and physical barriers exist, Soullier et al (2020) indicated that cultural (preference) import barriers significantly slowed down investment rather than physical import barriers. Coastal countries hosting the big seaports were found to be the

most pressurized to upgrade their rice value chain due to their high import bills and the non-existence of barriers to imports. Other reasons which may have slowed down investments especially in countries like Cote d'Ivoire and Mali are political crisis and conflicts.[36]

5.3. Regional transportation and logistics routes

Figure 10 below indicates that rice trade is mainly carried out within sub-regional zones or trade basins.[37] These are mainly the Eastern trade basin (comprising Nigeria, Benin, and Niger) and the Central trade basin (comprising Côte d'Ivoire, Ghana, Togo, Burkina Faso, and Mali). In these areas, locally produced rice is mainly informally exported from Western and Southern Burkina Faso to Mali, and therefore not recorded by the official statistics.



36 Soullier et al (2020), ibid.
37 Tondel et al (2020), ibid.

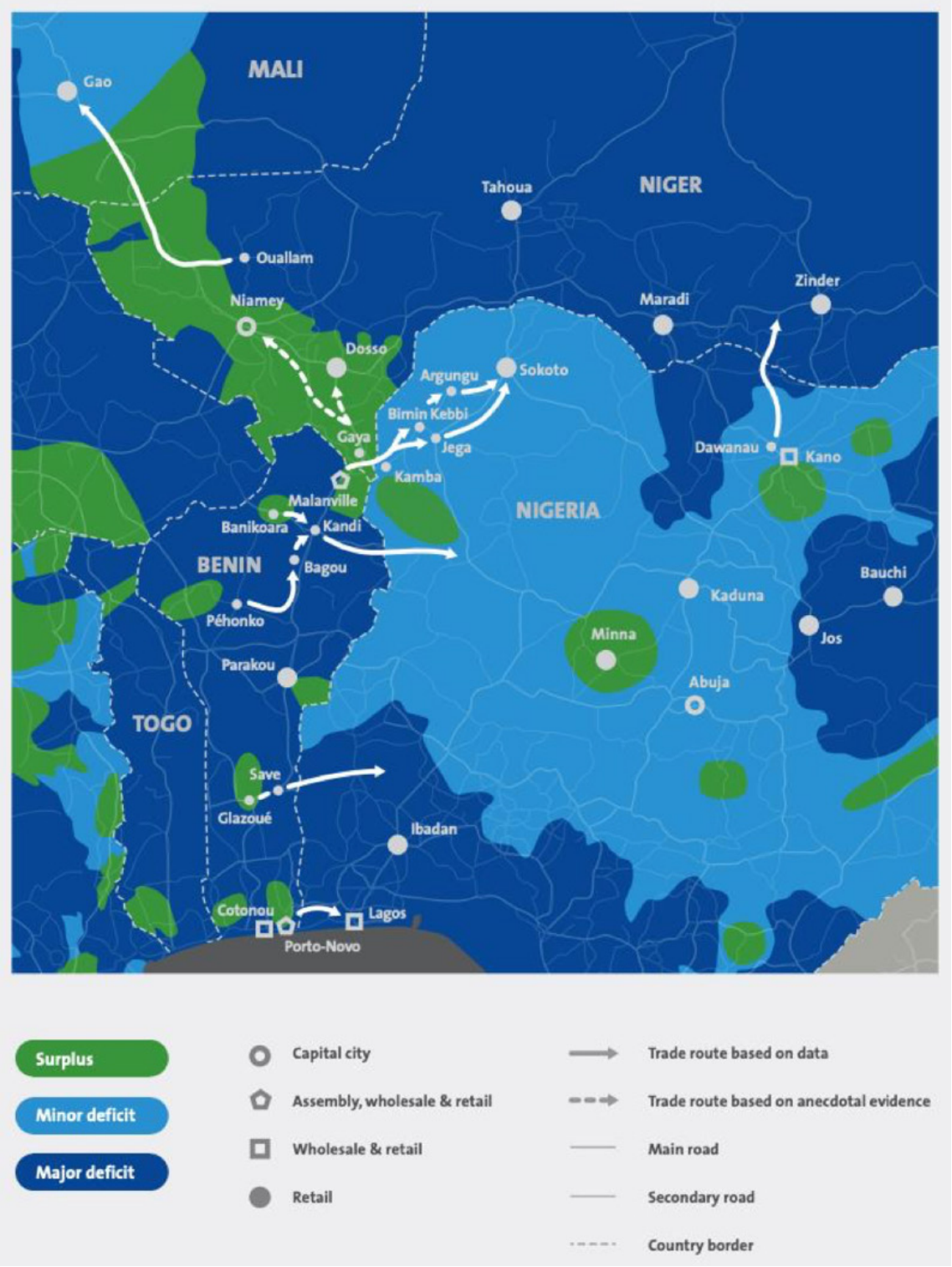


Figure 10. Rice Trade in the Central Trade Basin and Eastern TradeBbasin

Source: ECPDM, Tondel et al (2020)

Informal trade of rice from Burkina Faso to Mali seems to take three main routes. Each route includes different types of markets and exchange points where operations such as collection, consolidation, storage, transport, and retail are carried out. Malian rice, being more expensive compared to rice produced in Burkina, is more intensively exchanged in the direction of Burkina Faso-Mali.

Table 6. Transportation Routes of Rice Trade in Western Africa

Production Zone	Route
Central Trade Basin Area	
Kou and Banzon Valley (in the Hauts-Bassins). Douna and Karfiguela perimeters (in the Cascades region).	Trade flows in main markets in deficit areas in the Sikasso region, such as Koury (a rural commune in Yorosso cercle) and Sikasso (a secondary consumption centre). Part of these flows is likely to be then shipped, through different routes, to main trading/urban centres such as Ségou (a main cereal trading centre) and Bamako.
Sourou Valley in the Boucle de Mouhoun	Border markets in the Ségou region in Mali.
Bama (Burkina Faso)	Markets in Mali (Ségou)
Southern Burkina Faso – northern Ghana (Pô and Bittou – Bagré plan area)	Informal cross-border trade flows from southern Burkina Faso to northern Ghana (Tamale). Some quantities of rice processed in Ghana (milled or parboiled) are exported back to Burkina Faso.
Eastern Trade Basin (North-Eastern Benin – North-Western Nigeria	
North of Benin, (Malanville and Banikoara in Alibori department).	Rice is transported by road to the consumption centres of Sokoto, Jega, Birnin Kebbi, and Agungu, via Gaya and Kamba, or by canoes on the Niger river (Rice is informally exported to Nigeria as paddy, given that husking is less expensive there).
From Péhonko, in the Atakora department in Benin to Nigeria.	Most likely via the markets of Bagou and Kandi on the Beninese side.
Rice produced around Glazoué in Benin.	Trade flows through Save, crosses the border, and is then hauled to several consumption markets in Nigeria in the southwest.

Source: ECPDM, Fabien Tondel et al (2020)

According to FEWS,[38] several trade flows (including rice) from production to consumption zones in the region remain dynamic, despite constant regional trade obstacles (harassment, illegal fees). In some cases, trade flows are restricted by trade policies, insecurity, and conflict. These constraints impact quantity and diversity of supply as traders strategize to minimize risks associated with storage and transport. In the case of Nigeria, recent land border closure has affected trade with neighboring Benin and Niger following the Nigerian government's policy to halt illegal importation of food items, particularly rice, to foster local production. Within Nigeria, the following routes are used for the transport of rice:

Table 7. Transport Corridors for Rice in Nigeria

Starting Point	Corridor(s) / Roads Used	Destination
Northern Region: Kano, Kebbi, Jigawa, Kaduna, Taraba, Nasarawa, Niger, Zamfara, Sokoto, Kogi, Bauchi, Benue, Kastina,	Kano –Kaduna – Ilorin – Lagos Road	South-West: Lagos
Kano	Kano – Abuja – Enugu – Port-Harcourt Road	South-South: Port-Harcourt
South: Ebonyi, Ekiti, Ogun, Kwara	Onitsha – Benin – Ore Road	South-West: Lagos

Source: Field work

38 FEWS. Regional Supply and Market Outlook, West Africa December 23, 2019.

5.4. Value chain stakeholder analysis

Most of the production is based on rain-fed areas and therefore is allocated around high rain forest zones or areas close to water sources. Rice in the selected countries is produced mainly by small farmers in areas less than 1 ha. A large part of the rice is produced for subsistence and the surplus is traded on local markets. Large producers in these countries represent less than 1 percent of the total rice production. The production is labor-intensive which involves a significant workforce. Small rice farmers are organized around cooperatives. Various programmes have been established to support rice production. Table 8 provides a summary of the various actors involved in the rice value chain in West Africa.

Table 8. The Actors in the Rice Value Chain in West Africa

Stages in Value chain	Actors	Role
Production	Small producers	This group consists of the majority of the producers. Farm size varies between 0.2 to 1 ha. In some countries, they are organized as Associations or Federations. Rice is often produced for own consumption and any excess is sold in the market.
	Medium size producers	Farm size varies between 1 to 5 ha.
	Large size producers	Farm size is more than 5 ha and can exceed 20 ha
	Producer organizations	Farmers are members of the prefectural, regional, and national umbrella organizations. Membership in a group gives the producers advantages such as access to credits, training, group selling, and access to quality inputs.
Aggregation	Aggregators and bulkers	These actors collect rice from small farmers and supply them to the processors. In some cases, bulkers are also involved in milling.
Processors	Small, medium, and large millers	The activity of this actor group varies with countries. In Côte d'Ivoire, 80 percent of paddy rice is processed by small artisanal mills (between 2,000-3,500 in number) with a capacity of less than 1 tonne/hr.[39] The small mills operate mainly in the villages to provide services to farmers and traders.[40] Only 2 mills have a capacity of more than 5 tonnes/hr but operate below capacity. In Nigeria, small and medium scale millers process between 3,000-10,000 metric tonnes and account for almost 80 percent of processed rice in Nigeria. Large-scale mills (23) account for 20 percent of processed rice in Nigeria.
Distribution	Distributors	This group includes importers, large scale distributors, commission agents, middlemen, wholesalers, semi-wholesalers, retailers in grocery stores, and small outlets targeted at the main consuming areas. Rice is imported in bulk and repackaged for wholesale and retail commercial activities. Retailers buy rice either from importers, bulkers, or processors and sell directly to consumers.

39 Cambridge Economic Policy Associates Ltd (CEPA) (2015). Global Agriculture and Food Security Program (GAFSP) Private Sector Window. Agribusiness Country Diagnostic – Cote D'ivoire.

40 World Bank (2019). Creating markets in Burkina Faso. Growing Burkina Faso's private sector and harnessing it to bolster economic resilience. Country Private Sector Diagnostic July 2019.

Stages in Value chain	Actors	Role
Extension services	Research structures	In collaboration with international institutions like Africa Rice, they carry out research and development in the rice sector, including improving varieties and cultivation techniques. They also provide rice farmers with certified seeds.

Source: Field work and various sources[41]

A list of stakeholders and contact details is presented in Annex 3.

5.5. Key findings in the value chain

Although the rice sector in West Africa is complex, central to its problem is the relatively low competitiveness of the sector, which, in combination with the rapidly growing consumer demand, contributes to an excessive dependency on extra-regional rice imports.[42] This trend has been maintained since 2008 and continues to persist. The availability of imported rice at cheaper prices and its distribution in deficit areas and the increasing urbanization and population growth have all contributed to this situation.

In most countries, policies have promoted production effectively, but governments have not paid sufficient attention to the development of domestic markets for locally produced rice. In some West African countries, rice yields are comparable to international standards, however, the low efficiency of domestic rice processing and distribution has been undermining the quality-cost competitiveness of rice produced by local producers.[43]

The trade of locally produced rice is mainly intra-regional and faces various barriers, including high transport and logistics costs and harassment and illegal payments along roads—despite the formal free trade area in ECOWAS. This constitutes a challenge for the development of regional value chains between producing areas and consumer markets. Due to the informal nature of the cross-border trade of rice, trade flows are essentially unregulated. As such, this can result in unfair trading practices between economic operators with different resources and access to political influence. The main urban rice markets are dominated by a small number of rice importers and wholesalers that own or have privileged access to a good part of the storage and distribution facilities, thus largely controlling the supply chain. In that context, given the sizable rents that rice importation generates, they also exert influence on bureaucrats and political elites, at the national and sub-national levels. [44]

Tondel et al (2020) indicated that more generally, in a context where all countries have a deficit in rice and compete for scarce supplies of paddy uncoordinated national policies may undermine the development of domestic markets and structured value chains. Policy discrepancies induce informal trading activities. The authors also indicate that the predominance of national agricultural and industrial policies, and the goal of national self-sufficiency in rice, stand in the way of policy coordination at the regional level.

41 FAO (2013). Analysis of incentives and disincentives for rice in Ghana, April 2013; FEWS Net (2017). Burkina Faso, Staple Food and Livestock Market Fundamentals, September 2017; Program of Accompanying Research for Agricultural Innovation (PARI((2015). Burkina Faso Potentials and Possibilities for German Collaboration in Agriculture, September 2015'; Competitive African Rice Initiative (CARI) (2019). Nigeria – Project Factsheet. Available at https://www.cari-project.org/imglib/downloads/08_19_Nigeria_Factsheet_CARI_II.pdf; WAC (2011). The 2008 rice crisis: Shock and new challenges, OECD, Sahel and West Africa Club Secretariat, No. 02 June 2011

42 Tondel et al (2020), ibid.

43 Tondel et al (2020), ibid, pp 105.

44 Tondel et al (2020), ibid, pp 106.

Table 9. Challenges in the Rice Value Chain in West Africa

VC Stages	Challenges
Production	• Inadequate irrigation leads to highly volatile production. • Dependent on water containment or strictly rain-fed methods (50 percent is from strictly rain-fed). • Rudimentary farming technologies. • Lack of knowledge of modern and sustainable farming techniques, high-quality seeds, fertilizers, and crop protection practices. • Value chain highly fragmented with limited access to working capital financing. • Low yields (also hampered by the inability to mitigate the impact of weeds, insects, and birds). • Low prices at smallholder farmers' level imply low-income margins. • In Togo, rice production is of low priority because farmers cultivate many other crops, and rice tends to be more costly and complicated for them to produce. • Stakeholders are neither sufficiently organized nor involved in developing the supply chain. • Due to high production costs, small holders are bound to resort to cheaper methods, which in the long run produce lower yields and a higher impact of costs per hectare.
Processing	• Very fragmented with limited large-scale mills. • Bigger processing mills have difficulty in getting sufficient good quality paddy to maintain milling facilities at full capacity. • Traditional manual processing and outdated equipment of mill processors generate high losses of grains. • Poor rice quality due to the artisanal milling process. • Power failures increase costs dramatically. • Limited working capital prevents mills from paying farmers at harvest and expanding their business to access larger markets in urban areas. • Inefficient marketing and processing of paddy.
Infrastructure	• Lack of storage for inputs, paddy, and processed rice. • Poor road networks and irregular electrical supply impede productivity.
Distribution	• Market share of local rice stunted due to the availability of less expensive imported rice. • While the main importing companies have developed more formal marketing channels for rice, the channels for locally produced rice remain scattered with fragile partnerships among actors. • Fragmented supply mostly by smallholders with low bargaining power. • Local produce passes through several middlemen, squeezing margins for retailers.
Extension Services	• Little focus of R&D on production • Lack of formal extension system, fragmented provision of advisory services, and inefficient communication between farmers and extension providers.

Source: Field work and various[45]

45 Supra note 37

Policy priorities in the countries

In **Burkina Faso**, the government developed a National Strategy for the Development of the Rice Value Chain (2011-2018) highlighting the importance of the sector and also its policy-stance regarding the food security strategy. The strategy's objective was to intensify and increase rice production, improving the quality of the finished product reaching the market, and strengthening stakeholder capacity in the rice sector. Producers are also protected by import tariffs, benefit from price support policies, and obtain a large share of the public agricultural expenditure.[46]

In **Côte d'Ivoire**, increasing production for the rice sector is a policy priority. The revised National Rice Development Strategy [NRDS] 2012-2020 aspired to create self-sufficiency by 2020. Targeted interventions include increasing access to improved seeds and inputs, mechanization, and exploitation of flood zones in the country's northwest region to increase production. The country also plans to increase milling capacity.

In **Ghana**, rice cultivation has benefitted from a number of programmes aimed at increasing domestic production in recent years. In 2008, Ghana released the National Rice Development Strategy (NRDS), with the goal of doubling rice production by 2018 and improving quality to increase demand for domestic rice. As part of the NRDS and the Food and Agricultural Sector Development Policy II, the government provided extension services and stabilized prices through the National Buffer Stock Company (NBSC). The government formed the NBSC to intervene in staple markets such as maize and rice to set minimum prices at the beginning of the growing season.

In **Mali**, the government recently adopted the Agricultural Development Policy (PDA – Politique de Développement Agricole, 2011– 2020), moving from a project-oriented to a sector-wide approach for agricultural development. In 2015, Mali validated its Comprehensive Africa Agriculture Development Programme (CAADP) for a ten-year investment plan and the National Programme for Investment in the Agriculture Sector (PNISA – Programme National d'Investissement dans le Secteur Agricole), which identifies strategic investments in five value chains: rice, maize, millet and sorghum, inland fisheries, and livestock products (both meat and dairy).

Nigeria has adopted an innovative framework for transforming the agriculture sector through the Agricultural Transformation Agenda (ATA). The vision of the Transformation Agenda of FMARD (Federal Ministry of Agriculture and Rural Development) is "*to achieve a hunger-free Nigeria through an agricultural sector that drives income growth, accelerates the achievement of food and nutritional security, generates employment, and transforms Nigeria into a leading player in global food markets to grow wealth for millions of farmers*". Key priority sectors of the ATA are cassava, rice and sorghum, horticulture, livestock (including dairy), and aquaculture. Based on the development agenda, support is given across all stages of agricultural production, including extension services, growth enhancement support, agro-processing, and marketing, agricultural infrastructure, cooperatives, rural development, land resources, food reserve and storage, quarantine services, R&D, insurance, mechanization, etc.

In **Togo**, the National Programme for Agriculture for 2017–2026 is among the sectoral policies which articulate the Government's priorities in this core sector. By 2026, the programme aims to increase the overall productivity of the agriculture sector by 10 percent, double the incomes of smallholder farmers and create 15,000 new jobs in agriculture and a further 2 million in related sectors. The government has also prepared, with the support of development partners and donors, the National Agriculture and Food Security Investment Programme (Programme National d'Investissements Agricoles et de Sécurité Alimentaire, PNIASA). It aims to develop actions and mectimerhanisms to improve access to means of production and develop the value chains of cereals (corn, rice, sorghum, etc.), roots and tubers (cassava and yam, etc.), pulses (beans, peanuts, and soybeans, etc.), and vegetable crops by fostering partnerships with the private sector.

46 IFAD (2019). Burkina Faso Country Strategic Opportunities Programme 2019 – 2024

At the regional level, ECOWAS initiated a regional Rice Offensive strategy to deviate the dependence on imported rice from Asia and reach rice self-sufficiency by 2025. The Regional Offensive for sustained recovery of rice production in the West Africa Programme was approved by the ECOWAS Council of Ministers in June 2014. This Offensive Strategy aims to reduce imports to zero by 2025. During the ECOWAS Consultative Meeting on Rice Offensive in February 2020, six strategic pillars along with proposed activities to facilitate regional value addition to country-level rice sector development agenda were concluded. These pillars are: (i) Regulatory measures; (ii) Finance and PPP mechanism; (iii) Knowledge sharing and management; (iv) Trade and marketing; (v) Coordination of inter-professional organizations, and (vi) Coordination of regional projects, programmes, and initiatives.[47,48]

47 Coalition for African Rice Development ((CARD) (2020). ECOWAS Consultative Meeting on Rice Offensive - (West Africa region's Rice Development Strategy), 4 - 5 Feb, 2020. Available at https://riceforafrica.net/meetings-page/regional-workshop/ecowas/ecowas-meeting,-feb-2020

48 NEPAD, GrowAfrica & AGRA (2020). ECOWAS Rice Factbook.

5.6. Recommendations

Recommendations for intervention specific to the rice value chain in West Africa are presented in the table below.

Table 10. Recommendations for Rice Value Chain in West Africa

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline***	Potential Partners
Implement R&D in the development of high-yielding, disease-resistant, short-duration varieties. Invest in irrigation facilities to reduce dependence on rainfed farmland and improved water management systems for smallholder farmers. Establish input and extension services clusters/center to support rice producers in adopting sustainable agriculture practices and scalable technologies	Improved yield of rice production and livelihood of rice producers	Producers	Medium	High	High	Medium/ Long	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Organize rice producers in associations/organizations to facilitate vertical coordination across the value chain and help open up regional markets. Promote the adoption of the contract farming model.	The better managed organizational capacity of rice producers to enhance their bargaining power in input/output markets; Enhanced market linkages and better-integrated value chains. Increased formalization through scale.	Producers, aggregators, processors	High	High	Medium	Short	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF, Private Sector

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline***	Potential Partners
Establish programmes to revive abandoned rice mills as well as provide new mills with lower capacities in remote areas which could be run by producer associations. Provide capacity building for proper production and post-harvest handling of good practices (GAP, GHP). GAP & GHP for post-harvest operations and adapted processing equipment (mini-rice mills) to reduce losses during the processing stage.	Reduced post-harvest loss; Improved quality of products to match market demands and potential exports.	Producers, processors	High	High	Medium	Medium	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Invest to improve infrastructure (road networks, electrical supply, storage, etc) to drive down production and processing costs.	Reduced costs of production and processing; Enhanced linkages between producers to end-consumers.	Producers, aggregators, processors, distributors	High	High	(Very) High	Long	Ministries/ Departments of Agriculture, World Bank, IFC, IFAD, USAID, FCDO, BMGF, Afreximbank, Private Sector
Conduct awareness-raising campaigns to enhance public perception of locally produced rice by highlighting nutritional benefits and quality of eating unpolished rice to enable local production to take market share from imports.	Increased market share for locally produced rice	Producers, aggregators, processors, distributors	High	Medium	Low	Short	Ministries/ Departments of Agriculture, World Bank, IFC, IFAD, FAO, USAID, FCDO, BMGF

**For Regional Food Trade; ** Investment level: Low (0-5 million); Medium (5-15 million); High (>15 million); ***Timeline (Short 0-2 years, Medium 3-5, Long 5+). Notes: BMGF = Bill & Melinda Gates Foundation. Source: Author's compilation*

6. Vegetables Value Chain

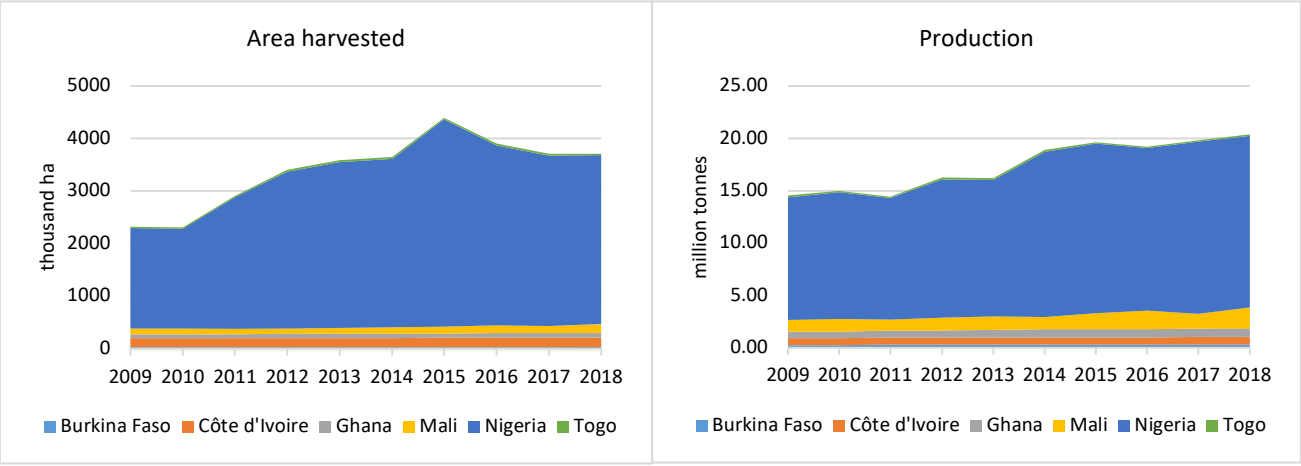
6.1. Key consumption, production, and trade trends

Vegetables represent an important economic activity contributing significantly to the livelihood of smallholder farmers in West Africa. In Burkina Faso, vegetables represent 16.5 percent of agricultural production and 10.5 percent of the primary sector. During the dry season, when production is not optimal, the sector still generates substantial income, mainly benefitting the youth and women who are responsible for marketing most of the production.[49] Vegetables are also an important component of the daily diet in Togo and a key source of income generation for smallholder farmers in urban centres and rural areas.[50] In Côte d'Ivoire**,** vegetables are usually grown by poor and vulnerable groups, living primarily in the suburban areas of big cities. Production is undertaken on very small plots and farmers sell their produce at the urban market via middlemen.[51] In Ghana, vegetables have economic, nutritional, and also medicinal importance, the cultivation of which is an excellent source of employment for both rural and urban inhabitants. [52] In Mali, vegetable production is a popular economic activity in rural and urban areas but constitutes a small share of the total agricultural production volume.[53] In Nigeria, fruits and vegetables generate more jobs per hectare, on-farm, and off-farm, than any staple-based agricultural enterprise. Farmers and landless laborers in both rural and urban areas benefit from this.[54]

Production of vegetables has increased over the last 10 years in the selected West African countries albeit at varied paces. Nigeria, with the largest population, is the largest producer of vegetables, accounting for over 80 percent of production and 87 percent of the cultivation area in 2018 (Figure 11). Vegetable production in the remaining five countries is relatively small, ranging from less than 1 percent of total production (such as Togo) to 10 percent (such as Mali). This can be arguably due to the relative production scale of vegetables compared to other crops (such as cocoa in Cote d'Ivoire and rice in Mali). For example, in Mali, the vegetable sector is largely underdeveloped, covering only 1 percent of the total cultivated area and accounts for 2.8 percent of total agricultural production volume.[55] [56]

49 FAO (2007). Analysis of the sector: market gardening in Burkina Faso.
50 Agribusinessdata.com (2019). Filières fruits et légumes au Togo: état des lieux et contribution à la sécurité alimentaire et nutritionnelle, Lomé, le 14 mars 2019, available at https://agribusinessdata.com/filieres-fruits-legumes-togo-etat-lieux-contribution-securite-alimentaire-nutritionnelle/
51 Netherlands Enterprise Agency (2018). Horticulture in Côte d'Ivoire - Opportunities for Dutch Businesses. Netherlands Enterprise Agency
52 Djokoto, J., Afari-Sefa, V., & Addo-Quaye, A. (2015). Vegatable supply chains in Ghana: production constraints, opportunities and policy implications for enhancing food and nutritional security (No. RESEARCH).
53 USAID (2018). On the functioning of agricultural markets in Mali Strategies for development.
54 Floriculture not considered
55 Forum for Agricultural Research in Africa (FARA) (2017). Innovation for sustainable agricultural growth in Mali.
56 An overview of Market Information Systems in Africa is presented in Annex 4

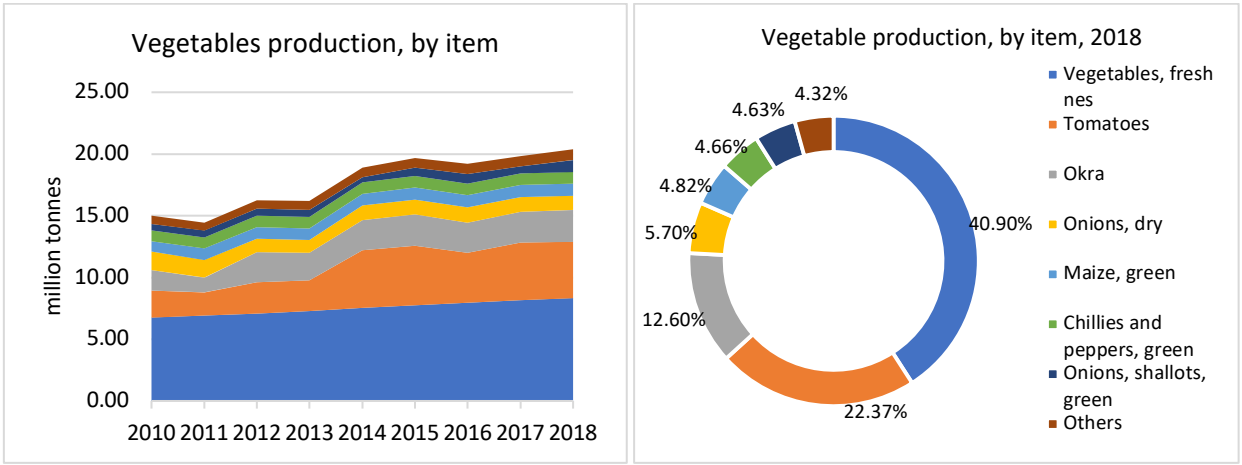
Figure 11. Vegetable Production in Western Africa, 2009-2018, by Country



Source: FAOSTAT

Within the vegetable subgroup, tomatoes, okra, onions and shallots, green maize, and chilies and peppers are among the most produced types. The production of vegetables has increased over the 2010-2018 period (Figure 12. VegetablePproduction in Western Africa, by Item), with coun0 tries focussing on the production of specific products. For example, in Burkina Faso, tomatoes and onions are two vegetable products that are actively produced, especially in the Cascades and Northern regions, as well as in the Sahel, partly due to the construction of the Yakouta Dam and the concentration of the vegetable traders. These products are then sold on the national market as well as to bordering countries such as Ghana and Niger.[57] In Ghana, apart from local vegetables, the most important vegetables are tomatoes, peppers (both sweet and hot chilies), onions, and okra.[58] Household vegetable production is widespread in Ghana, while the commercial production is concentrated on the South-East belt from Sunyani in Brong Ahafo Region to Ho in the Volta region, with additional planting running south from Bolgatanga to Tamale.[59] In Mali, among the ten main vegetables (cabbages, lettuce, okra, onions, shallot, potato, sweet potato, tomato, yam, and cassava), shallots and sweet potatoes have been the most intensively produced.[60]

Figure 12. VegetablePproduction in Western Africa, by Item



Source: FAOSTAT

57 Netherlands Enterprise Agency (2019). Report on Youth Employment in Agricultural Value-Chain: Burkina Faso. Available at https://www.rvo.nl/sites/default/files/2019/12/Report-on-Youth-Employment-in-Agricultural-Value-Chain-Burkina-Faso.pdf

58 Wageningen UR (2016). Vegetable Business Opportunities in Ghana: 2016.

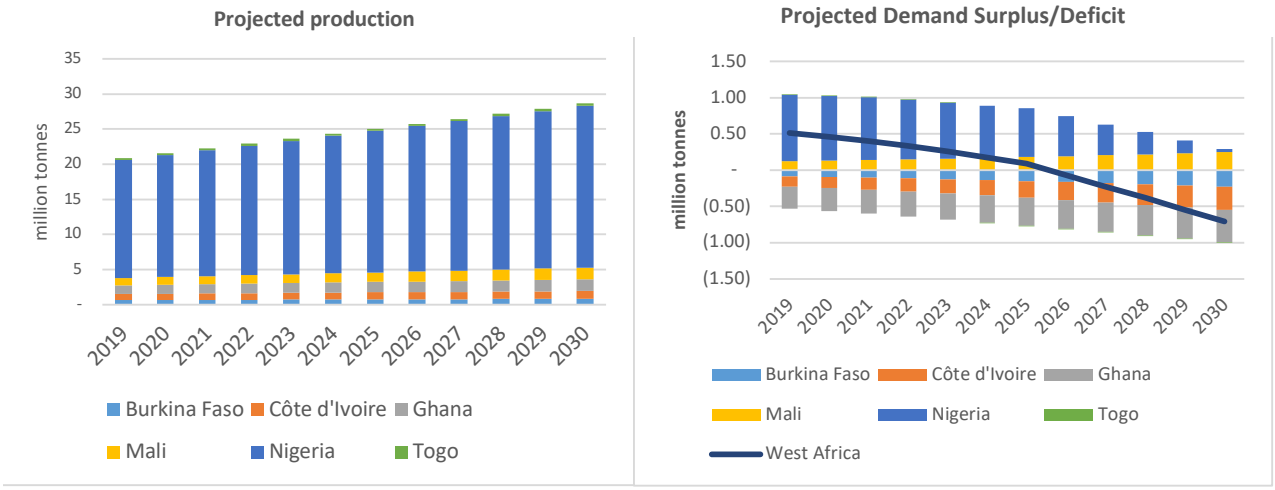
59 According to fieldwork

60 USAID (2018b). On the functioning of agricultural markets in Mali. Strategies for Development.

The market for vegetables is still evolving and local demand is high. In Mali, the share of vegetables in total food expenses ranges from 7.7 percent in rural areas to 8.4 percent in cities. The increasing demand for vegetables in this country is due to the rapid population expansion, a growing middle class, the surge of foreign workers, and demand from rural areas with prevalent industrial activities. Most of the vegetable supply is consumed by the local market and only a small portion is exported.[61] In Cote d'Ivoire, it is estimated that nearly 90 percent of the fruits and vegetables produced for the local market are sold at the farm gate by the farmer to the middlemen, transported to towns, and sold to wholesalers at certain large wholesale markets, mostly in the outskirts of towns.[62] In Ghana, the commercial vegetable sector's growth is driven by the growing middle class with a heightened health awareness of consuming vegetables, coupled with the boom of the supermarket industry. Irrigated agriculture technologies are on the increase leading to new production areas around the Volta River and Lake Volta, as well as specific flooded areas in the country.[63]

Projected data suggests that West Africa will have a production surplus for vegetables by 2025. IFPRI data suggests a substantially increasing trend in vegetable production in West Africa, ranging from 25 percent in Cote d'Ivoire to 53 percent in Mali in terms of production over the 2019-2030 period. According to IFPRI calculations, there will be a production surplus in the selected West African countries during the 2019-2025 period, as a result of a high level of total surplus in Mali and Nigeria surpassing the production deficit in the rest four countries. However, this surplus is expected to shift in 2026 due to the increasing demand. The regional total production is projected to rise by 37 percent over the 2019-2030 period, whereas demand for vegetables is projected to increase faster (by 44 percent) over the same period, implying an expanding deficit of vegetables in the region after 2026.

Figure 13. Projected production and demand for vegetables in Western Africa

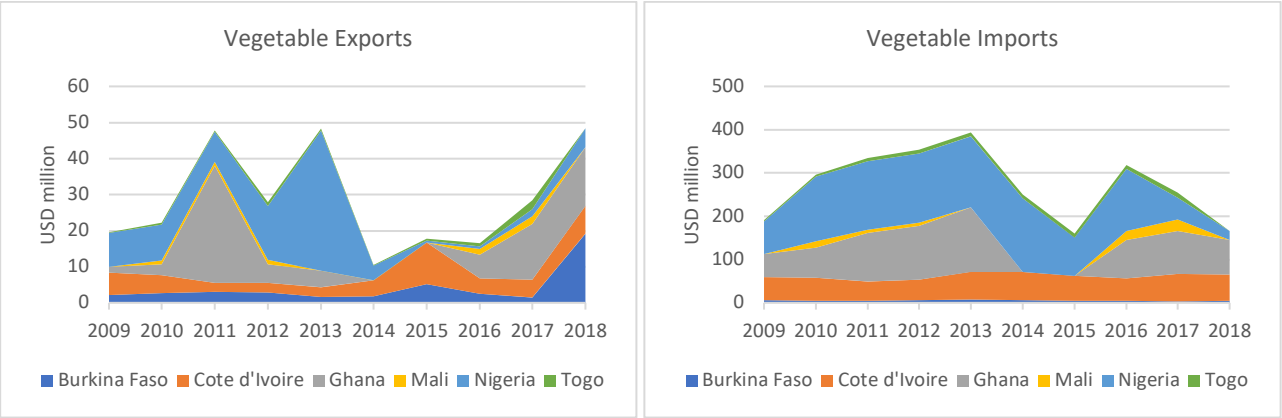


Source: IFPRI

The existence of a gap between production and consumption makes the region a net importer of vegetables. According to ITC Trademap data, Cote d'Ivoire and Ghana have the largest trade deficit in vegetable trade, accounting for 85 percent of all the regional imported vegetables. Imports and exports of vegetables by Western African countries indicated mixed trends with noted fluctuations over the 2009-2018 period. This could be explained by variations in domestic production that are compensated by imports in situations of deficit. Nigeria and Burkina Faso's vegetable import bills have decreased, while the other four countries have increased their spending on imported vegetables over the same period (see Figure 14).

61 USAID (2018a). Global Food Security Strategy (GFSS). Mali Country Plan. August 2018.
62 Netherlands Enterprise Agency (2018). Horticulture in Côte d'Ivoire - Opportunities for Dutch Businesses. Netherlands Enterprise Agency
63 Wageningen UR (2016). Vegetable Business Opportunities in Ghana:

Figure 14. Exports and Imports of Vegetables in Selected Western African countries



Notes: Data for a combination of mapped HS-6-digit codes for vegetables as described in the study methodology (section 4 of this report). Source: ITC Trademap

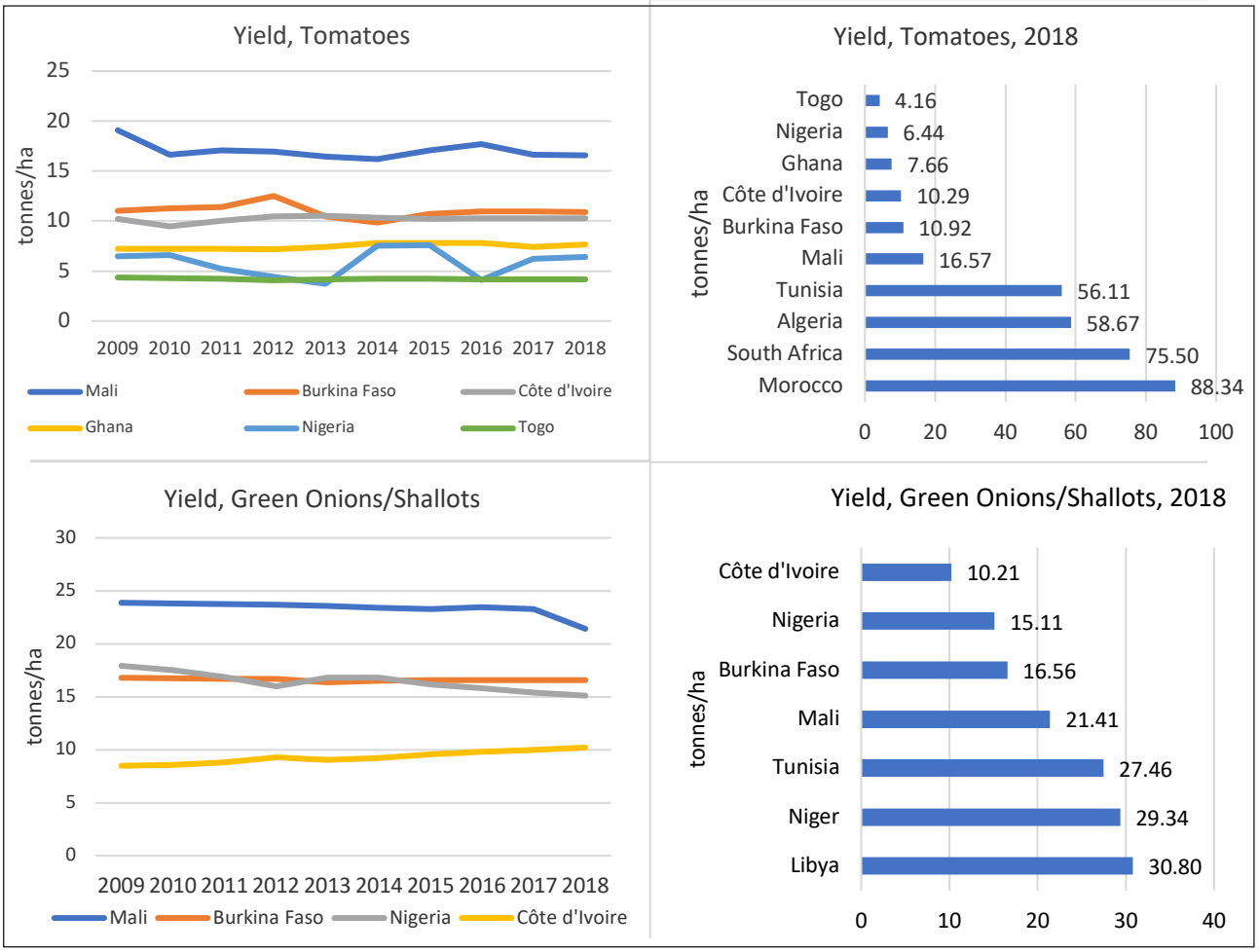
6.2. Key regional competitiveness drivers and challenges

The competitiveness of West Africa vegetable production is affected by multiple factors. Specifically, the yield per ha of vegetables in some countries has even been declining over the years. According to FAOSTAT, Mali recorded the highest yield for tomatoes at almost 17 tonnes/ha – four times higher than that of Togo. But Mali's tomato yield has been declining by 13 percent over the 2009-2018 period. Actually, the region's yield for tomatoes is relatively low compared to other more efficient vegetable producers in Africa, such as Morocco, South Africa, Algeria, and Tunisia. The region's onion productivity is also low compared to other producers, but the gap is not as large as for tomatoes.

The low productivity of the vegetable sector in West Africa can be attributed to the small-scale production systems that are usually associated with low productivity. For example, in Mali, vegetable production is carried out by approximately 91,625 active farmers, on plots averaging 0.1 ha.[64] Climate change and its entailed extreme phenomena such as floods and droughts also severely affect vegetable production in the region. For example, in Burkina Faso, 6.2 percent of the plots were affected by floods and 23.9 percent of the plots were affected by drought at the national level as reported in a 2016-17 study.[65] In Nigeria, the recent flooding across major onion cultivating locations has drastically affected yield and increased market price. The high perishability combined with lack of adequate crop storage infrastructures means that products must be sold as soon as possible after harvest, leading to high post-harvest losses and highly volatile and unpredictable prices. Inefficiencies along the value chain also stem from the current market structure and distribution mechanisms which are dominated by informal transactions and poor infrastructure, resulting in high levels of postharvest losses.[66]

64 USAID (2018b). On the functioning of agricultural markets in Mali. Strategies for Development.
65 Hema, K. B., Paré, B. A. M., & Somé M. A. (2018). Local Techniques for Crop Conservation in Burkina Faso: Analysis of the Valorization Status and Perception of Tilgr-Baore Technology. DOI: 10.5772/intechopen.85179
66 USAID (2018b), ibid.

Figure 15. Yield of Selected Vegetables in Western Africa



Source: FAOSTAT

6.3. Regional transportation and logistics routes

Table 11 indicates vegetable trade flows from the production region to consumption regions in Nigeria and Ghana, according to the fieldwork findings.

Table 11.Trade Corridors for Vegetables in West Africa

Starting Point	Corridor(s) / Roads Used	Destination
Nigeria		
North-West/ North-East	Kano – Ilorin – Ibadan – Lagos	South-West: Lagos
	Kano – Abuja – Lokoja – Enugu – Port-Harcourt	South-East/South-South: Enugu, Port-Harcourt
South-West	Seme-Badagry-Lagos corridor	Abidjan
	Lagos – Sango Otta – Imeko – Ilara – Ketou –Bohicon – Abomey – Come – Lome corridor	Lome
	Lagos – Ibadan – Saki – Kilibo – Tchaourou – Beterou – Djougou – Lamakara – Tatale – Tamale – Wa – Bobo Dioulasso – Bamako – Dakar corridor	Dakar
North-Central	Abuja – Ilorin – Igbeti –Kisi – Kayoma – Yasikira – Chicanda – Nikki – Ndali Djougou – Fada Ngourma – Ouagadougou	Ouagadougou

Starting Point	Corridor(s) / Roads Used	Destination
Ghana		
Accra	Tema-Ouagaougou corridor	Ouagadougou
Paga	Tema-Ouagaougou corridor	Accra
Paga	Tema-Ouagaougou corridor	Kumasi

Source: Author, based on fieldwork

6.4. Value chain stakeholder analysis

The value chain of vegetables in the five selected countries in the Western African region comprises different actors having their relevant characteristics and activities, the most common of which are summarised in Table 12.

Table 12. Overview of the Vegetables Value Chain in West Africa

VC Stages	Functions / Characteristics
Pre- Production	• Provide planting material and inputs (seeds, fertilizers, equipment, etc.) • Poorly organized input supply, with limited improved seeds and high costs (as evidenced in Mali[67]). • Dependent on imports for inputs supply, particularly pesticides for vegetable production. In Togo, farmers rely on other West African markets. In Nigeria, the production and distribution of seeds are supervised by the National Agricultural Seed Council (NASC); while vegetable seeds are imported at times. In Mali, producers obtain their seed supply from private enterprises and donors (NGOs and public-sector actors).
Production	• Constitute the majority of smallholder farmers, poor and vulnerable groups. For example, vegetable production is mainly carried out by the elderly in Côte d'Ivoire.[68] In Togo, while most of the farms are owned by men, women are responsible for most of the agricultural activities associated with the crop.[69] • Operating on small plots (for example, plot size averaging 0.1 ha in Mali, or gardening sites under poly-cropping practices in Togo). • Industrial or other more intensive farming models remain extremely limited. • There seems to be limited benefit from the existence of a sector association gathering actors involved in the different nodes of the vegetable value chain.
Processing	• In most West African countries, development agencies and governments have tried to start up the processing of vegetables through tomato paste factories, aiming to use the excess of overproduction of table tomatoes. However, most processing activities are performed by small units of transformation managed informally, while industrial processing is minimal partly due to investments and equipment requirements.
Transportation	• The transporters ensure the link between the suppliers, the producers, the traders, processors, and consumers. They comprise local carriers (who commonly use trucks, utility vehicles, and carts, and in some cases motorcycles and bicycles) and international carriers (who transport products intended for exports).

67 ZEF, FARA, IER (2017). Country Dossier: Innovation for Sustainable Agricultural Growth in Mali. Program of Accompanying Research for Agricultural Innovation. Bonn and Accra: Center for Development Research, Forum for Agricultural Research in Africa and Council for Scientific and Industrial Research.

68 Ir. Jan Arie Nugteren (2018). Horticulture in Côte d'Ivoire - Opportunities for Dutch Businesses, published by Netherlands Enterprise Agency (RVO), available at: https://www.rvo.nl/sites/default/files/2018/09/Horticulture-Cote-divoire.pdf

69 ITRA (2015), Vegetable production in Togo and potential impact of pesticide use practices on the environment

VC Stages	Functions / Characteristics
Aggregation/ Collection	• In Ghana, there are two types of farmgate buyers: **local market buyers** who may retail and/or sell to retailers in nearby markets; and **traders** or **agents of traders** who transport the produce to major markets. The '**market queens**' is a unique characteristic of **Ghana**'s vegetable market: they serve as a point of sale for most buyers, being responsible for the operation of a specific crop and settling disputes between traders and represent them in negotiations. • The **collectors** in Mali, often pre-financed by wholesalers, travel to the production sites to collect vegetables from producers for the wholesalers. The collector is generally accompanied by a transporter or a truck driver hired by the wholesaler.
Marketing/ Distribution	• Open markets remain the main channel of distribution for vegetables across all West African countries. The main actors participating in the chain include wholesalers, semi-wholesalers, and retailers. • In **Burkina Faso**, the vegetable distribution channel includes wholesalers who buy from the field trucks in a specific location, semi-wholesalers who buy from the wholesalers, and retailers who source from semi-wholesalers and wholesalers for bulk resale in the markets. • In **Cote d'Ivoire**, vegetables are usually sold at the urban market via middlemen. • In **Ghana**, the **wholesale** channel includes the (i) Domestic bulk suppliers, who supply 80 percent of the produce sold in the local market centres with regular supplies (via contracts with the market queens) and large volume; (ii) Itinerant suppliers who supply around 15 percent of the produce sold at local market centres with a smaller volume than the bulk suppliers; and (iii) other suppliers who serve high-end-markets such as the supermarkets, hotels, restaurants, and corner-shops. The products then are directed to consumers via retail channels such as local fresh market centres, corner shops, supermarkets, hotels, and restaurants. • In **Mali**, **urban wholesalers** obtain supply from rural producers through the **collectors** who are often pre-financed by them. As wholesalers are not equipped with storage and warehousing units, they must sell directly at truck arrival to **semi-wholesalers**, who subsequently sell to **retailers**. The different levels of transactions are executed almost simultaneously on the same disembarkation market and must happen in a short span of time due to the perishability of the product. Vegetable commercialization remains highly informal with exchanges between traders being almost exclusively settled in cash payments. • In **Nigeria**, traders of vegetables also include wholesalers and retailers. The majority of wholesalers (71 percent) buy the product directly from farmers, while some buy through agents. The main distribution channels include the traditional open markets (65 percent of the total sales), convenience/small grocery stores (34 percent) formal supermarkets (1 percent).[70]
Extension services	• Mainly governmental and parastatal entities provide advice to the farmers. In Ghana, extension services are provided by a wide range of both public, semi-public, and private institutions.[71] Public extension services staff focus more on staples such as cereals, tubers, and legumes, while private-sector-driven technical support services are found in the input supply sector. However, there are a lot of knowledge-based issues that could and should be addressed to support the needs of different actors in the vegetable sector. • Research institutes in Burkina Faso are integrated at the sub-regional level as they take part in the Western and Central Regional Observatory of Onion (ORO-AOC).

Source: Author, based on MAFAP (2013), Netherlands Enterprise Agency (2018), USAID (2018b), Wageningen UR (2016), Taste (2015)

A list of stakeholders and contact details is presented in Annex 3.

70 Taste (2015) Horticulture Sector Study for Nigeria. Available at https://www.rvo.nl/sites/default/files/2015/11/Report percent20Horticulture percent20Study percent20Nigeria.pdf

71 Such as the Extension Services Directorate (ESD) under MoFA, Quasi-Public Commodity extension systems, Private Companies Commodity extension systems, as well as by Non-Governmental Organisations and Research Institutes

6.5. Key findings on value chain

Like other agricultural sectors in the region, multiple challenges hinder the production of vegetables in the region. In Nigeria where production is quite expanded, vegetable production is still considered to be scattered, of low yield, inconsistent, lacking good agricultural practices, and hence has low quality, insufficient food safety, dependent on rain or artisanal irrigation, and highly labor-intensive.[72] Vegetable production in Burkina Faso is also negatively affected by water availability.[73] In Togo, the availability of fruits and vegetables is confronted with losses and damages that are recorded in the fields of around 12 percent to 20 percent and deterioration during distribution ranging from 20 percent to 50 percent of total production. Thus, on nearly 560,000 tonnes of production, only 270,000 is available for the market.[74]

West Africa has been implementing several projects with various development agencies to improve the trading environment. However, it still faces numerous constraints on the development of the vegetables value chain.

Table 13. Challenges in the Vegetables Value Chain in West Africa

Areas	Challenges faced
Production	• Most vegetable farming is largely subsistence and rainfall dependent; affordable irrigation systems for smallholder farming are not widely accessible. • Susceptibility to natural risks such as drought, pest, and disease outbreak. • Lack of farmer access to high-quality seeds of improved vegetable cultivars. • Underdeveloped irrigation systems (e.g., Burkina Faso with less than 1 percent of agricultural land under irrigation). • Lack of adapted mechanization and use of unproductive traditional methods for vegetable production. • Lack of understanding of the use of production inputs such as pesticides causes safety concerns. • Poor knowledge of conservation techniques and inadequate storage infrastructure for conserving produce during peak periods. • Lack of producer cooperatives. • Lack of access to finance; lack of access to price information.
Aggregation	• Post-harvest losses due to a lack of adequate packaging facilities and storage facilities where fresh vegetables are collected, washed, and sorted in pre-coolers before distribution.
Processing[75]	• Most of the tomato varieties being planted by Nigerian farmers have high water content and as such, processors will require more tomatoes per metric tonnes of a paste than their foreign counterparts. • Pricing and seasonality: Since most farmers are largely rain-dependent, there is usually a lean supply of tomatoes during dry seasons, which increases the price of the inputs and thus the tomato paste and other derivatives. • Lack of technical know-how and financial resources to set up small-scale vegetable processing facilities. • Lack of access to sufficient finance to invest in establishing processing facilities.

72 Ibeawuchi, I., N. Okoli, R. Alagba, M. Ofor, L. Emma-Okafor, C. Peter-Onoh and J. Obiefuna (2015). "Fruit and vegetable crop production in Nigeria: The gains, challenges and the way forward." Journal of Biology, Agriculture and healthcare 5(2): 194-208.

73 Brenda Ampomah (2019). The Impact of Climate Change on Water Supply in the Sahel Region: The case of Burkina Faso, available at: https://iwa-network.org/the-impact-of-climate-change-on-water-supply-in-the-sahel-region/

74 National Institute of Statistics and Economic and Demographic Studies (INSEED), Togo

75 This processing section is mostly focus on tomatoes

Areas	Challenges faced
Marketing	• Lack of storage facility for vegetables. At the peak period of harvest, there is a market glut, which directly affects the price of the products. • Smallholder vegetable farmers are not included in the supply chain of the supermarkets which source from large-scale farmers. • There is little product differentiation between vegetables sold in open markets and supermarkets other than the packaging most of the time. • The sale of fresh produce via e-commerce platforms is still nascent but has the potential to create a large market for vegetable farmers. • Lack of a transparent market price system. • Lack of standardized packaging (for example the weight of a standard bucket of tomatoes). • Weak compliance with quality control, packaging, and certification for exports
Transport	• The roads are in a deplorable state, which causes a delay in the delivery of farm produce. It takes about 2 - 4 days to transport from the farm-gates to regional markets. The poor state of the roads drives up the cost of transporting the produce. However, alternative means of transportation, like trains, do not exist or are unreliable. • The vehicles used for moving vegetables are not suitable, for example, they are not equipped with coolers or are not well-ventilated, which affects the quality of the product that gets to the market. • No formal contract to resolve disputes when damages to products occur during transportation. • There are high logistics costs associated with moving vegetables cross-border due to multiple security checkpoints with unspecified and unreceipted amounts of money. For example, there are over 30 security agencies between Mile 12 market in Lagos to Seme (Benin Republic) border.
Policy gaps	• Most vegetable farmers do not access government interventions; most of the interventions are more skewed towards the grains and other cash crops. • Lack of comprehensive policies on agricultural inputs, especially for the vegetable sector. • Vegetable informal trade exists without an efficient border control and trade monitoring framework (Ghana).

Source: MAFAP (2013), Netherlands Enterprise Agency (2018), USAID (2018b), Wageningen UR (2016), Taste (2015), and fieldwork

6.6. Recommendations

Recommendations for intervention specific to the vegetable value chain in West Africa are presented in the table below.

Table 14. Recommendations for Vegetables value chain in West Africa

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline***	Potential Partners
Implement R&D programmes to develop and distribute pest and disease-resistant varieties. Invest in irrigation facilities to reduce dependence on rain-fed farming. Provide technical and capacity-building support to local seed growers to ensure seed quality and increase accessibility to phytosanitary inputs.	Improved quantity and quality of production	Producers	Medium	High	Medium	Short/Long	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Provide training on post-harvest loss reducing techniques and postharvest handling methods (GAP, GHP) throughout the process of pre-harvest, harvest, cooling, temporary storage, transport, handling, and market distribution. Provide training on bio-certification and proper management practices required to supply the export markets.	Improved quality of products to match market requirements and potential exports	Producers, processors	High	High	Medium	Short/ Medium	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Encourage agricultural lending, especially for small-scale producers and processors. Promote contract arrangements between growers and private companies to stabilize production output – processing input.	Enhanced access to production capital contributing to stable stock, enhanced market linkages, and better-integrated value chains	Producers, processors	High	High	High	Short/ Medium	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF, Afreximbank

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline***	Potential Partners
Increase market efficiency by facilitating access to price information systems.	Better opportunity for producers and traders to exploit new markets and be better informed in production planning	Producers, aggregators, processors, traders	High	High	Low	Short	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF, Private sector
Develop basic infrastructure and facilities, such as upgraded roads to connect production areas with markets, cold storage for product conservation, and national standards for transportation to reduce post-harvest losses.	Reduced post-harvest loss and loss incurred along the value chain, thus reducing overall costs; Enhanced linkage from producers to end-consumers	Producers, aggregators, processors, traders	High	High	(Very) High	Long	Ministries/ Departments of Agriculture, World Bank, IFC, IFAD, Private Sector

**For Regional Food Trade; ** Investment level: Low (0-5 million); Medium (5-15 million); High (>15 million); ***Timeline (Short 0-2 years, Medium 3-5, Long 5+). Notes: BMGF = Bill & Melinda Gates Foundation. Source: Author's compilation*

7. Yam Value Chain

7.1. Key consumption, production, and trade trends

Yam plays a very important part in ensuring food security and the livelihood of at least 60 million people in West Africa. About 57 million tons of yams (93 percent of global production) are produced on 4.7 million hectares annually in West Africa, mainly in five countries, i.e., Benin, Côte d'Ivoire, Ghana, Nigeria, and Togo.[76] The demand for yam is multi-fold: household food supply, income generation, seed production, and cultural activities such as traditional rituals, marriage ceremonies, and annual festivals. Yams, therefore, have significance over other crops, and demand continues to grow in the region. Productivity and total production of yam are stagnating or even declining in some areas. The contributing factors include scarcity of high-quality seed for local popular and improved varieties, high levels of post-harvest losses (almost 40 percent), high production costs, low and declining soil fertility, moisture stress, as well as pests and diseases, etc.

Nigeria is the world's largest yam producer, contributing approximately two-thirds of the global production. Yam is an important staple food crop in Nigeria and is produced both for household consumption and as a cash crop. However, production areas are characterized by low standards of living and are poverty-ridden.

Yam has been the second-highest produced food crop in Ghana over the past fifty years. In Ghana, yam contributes about 16 percent of the country's agricultural GDP. Yam is produced in Ghana across the various agro-ecological zones in varying proportions, with the top producing areas being Brong Ahafo and Northern Region (39 percent and 25 percent of total yam output, respectively). In 2010, Ghana became the second-largest producer of yams in the world in terms of quantity and had been the second-largest producer in terms of value since 2001. In 2010, the total yam production value was USD 1.6 million and accounted for the most significant proportion of any crop.[77]

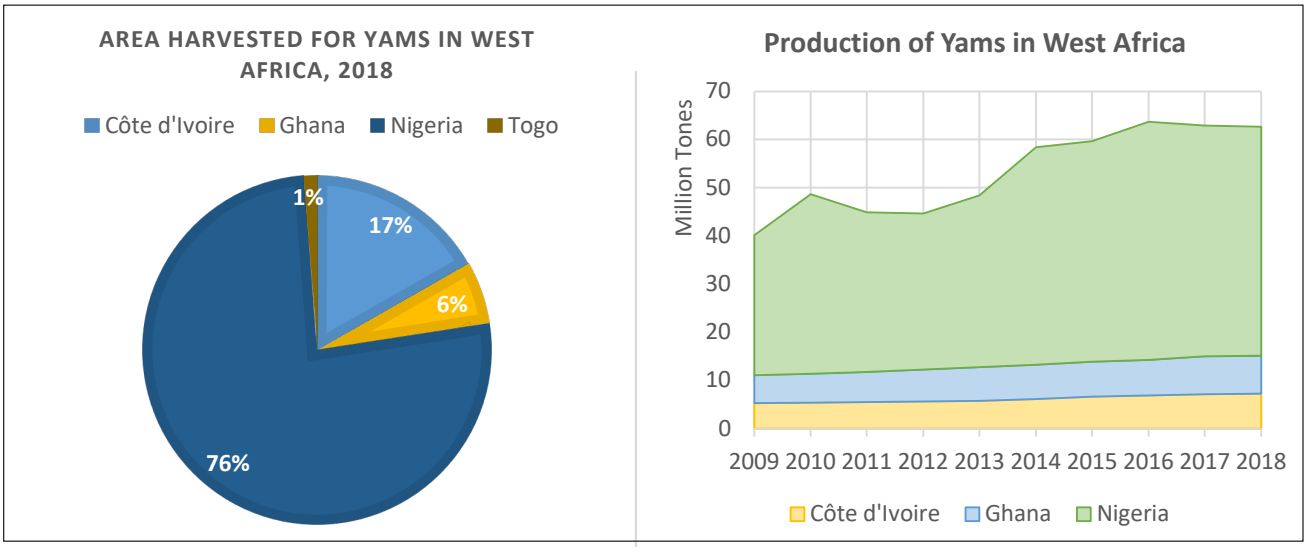
Côte d'Ivoire is the third-largest producer of yams globally, following Nigeria and Ghana. Côte d'Ivoire lost its second place in yam production to Ghana in 2009, and the two countries' yam production figures have, since then, increased with comparable speed. Côte d'Ivoire's production has been increasing over the past years, registering 7.1 million tonnes in 2017. The increase in production is mainly due to the expansion of harvested areas, but the productivity has continuously fallen from approximately 8 tons/ha to merely 5.8 tons/ha during the 2007-2017 decade, registering a decline of 28 percent.

Yam is the second most-produced tuber in Togo. The crop makes a substantial contribution to protein in the local diet, ranking as the third most important source of a protein supply, with a greater protein content than the widely grown cassava. Farmers in Togo engage in yam cultivation for household food supply, income generation, and production of planting material to meet their own needs. Yam inputs are also grown locally to generate some income – from the sale of surplus seed yams.

76 Sanginga, N. (2015). Root and Tuber Crops (Cassava, Yam, Potato and Sweet Potato). International Institute of Tropical Agriculture (IITA).

77 Bergh, K., Kpala, C., Orozco, P., Gugerty, M.K., & Anderson, C.L. (2012). Yam Value Chain: Ghana. EPAR Brief No. 206. Evans School Policy Analysis and Research (EPAR).

Figure 16. Area harvested and Production values of yams in West Africa



Source: FAOSTAT

Nigeria has the highest area harvested and production values in West Africa. The majority of the area harvested for yams in West Africa is in Nigeria with a share of 76 percent, followed by Cote d'Ivoire, with a share of 17 percent. The top three producers are Nigeria, Ghana, and Cote d'Ivoire (Figure 16). The main yam-producing regions of Nigeria are given in Table 15.

Table 15. Production Zones for Yams in Nigeria

Production Zones	Volumes Produced (MT)	Percent of National/ Regional production *
North-Central	20,987,790	37.3 percent
South-East	9,322,560	16.6 percent
South- South	9,160,680	16.3 percent
South-West	8,661,690	15.4 percent
NW/NE	8,212,810	14.4 percent
Total	56,345,530	100 percent

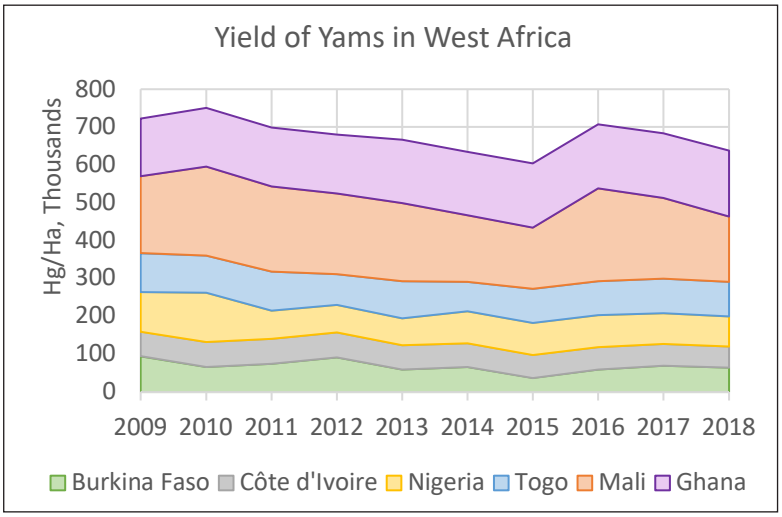
Source: Data from fieldwork

Ghana's yam production has increased over 36 percent during the 2009-2018 period, representing an average of 3 percent annual growth. Both expansions of cultivated area and yield have contributed to this production boost, though yield growth has not been significant.

Despite an increase in overall yam production, yield levels per ha have been deteriorating mainly due to decreased rainfall as a result of climate change and a decrease in soil fertility, along with persistent issues such as inadequate processing equipment and certain traditional farming techniques[78].

78 Srivastava, Amit & Gaiser, Thomas & Paeth, Heiko & Ewert, Frank. (2012). The impact of climate change on Yam (Dioscorea alata) yield in the savanna zone of West Africa. Agriculture, Ecosystems & Environment. 153. 57–64. 10.1016/j.agee.2012.03.004; E. Frossard et Al (2017). The Challenge of Improving Soil Fertility in Yam Cropping Systems of West Africa. Front Plant Sci. 21 November 2017. doi: 10.3389/fpls.2017.01953.

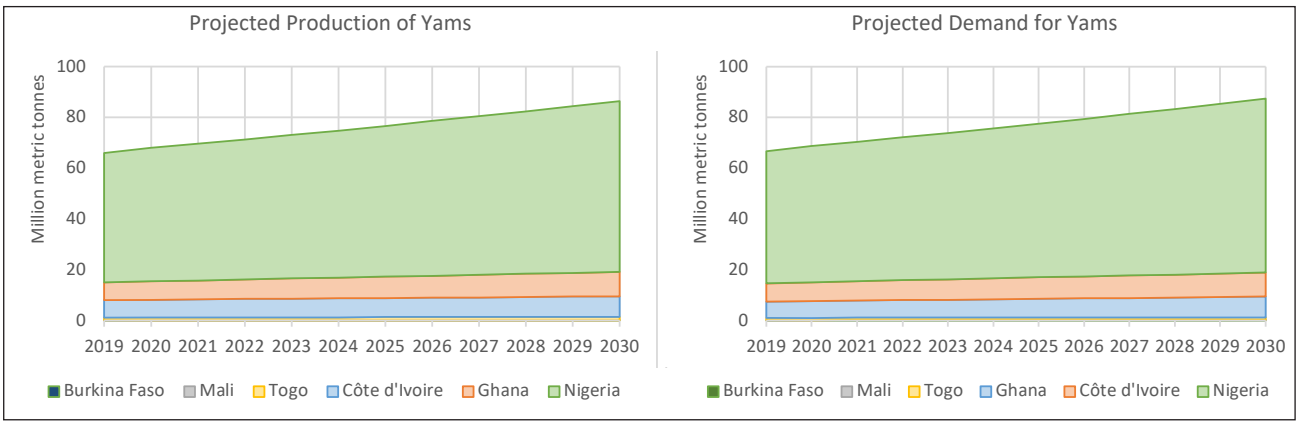
Figure 17. Yield of Yams in West Africa



Source: FAOSTAT

The demand forecast trends can be seen to be increasing. In terms of future demand, national demand in Nigeria may increase from 52 million metric tonnes in 2019 to around 69 million metric tonnes in 2030. IFPRI's forecasts also suggest an increase in regional ECOWAS demand for yam by 31 percent from the current 70 million metric tonnes to 91.7 million metric tonnes over the same period. In Ghana, demand is expected to increase from 6.5 million metric tonnes to around 8 million metric tonnes. Similarly, in Togo, demand is expected to increase by 300 thousand metric tonnes to almost 1 million metric tonnes by 2030. Production is expected to increase by over 20 million metric tonnes from 66 million metric tonnes in 2019 to over 86 million metric tonnes in 2030. Nigeria is expected to have the largest production growth among other West African countries: 16 million metric tonnes by 2030.

Figure 18. Projected production vs demand for yams in Western Africa



Source: IFPRI

In terms of yams trade, the region is a net exporter. Yams exports from West Africa grew at an average of 3.4 percent annually, increasing from USD 5.5 million in 2001 to USD 10.1 million in 2018. Ghana was the main exporter in the region, with exported as high as USD 154 million in 2011. However, exports fell to USD 8.7 million in 2018. In terms of imports, Mali was the only country in West Africa to import a substantial number of yams. Between 2001 and 2018, Mali imported a total of USD 5.6 million worth of yams, followed by Nigeria, which imported USD 1 million worth of yams.[79]

79 An overview of Market Information Systems in Africa is presented in Annex 4

7.2. Key regional competitiveness drivers and challenges

Yam production in West Africa should be further expanded due to its position in the regional food security. For example, yam is one of the most important sources of calories in Côte d'Ivoire. The crop contributes substantially to the diet, being the third most important source of a protein supply, above the more widely grown cassava as well as other animal protein sources.[80] According to FAOSTAT data, Côte d'Ivoire consumed 4.7 million tons of yams as food in 2017, rising from 4.1 million tonnes in 2014. It means an average consumption of 194 kg per capita per year in 2017.

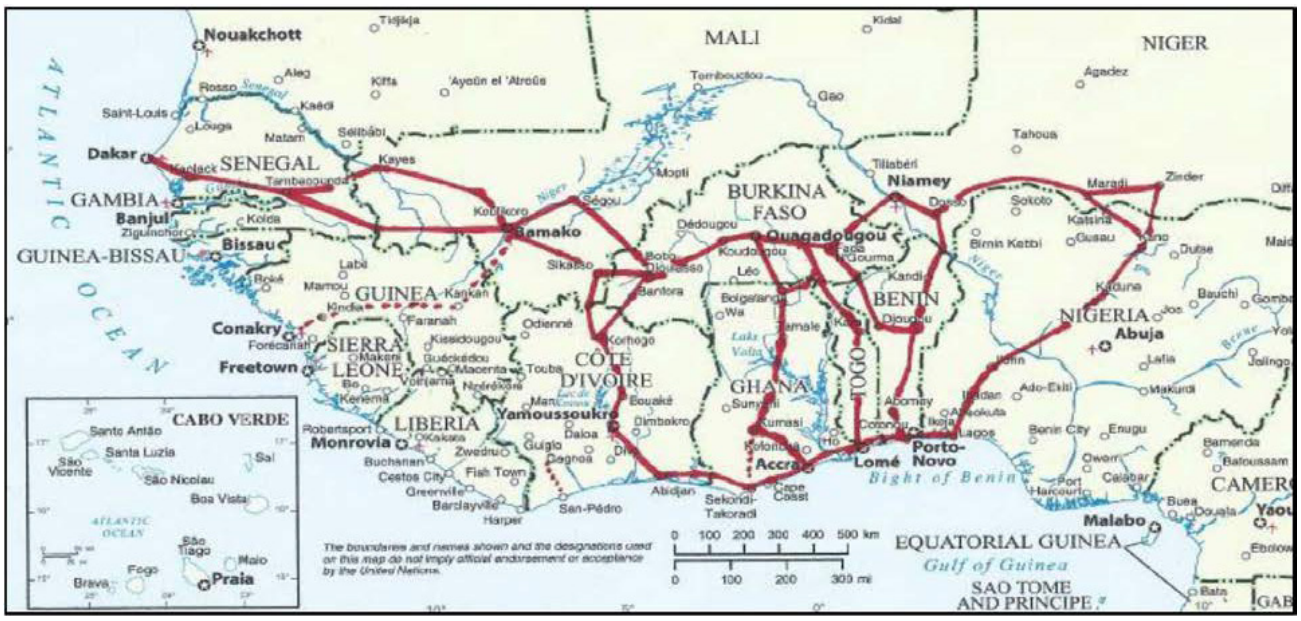
Yam production is also an essential source of food and income for smallholder farmers in Ghana. Yam farmers are predominantly male smallholders.[81] Statistics Research and Information Directorate (SRID) 2016 Survey shows yam is the second most important staple food in terms of consumption in Ghana, following cassava. Per capita consumption of yam reached 125 kg in 2015. Non-food consumption has risen at a faster rate than food consumption and now accounts for 30 percent of total consumption.

In Togo, yams are celebrated in some communities as a traditional meal. Yams are used in traditional rituals such as marriage ceremonies and annual festivals, making the crop a measure of wealth among locals. Due to this, yams have significance over other crops in the region. While productivity and even total production are stagnating or even declining in some areas, the amount of crop and forest land allocated to the crop is still growing rapidly. At the regional level, yam is a superior economic good in all the countries. As incomes increase, consumers shift from cassava to yam, due in part to cultural preferences.

7.3. Regional transportation and logistics routes

The major share of the formal trade is carried out through parts of the leading West African transport networks, which are: (i) West-East Trans-Sahelian Highway between Dakar and Ndjamena; (ii) the Trans-Coastal highway between Dakar and Lagos; and (iii) the interconnecting North-South roads.

Figure 19. Main trade corridors in West Africa



Source: Saana 2015/ EPCDM, July 2016

80 Sanginga, N. (2015). Root and Tuber Crops (Cassava, Yam, Potato and Sweet Potato).
81 Bergh et al 2012, ibid

Table 16 includes particular roads/trails/feeder roads that form the major trade arteries which are used for the yams value chain from production sites to regional markets.

Table 16. Trade routes for Yams in West Africa

Starting Point	Corridor(s) / Roads Used	Destination
Ghana		
Techiman	Paga-Dakola corridor	Ouagadougou, Niamey
Kintampo	Paga-Dakola corridor	Ouagadougou, Niamey
Kwahu North Afram Plains (Maame Krobo, Ekye Amanfro, Offei, Charity, Asenyasu, Dome, Ampong, Bonkuro)	Ferries	Accra
Kpandai (Kpandai, Bua, Katiejeli, Nkachina, Bladjai)	Tamale-Tema corridor	Techiman, Kintampo, Kumasi, Accra
Nanumba South (Wulensi, Lung-nui, Nakpayili, kpayansi)	Tamale-Tema corridor	
East Gonja (Salaga)	Tamale-Tema corridor	
Nigeria		
North-Central	Benue – Lokoja – Lagos Road Benue – Enugu – Umuahia – Aba Road Benue – Abuja – Kano Roads Benue – Enugu – Umuahia – Aba - Port-Harcourt	South-West: Lagos South-East: Enugu, Aba North-West: Kano, Kaduna South-South: Port-Harcourt

Source: data from fieldwork

7.4. Value chain stakeholder analysis

The typical value chain for yam in West Africa involves the following steps:

Table 17. Overview of Yam Value Chain in West Africa

Value Chain Steps	Description
Producers	In **Cote d'Ivoire**, producers are the primary actors in the value chain. In the marketing of yams, producers communicate either directly with wholesale traders based in Abidjan or through direct sellers. The producers can also play the role of direct sellers when they transport the yam to wholesalers on their expenses. In **Ghana**, smallholder farmers are the main producers of yams. They produce at the individual or family level, using traditional cultivation methods and engaging in active farmer clusters and associations. Intercropping of yam with other products such as legumes and cereals is usually carried out by women to generate additional revenue and maximize land usage. Some yam farmers produce for both the local and export markets. They sell their yams by taking them to the markets or sell to aggregators and wholesalers at the farm gate or through brokers in the markets. In **Nigeria**, the production process involves a large number of small-scale farmers who work in fields that are in areas with poor road networks. The farmers are engaged in clearing the land for production, planting, applying herbicides and fertilizer, gathering sticks for the yam vines, and finally harvesting.

Value Chain Steps	Description
Direct sellers/ distributors	In West Africa, **direct sellers/distributors** occupy a strategic place in the yam marketing chain and are often the cause of market price fluctuations. Direct sellers serve as a bridge between producers and wholesalers. Most often based in or close to production areas, they bear the cost of transportation from production areas to supply wholesalers in consumption centres like Abidjan. It is perceived that they manipulate the price, resulting in income loss or reduction of producers. **Brokers** in Ghana are women in the market who sell yam on behalf of the farmers in exchange for a commission from buyers and farmers. **Wholesalers** operate primarily in the cities and towns across the country. They purchase from brokers or farmers and sell in relatively large quantities to **retailers** or **processors**. Retailers, in turn, sell yams in small amounts to consumers. In Nigeria, yam tubers are sold through various channels to the final consumer. Groups of traders and middlemen engage in selling large quantities to either retailers or processors. The retailers further sell to consumers or to other buyers who plan to resell the yams.
Transportation	Transporters play a crucial role in connecting the yam production and consumption areas. In Cote d'Ivoire, they often charge by weight, according to yams pre-collected and stored in the city or the regional capital, and differently for collecting yams at the farm gate. Sometimes, a pre-collection is first done by tricycles or a better-adapted truck. The transportation costs borne by direct sellers are often passed to the sale price to wholesalers. The farmers choose the location where they plan to sell the yam tubers and look for transportation means in Nigeria. In some cases, buyers come to buy the tubers from the farms and are therefore the responsibility of the buyer to handle transportation. There are several destinations, where the transporters take these tubers, including the local village market, the nearest city market, and state or regional markets for export. Ghanaian transporters connect farmers, aggregators, wholesalers, and processors across the country. Yam is transported with trucks or ferries in some riverine communities. Transportation in Ghana and across West Africa is still underdeveloped and constitutes a large part of the retail price of yam tubers.
Processing	The local method in Nigeria for processing involves using a dry grinding machine, and it is sold within the market. The modern method involves big industries purchasing yam in large quantities, either from the wholesalers or middlemen. Processing is done on a large scale, requiring formal registration, standards, and proper packaging. The finished product is then sold to consumers. Processors of yam in Ghana mostly operate at the household level and some in informal channels, or on farms, where they are primarily women. Formal processors rely on aggregators or brokers to source large quantities of yam. A few have direct links to farmers and purchase yams at the farm gate. There are only a few commercial yam processors in Ghana, and their yam products, including yam flour, are mostly for the export market.

Source: Information from fieldwork and literature review. 82

A list of stakeholders and contact details is presented in Annex 3.

82 Sahel Capital Partners & Advisory (2014). Yam Improvement for Processing (YIP). Ghana. Submitted to the Bill & Melinda Gates Foundation. April 2014;
Fatima Damulak (2012) The Yam Value Chain: Constraints and Opportunities for Small-Scale Farmers;
Evans Institute (2012) Crop value chains: Yams in Nigeria

7.5. Key findings on value chain

Sanginga (2015) pointed out our major challenges to actors in the yam value chain.[83] The key constraints in the yams value chain in West Africa are summarised below:

(i) **Scarcity and high cost of quality seed yams, plus informal seed system.** Seed yams are accounting as much as 63 percent of total production costs, bulky to transport, and have a low multiplication ratio (less than 1:10) compared to cereals (1:300). Poor quality planting materials carry problems (viruses, fungi, and nematodes) from the storage barns to the field resulting in low tuber yields, followed by poor shelf life.

(ii) **On-farm harvest and post-harvest losses** due to poor farm practices during harvesting, transportation, and storage, as well as pests and diseases. Short shelf-life and sprouting in storage barns also reduce tuber quality. *There is ongoing research in Ghana and Nigeria to identify the best technologies for curing and extending shelf-life for yam.*

(iii) **The deteriorating soil structure and fertility** associated with shortening fallow periods have led to declining yam productivity and production. The management of soil fertility to achieve sustainable high productivity in intensifying yam systems in West Africa is a serious challenge. *Field studies are in progress, and there is a need for further complementary studies for interventions.*

(iv) **Lack of robust varieties to adequately respond to the region agro-ecologies and the requirement of various value-chain actors**: With shrinking land availability and weather changes, yam is being cultivated in the savannah agro-ecologies under drier conditions and increasingly lower soil fertility. *There are efforts[84] to develop stress-tolerant varieties, with a focus on low fertility of the soil, drought tolerance, and virus resistance, but further studies would still be needed.*

(v) **Increasing pressure of diseases and pests** is becoming a big threat to most farmers. Detailed studies are in progress on the causal order to map out the most efficient strategies for managing them. Robust diagnostic tools have been developed in the Yam for Income and Food Security in West Africa (YIIFSWA) project which is important in the production of the quality of seed yams.

(vi) **Unexploited potential of yam (ware and seed) markets by smallholder farmers**: Yam has good value in the form of fresh tuber, but there are challenges in marketing associated with storage facilities to maintain quality, transportation costs, impact on quality, taxation, access to markets for smallholder farmers, and higher pricing. *The introduction of technological innovations to stimulate productivity and connectivity will be a good move toward promoting the production and marketing of yams.*

(vii) **Limited opportunities for smallholder farmers, mainly rural women, in yam production and marketing**: Women play an important role in the yam value chain, although their specific activities and involvement vary across the region. There are partnerships between IITA, ITC (UN), Fair Trade, ministries, and other institutions in Ghana that seek to address several of these constraints through a multi-crops and multichannel value chain platform with an emphasis on yam, the lessons learned from which can be adapted to Côte d'Ivoire.

Furthermore, specific challenges in the Yams Value chain in Ghana are given in Table 18:

83 This section is mainly adapted from Sanginga (2015). The study is for all West African countries, including Nigeria, Benin, Togo, Ghana, and Cote d'Ivoire.

84 IITA and NARS are working on this areas in Nigeria, Benin, Ghana, and Cote d'Ivoire with support from the AfricaYam project funded by the BMGF, and the Government of Japan (MAFF project).

Table 18. Challenges in the Yams Value Chain

Actors	Key Challenges
Farmers	- The high cost of seeds. - High labor costs; Inefficient and ineffective labor. - Poor quality seed yams; Unable to germinate, or diseased tubers. - Very restricted access to credit facilities. - Attack from insects; rodents and millipedes, pests, forcing sales at lower prices. - Break and scratches through mishandling. - Shelf life is affected by heat and breakage. - Absence of irrigation system - only rely on irregular rainfall.
Transporters	- Lack of tarred roads on some major roadways in production areas. - The high cost of truck rentals. - Risks of accidents. - Inadequate tractors for transportation to market centres. - Delay of ferries. - Demands for bribes from policemen; Illegal road expenses paid to Ghana Highways Authority's agents. - Traffic congestion in Kumasi and Accra.
Wholesalers/ Retailers	- Lack of credit. - Lack of storage facilities. - Risk of loss due to bad roads. - Risks of accidents leading to huge losses (broken yam tubers; death sometimes).
Formal Processors	- The high cost of yam tubers. - Limited access to credit. - The high cost of machinery. - Lack of consumer awareness. - Inconsistent demand. - Delays in regulation processes.
Informal Processors - Slow market. - A lot of stress is involved in processing. - Seasonality of yam affects prices.	
Fabricators	- Limited demand for processing machines. - Lack of precision from buyers to fabricate the most appropriate machine. - Limited access to credit and high interest rates.
Consumers	- Rotten yam tubers cannot be identified at the time yam is purchased. - High prices. - Inconsistent availability of yam.

Source: Sahel Capital Partners & Advisory (2014)

7.6 Recommendations

Recommendations for intervention specific to the yam value chain in West Africa are presented in the table below.

Table 19. Recommendations for Yams value chain in West Africa

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline ***	Potential Partners
Develop more effective yam varieties using technology to ensure disease- and pest- resistance, high quality in accordance with consumer preference; promote commercial production of certified seed yams; promote new yam varieties to markets.	Improved quality of products to match market demands.	Producers	Medium	High	Low	Long	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Disseminate technological innovations and good practices for raising productivity, reducing pre-and post-harvest losses, and minimizing production costs	Improved quality of products to match market demands.	Producers, processors	High	High	Medium	Medium	Ministries/ Departments of Agriculture, World Bank, IFAD, FAO, USAID, FCDO, BMGF, Private Sector
Expand the production and marketing of diverse traditional and novel yam-based products.	Higher value-added for the production sector and better-integrated value chain.	Processors	High	High	Medium	Medium	Ministries/ Departments of Agriculture, World Bank, IFAD, FAO, USAID, FCDO, BMGF, Private Sector
Launch broad-based consumer awareness campaigns to raise awareness, appreciation, and enhance the consumption of processed yam.	Increased demand and consumption of locally produced yam products.	Producers, processors, distributors	High	High	Low	Short	Ministries/ Departments of Agriculture, World Bank, IFAD, FAO, USAID, FCDO, BMGF, Private Sector
Improve the road networks and other basic infrastructures that directly enhance the value chain efficiency (e.g. facilities for transportation, storage, etc.).	Reduced post-harvest losses incurred along the value chain, thus reducing overall costs; Enhanced linkages from producers to end-consumers.	Processors, wholesalers, retailers, Exporters	High	High	(Very) High	Long	Ministries/ Departments of Agriculture, World Bank, IFC, IFAD

**For Regional Food Trade; ** Investment level: Low (0-5 million); Medium (5-15 million); High (>15 million); ***Timeline (Short 0-2 years, Medium 3-5, Long 5+). Notes: BMGF = Bill & Melinda Gates Foundation. Source:* Author's compilation

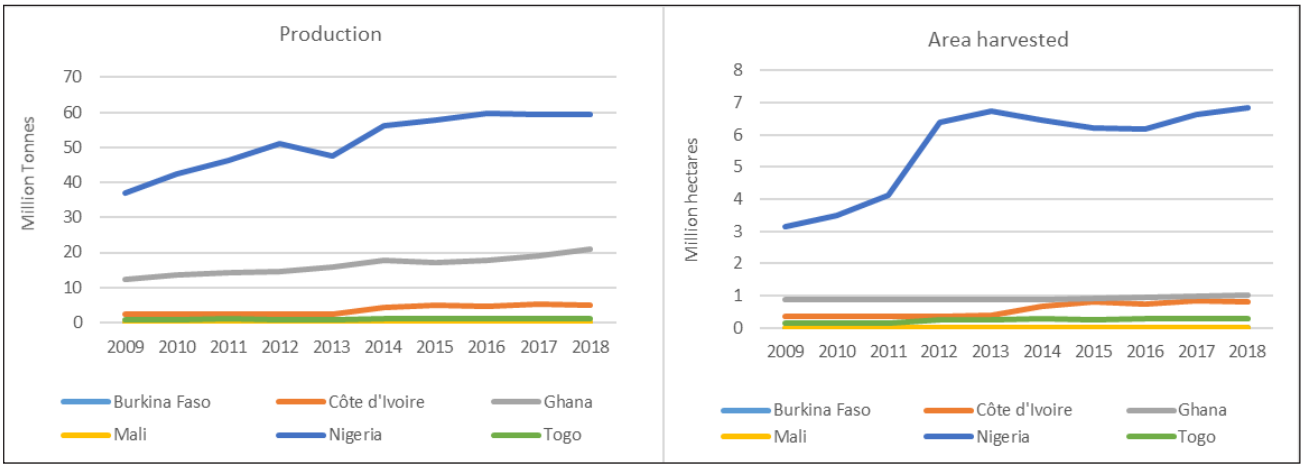
.8. Cassava Value Chain

8.1. Key consumption, production, and trade trends

Cassava, along with maize, is among the main pillars of West Africa's food security. This crop also forms the backbone of a thriving agro-industry, given its multiple market applications.[85] Cassava is also increasingly used for starch in the making of adhesives, corrugated boards, gums, wallpaper, foundries, well-drilling, paper industry, textile industry, wooden furniture, particleboard, biofuels, alcohol products, dusting powders, pharmaceuticals, plastics, packaging, stain removers concrete stabilizers, and remoistening gums[86].

Western Africa is a key global producer of cassava, with Nigeria being the largest producer in the world. The region's characteristics of a favorable climate and vast natural agricultural resources make it an attractive investment destination for cassava. Cassava production in 2018 was nearly 60 million tonnes, with a total area harvested of 6.8 million hectares and an average yield of 8.7 tonnes per hectare.[87] Ghana is the world's fourth-largest producer of cassava, with a production value of over 20 million tonnes. Cassava, which can grow well on marginal lands, is one of the most important staple foods in Ghana. Cassava production represents approximately 50 percent of all roots and tubers production in Ghana, with the majority of cassava grown by small-scale farmers.

Figure 20. Area Harvested and Production of Cassava in West Africa



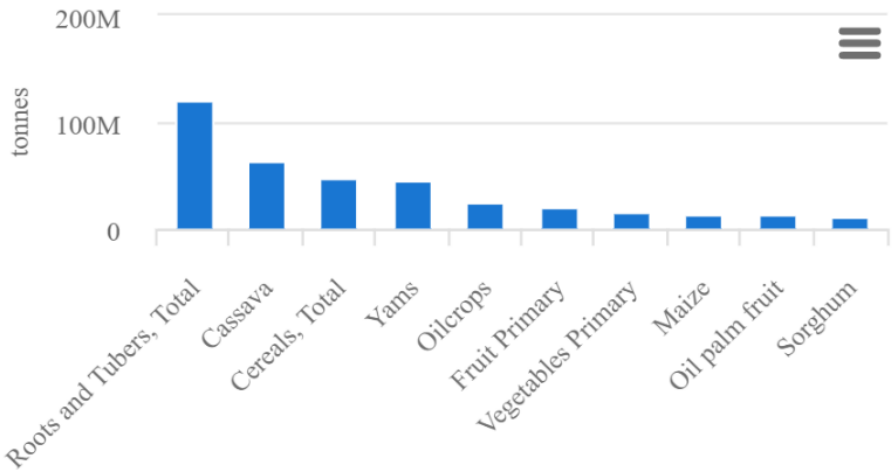
Cassava is grown in all the states of Nigeria, but the key producing states are Benue, Kogi, Enugu, Imo, Cross-River, Ondo, Ogun, Delta, Anambra, Edo, and the Taraba States.[88] In Ghana, cassava is grown in all regions but is particularly abundant in Central, Eastern, Brong Ahafo, Volta, and Ashanti regions. Togo, where cassava is also an important subsistence crop, is grown only in the south of the country in the regions of Agoè, Tabligbo, Tsévié, Vogan, and Aného.

There is a surge in the consumption of cassava in Western Africa. Cereals, roots, and tubers continue to account for between two-thirds and three-quarters of the calories on average. The diversification of these carbohydrate sources is important, also serving as a substitute for rice. In Ghana, the SRID 2016 Survey classified cassava as the most important staple food in terms of consumption, followed by yams. Cassava is a more affordable substitute to yam due to yam's high price volatility

85 Elbehri, A. (2013). Rebuilding west africa's food potential: Policies and market incentives for smallholder-inclusive food value chains, FAO/IFAD.
86 Elbehri, A., J. Kaminski, S. Koroma, M. Iafrate and B. Marwan (2013). West Africa food systems: An overview of trends and indicators of demand, supply, and competitiveness of staple food value chains. Rebuilding West Africa's Food Potential.
87 According to FAOSTAT data,
88 ACTA (2019). Cassava, a 21st Century Staple Crop: How can Nigeria Harness Its Enormous Trade Potentials?, 2019

which makes it prohibitive for the average low-income urban family. In Togo, cassava is the most consumed tuber.[89] Cassava is also the third most important source of calories after rice and maize in Burkina Faso. Primary products of processed cassava include gari, fufu, la-fun/elubo, starch, and pellets. At the same time, further processed primary cassava products include glucose syrup, dextrin, and adhesive, which are obtained from starch.[90]

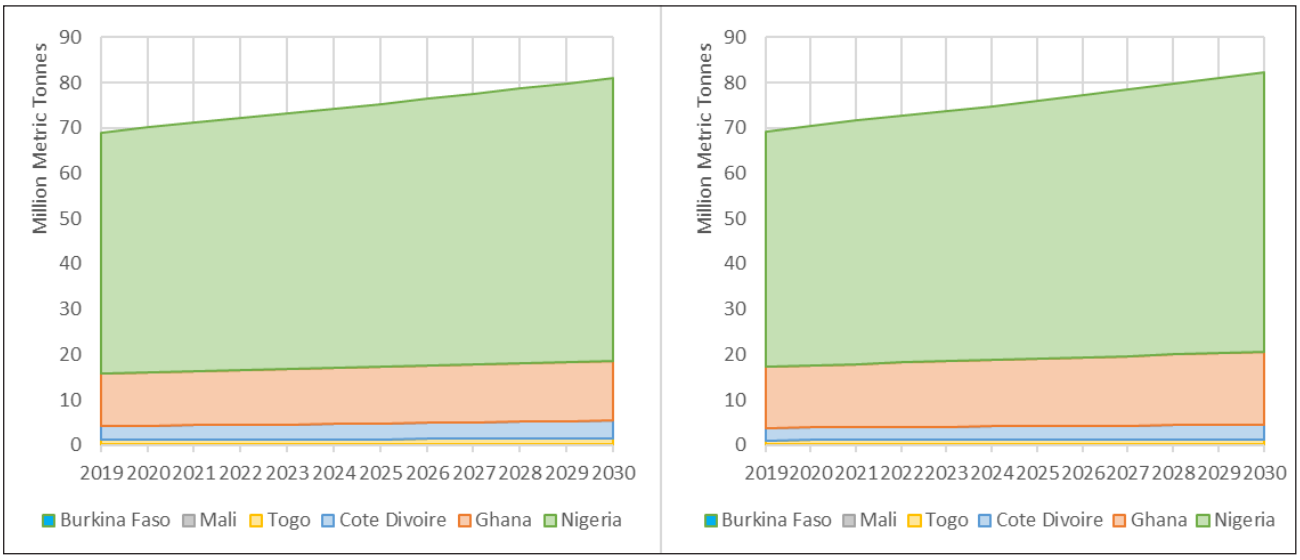
Figure 21. Most Produced Commodities in Western Africa



Source: FAOSTAT

IFPRI production and demand forecasts show a slight production deficit in the region. Production is expected to reach 81 million tonnes, whereas demand is expected to reach 82.3 million tonnes by 2030.

Figure 22. Projected production and demand for Cassava in West Africa



Source: IFPRI

89 TogoFirst (2020). An overview of agriculture in Togo: present and future. Available at https://www.togofirst.com/en/agriculture-panorama/2502-5007-an-overview-of-agriculture-in-togo-present-and-future

90 Otekunrin, O. A. and B. Sawicka (2019). "Cassava, a 21st Century Staple Crop: How can Nigeria Harness Its Enormous Trade Potentials?", Acta Scientific Agriculture 3(8).

The region's cassava exports are insignificant, **with cumulative exports from the region at USD 700 thousand mainly exported from Togo, Ghana, and Mali**, according to ITC Trademap official data. In 2019, Togo exported USD 297 thousand, Ghana USD 207 thousand, and Mali worth USD 183 thousand of cassava to the world. More intra-ECOWAS trade takes place in primary cassava while there are few exports of processed products. Overall, the countries in the region have minimal intra-regional exports. In 2018, Cote d'Ivoire was the only country to export within ECOWAS with an export value of USD 16 thousand.[91]

8.2. Key regional competitiveness drivers and challenges

Cassava has been traditionally presented as one of the most cost-effective and nutritionally packed food due to its resilient qualities. The tuber is grown in temperate areas and has been acknowledged for contributing to the nourishment and livelihood of many African farmers[92].

Cassava can be grown by farmers indefinitely without having to depend on seed suppliers, fertilizer distributors, or rural credit programs. The crop's main competitiveness lies in its nature of being easily reproduced and tolerant to poor soil conditions. Certain improved varieties of seeds are being developed that could make the crop resistant to pests and provide higher yields, with no need for chemical inputs. Also, low-input cassava production does not generate acidification or pesticide residue that occurs with other crops, thus keeping the productivity of the soil intact.[93]

Cassava is mainly grown by households in coastal countries like Cote d'Ivoire, Togo, Ghana, and Nigeria to reduce the food shortage period as a means of food security. Cassava, therefore, contributes to food availability, stability, and accessibility in Western Africa.[94] Research suggests that cassava may be highly resilient to future climatic changes and potentially able to provide Africa with options for adaptation whilst other major food staples face challenges. As results indicate, cassava is positively impacted in many areas of Africa. In contrast, other major food staples such as beans, potato, banana, and sorghum are all projected to be negatively impacted by climate changes.[95]

8.3 Regional transportation and logistics routes

Transportation for cassava trade in West Africa is still rudimentary. A survey of West African cassava value chain actors revealed that most of the transporters involved in the cassava trade use a van, whilst less than a third use a motor bike to transport products. Only 17 percent of them use a car to transport products. In addition, most of the transporters are owners of their transportation (82 percent). Transporters usually move products from farm to processing place, from rural to urban centres, and from farm to markets for sale.[96]

In Ghana, transportation costs are high, which forces most women traders to resort to consolidation for cost-sharing (i.e., a group of women come together and rent a truck and share the cost). Ghana-

91 An overview of Market Information Systems in Africa is presented in Annex 4

92 Apata, Temidayo. (2019). Analysis of cassava value chain in Nigeria: pro-poor approach and gender perspective. International Journal of Value Chain Management. Available at: https://www.researchgate.net/publication/333941874_Analysis_of_cassava_value_chain_in_Nigeria_pro-poor_approach_and_gender_perspective

93 Biovision (2019). Cassava in Malawi and Zambia, Agroecology Info Pool. Avaialble at: https://www.agroecology-pool.org/portfolio/promotion-of-cassava-in-malawi-and-zambia/

94 Flibert, Guira & Som,et Al (2016). Origins, production, and utilization of cassava in Burkina Faso, a contribution of a neglected crop to household food security. Food Science & Nutrition. 5. 10.1002/fsn3.408. https://www.researchgate.net/publication/305487625_Origins_production_and_utilization_of_cassava_in_Burkina_Faso_a_contribution_of_a_neglected_crop_to_household_food_security

95 Jarvis, A., J. Ramirez-Villegas, B. V. H. Campo and C. Navarro-Racines (2012). "Is cassava the answer to African climate change adaptation?" Tropical Plant Biology 5(1): 9-29.

96 Coulibaly O. et Al (2014). Regional Cassava Value Chains Analysis In West Africa: Regional Summary, Technical Report. Available at: https://www.researchgate.net/publication/269989723_REGIONAL_CASSAVA_VALUE_CHAINS_ANALYSIS_IN_WEST_AFRICA_REGIONAL_SUMMARY

ian cassava roots are usually transported from farms by truck, tricycles/'motorking' or hand-pushed trolleys to processing facilities, where they are transformed into various products. The final products are either transported to local or international markets by the processors or purchased by aggregators, which grade, re-bag, weight, label, and store products before exporting them.[97]

Regional transportation and logistics routes in Nigeria and Ghana are given in Table 20.

Table 20. Regional Transportation Routes for Cassava trade

Starting Point	Corridor(s) / Roads Used	Destination
Nigeria		
Middle Belt and Southern Region: Benue, Kogi, Enugu, Imo, Cross River, Ondo, Oyo, Osun, Akwa Ibom, Delta, Edo, Anambra, Ekiti	Onitsha – Benin – Ore Road Lokoja – Lagos Road Umuahia – Enugu – Benue – Abuja – Kano Roads Enugu – Port-Harcourt	South-West: Lagos South-West: Lagos North-Central: Abuja, Kano South-South: Port-Harcourt
Northern Region: Kaduna, Nasarawa, Plateau, Taraba	Kaduna – Abuja Road	North-Central: Abuja, Kano
Ghana		
Accra	Abidjan-Lagos Corridor	Lomé
Accra	Abidjan-Lagos Corridor	Abidjan
Tamale	Tema-Paga corridor	Accra, Kumasi, Techiman
Wenchi	Tema-Paga corridor	Accra, Kumasi
Techiman	Tema-Ouagadougou corridor	Ouagadougou
Kintanpo	Tema-Ouagadougou corridor	Ouagadougou

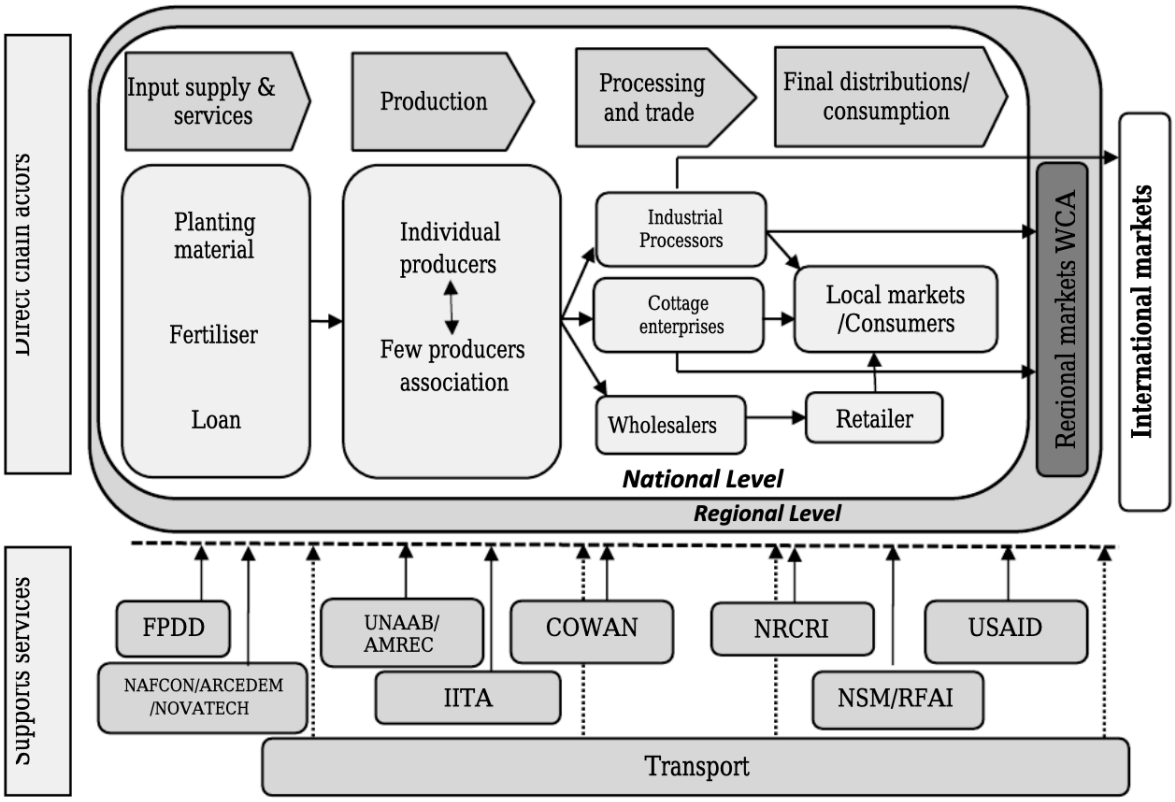
Source: Information from fieldwork

8.4. Value chain stakeholder analysis

Multiple cassava value chains exist in the region depending on end-consumer demand and production zones. For example, in Nigeria, the value chain consists of various stages that include cultivation, processing, harvesting, marketing, and consumption. The main value chain actors comprise input suppliers, producers, traders, processors (including millers), transporters, wholesalers, etc. In Ghana, the majority of cassava is grown by small-scale farmers with small landholdings. At that scale, production, harvesting, and post-harvest handling are carried out with limited chemical and technical inputs. An example of the value chain structure is illustrated in Figure 23 and further detailed in Table 21 below.

97 Information from fileldwork

Figure 23. Cassava Value Chain in Nigeria



Source: Coulibaly et al (2014)

Table 21. Cassava Value Chain in West Africa

VC Stages	Actors	Functions / Characteristics
Pre-Production	Input Supply	• Planting materials, fertilizers, insecticides, herbicides, and tools are the main inputs used by producers. • In Nigeria, farmers have started using improved planting materials. However, they still mainly use their materials, which are low in yield potential. Farmers rely on their local planting materials when the improved variety is unavailable, or they are not convinced about its superiority. Farmers rarely use herbicides and other agro-chemicals. This stage is dominated by women that make 56 percent of the input dealers in the Nigerian cassava value chain. • In Cote-d'Ivoire, farmers use three high-yielding varieties of cassava, known as Bocou 1, 2, and 3, that are resistant to disease and pests. These varieties produce up to 32 to 34 tonnes of cassava per hectare per year, compared to five tonnes per hectare from traditional cassava varieties. Input dealers purchase their inputs from importers and make input structures themselves before selling sell them to producers or retailers. • In Burkina Faso, a large number of small-scale producers plant traditional varieties of inputs that are not generally fit for processing activities.

VC Stages	Actors	Functions / Characteristics
Production		• 70 percent of all farmers produce cassava either for food consumption or for sale to other end users in Nigeria. • In Burkina Faso, cassava is grown for the starch/rubber and leaves in a three-year crop rotation with maize, cereals, and cowpeas. • In Cote-d'Ivoire, the production system of cassava is extensive with the wide use of traditional, low-yielding varieties, and low levels of fertilizer. Cassava is the major food crop after yam and is grown on about 4/5 of the national territory. • In Ghana, cassava is cultivated throughout the country, mainly through intercropping with yams, maize, or beans.
	Subsistence farmers	• Subsistence farmers account for about 95 percent of cassava farmers. The farmers usually plant cassava on 0.2 ha to less than 1 hectare in scattered plots. Cassava is mainly planted for food consumption and sells the excess.
	Commercial farmers	• Small Scale Commercial Farmers manage about 1 - 5 hectares of cassava farms with hired labor. This group mainly uses improved varieties of cassava for planting. • Medium Scale Commercial Farmers manage about 6 - 10 hectares of contiguous fields, mostly adopting some level of mechanization. • Large-scale farmers are relatively few, with farm sizes of 10 ha -1,000 ha. Some of these farms have a processing plant set up alongside production, such as starch mills.
Processing	Processors	• Cassava processing is labor-intensive and involves the following stages: Peeling, Grating, Fermenting, Pressing, Drying, Steaming, and Packaging, which is mainly carried out in small processing units. • In Cote-d'Ivoire, cassava roots are mainly processed into attièkè, which is an important aspect of cassava production. Only 5 percent of all cassava production is processed in the country, with the rest consumed fresh. • Ghana's most popular ways of consuming cassava are fufu from fresh roots, gari, and flour, as well as starch production for the processing industry. Ghana has some high-quality cassava flour processors. • In Nigeria, cassava is primarily produced for food, especially in the forms of gari, lafun, and fufu, with little or no use in the agribusiness sector as an industrial raw material. • In Burkina Faso, the demand for attièkè is high. Small-scale cassava processing units are in a developing stage and are mainly run by women. Processing is carried out either individually or in organized processing groups operating manually or with rudimentary equipment.

Source: Various[98]

A list of stakeholders and contact details is presented in Annex 3.

98 Mike Coates, Richard Kitchen, Geoffrey Kebbell, Catherine Vignon, Claude Guillemain and Robin Hofmeister (2011). Financing Agricultural Value Chains in Africa, Focus on Cotton and Cassava in Burkina Faso. GIZ. Available at: http://www.ruralfinanceandinvestment.org/sites/default/files/04__giz2011-0371en-agricultural-value-chains-burkina-faso.pdf; Coulibaly, O., Arinloye, A.D., Faye, M., and Abdoulaye, T. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Nigeria. DOI: 10.13140/2.1.3421.6001.; Coulibaly, O., Arinloye, A.D., Faye, M., and Abdoulaye, T. (2014). Regional Cassava Value Chains Analysis In West Africa: Regional Summary, Technical Report. Available at: https://www.researchgate.net/publication/269989723_REGIONAL_CASSAVA_VALUE_CHAINS_ANALYSIS_IN_WEST_AFRICA_REGIONAL_SUMMARY

8.5. Key findings on value chain

Some challenges in the Cassava value chain in West Africa were identified as below:

Table 22. Challenges in the Cassava Value Chain in West Africa

Areas	Challenges faced
Production	• Lack of high-yielding cassava varieties. Most farmers do not cultivate high-starch content varieties like the TME 419. • Lack of farm mechanization. This affects the yield per hectare for cassava. Mechanized farming could give an output of 25 metric tons per hectare, as opposed to the current output of 9 metric tons per hectare using traditional means i.e., cutlass and hoes. • On-farm harvest and post-harvest losses due to poor farm practices during harvesting, transportation, and storage, as well as pests and diseases. Short shelf-life also reduces root quality. • The deteriorating soil structure and fertility associated with shortening fallow periods have led to declining productivity and production. The management of soil fertility to achieve sustainable high productivity in intensifying cassava systems in West Africa is a serious challenge. • Increasing pressure of diseases and pests are becoming a big threat to most farmers; Uncontrolled pests and diseases reduce the motivation for farmers to increase cassava production. Besides, there is a lack of good quality planting material. • Producer organizations are weak, with little management capacity, ineffective or missing production and processing cooperatives. • Women's access to productive resources, particularly large-scale land for commercial agriculture, is limited.
Processing	• The high cost of tubers. Key farming activities like land clearing, land preparation, and inputs drive the price of tubers high. One ton of cassava tubers that should sell for NGN 10,000 per metric ton is now being sold for NGN 60,000 – a cost that is directly transferred to the processors. • The lack of the transformation and value addition of food staples into agro-industrial food products is mainly due to (a) fragmentation of small-scale transformers, (b) lack of quality control, (c) weakness of the logistics chain, and (d) issues with the cost-effective and reliable supply of raw material for transformation explain the lack of downstream transformation industry in most value chains.
Marketing	• Limited opportunities for smallholder farmers, mainly rural women, in cassava production and marketing. • Value chain actors have limited access to market information related, for example, to prices, demand, service providers, and standards. • Very weak commercial links between producers and markets mean fewer sales opportunities, which reduces incentives for increasing production for sale. • The absence of trust among stakeholders at different stages of the cassava value chain inhibits transparency and leads to producers in a weak position for bargaining on prices. • The unexploited potential of cassava markets by smallholder farmers, challenges in marketing associated with storage facilities to maintain quality, transportation costs, impact on quality, taxation, and higher pricing.

Areas	Challenges faced
	• There is low patronage of High-Quality Cassava Flour (HQCF) from local industries. The price of corn starch and wheat at the international market has a direct correlation with the price of HQCF locally. Patronage comes to local manufacturers of HQCF only when the foreign exchange is unfavorable, making the cost of corn starch and wheat high.
Transport	• The poor infrastructure leads to a delay in transferring cassava tubers from farm-gate to factories. This delay will reduce the starch content, which will necessitate a reduction in price for the batch of cassava tubers. • High cost of truck rentals in transporting the products to the buyers.
Policy Gaps	• Lack of consistent and continued policy support and enforcement for the cassava sector. For example, in Nigeria, the policy to use 10 percent of High-Quality Cassava Flour as a raw material for bread production was discontinued due to a change in administration.

Source: Various99

8.6 Recommendations

Recommendations for intervention specific to the cassava value chain in West Africa are presented in the table below.

Table 23. Recommendations for Cassava Value Chain in West Africa

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Invest-ment Level**	Timeline ***	Potential Partners
Disseminate robust training manual on good agricultural practices and farming profitability specifically for cassava.	Improved quality of products to match mar-ket require-ments.	Producers, Proces-sors	High	Medium	Medium	Short	Ministries/ Departments of Agricul-ture, FAO, IFAD, US-AID, FCDO, BMGF
Support R&D on innovative technologies for the development of processed products; provide training/disseminate technologies to processors. Establish cassava processing facilities in the cassava production regions (close to farmers).	Higher value-added for production and better-integrated value chain.	Proces-sors	High	High	Medium	Short/ Medium	Ministries/ Departments of Agricul-ture, FAO, IFAD, US-AID, FCDO, BMGF

99 The information in this section is based on Coates et al (2011); Coulibaly et al (2014); and Information from fieldwork.

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Timeline ***	Potential Partners
Set up Market Information Systems (MIS)[100] around corridors and value-chains to assist smallholder farmers and other value chain operators to better access information (weather forecast services, regional input, and output markets, prices, the most efficient available business services, etc.)	Increased *access to market and other production-related information for better planning* of production and mitigation measures, and for efficient participation in the value chains.	Producers, Processors	High	Medium	Low	Short	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF, Private Sector
Adopt policies to strengthen the horizontal integration (farmer clusters, processors' associations) and vertical integration (agro-dealers for production inputs, producers, processors) among the regional cassava value chain's actors.	Better-integrated value chain	Producers, processors, distributors	High	High	Medium	Short	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF, Private Sector
Launch broad-based consumer awareness campaigns to raise awareness and appreciation, and enhance the consumption of processed cassava.	Increased demand and consumption of locally produced yam products.	Producers, processors, distributors	High	High	Low	Short	Ministries/ Departments of Agriculture, World Bank, IFAD, FAO, USAID, FCDO, BMGF, Private Sector

*For Regional Food Trade; ** Investment level: Low (0-5 million); Medium (5-15 million); High (>15 million); ***Timeline (Short 0-2 years, Medium 3-5, Long 5+). Notes: BMGF = Bill & Melinda Gates Foundation. Source: Author's compilation

*An overview of Market Information Systems in Africa is presented in Annex 4

100 An overview of Market Information Systems in Africa is presented in Annex 4

9. Beef Value Chain

9.1. Key consumption, production, and trade trends

Livestock plays a vital role in the contribution to livelihood in West Africa. It contributes to food security by enabling rural populations to face climatic hazards and the irregularity of agricultural production. Livestock is the primary source of income for a large part of rural households. For example, it is currently estimated that almost 86 percent of the working population derives their income entirely or completely from animal husbandry in Burkina Faso. The livestock/meat sector is a source of products with high nutritional value and helps maintain nutrition levels.[101]

Overall, livestock is an important sector of the economy, contributing up to 25 percent of agricultural GDP in West Africa. The total herd of cattle in the West African countries of Burkina Faso, Cote d'Ivoire, Ghana, Mali, Nigeria, and Togo was 6.7 million heads in 2018, specifically herded for cattle meat.[102]

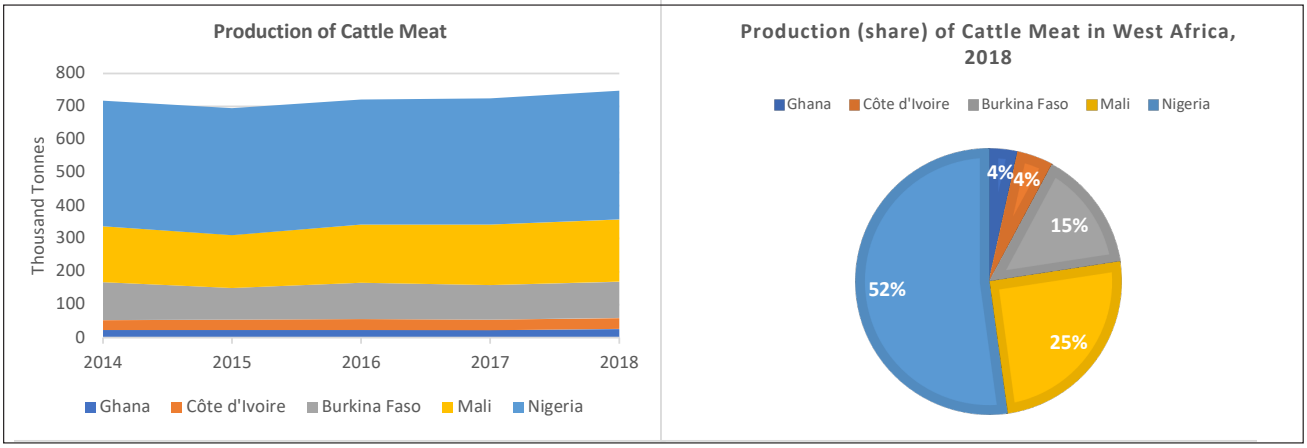
Livestock in Burkina Faso represents 8 percent of the GDP and around 35 percent of the agricultural GDP. It is a significant contributor to the supply of food and nutrition security.[103] Cattle keeping represents 36–40 percent of the agricultural value-added, with the country producing over 30 million tonnes of beef meat and 264 million tonnes of milk per year, valued at USD 22 million and USD 120 million, respectively.[104] Similarly, in Mali, livestock is the country's third sector in terms of wealth creation and exports, contributing 15 percent to the national GDP and employing nearly 30 percent of the population. In Nigeria, livestock accounts for 10 percent of agricultural activities, contributing 1.7 percent to the national GDP and providing around 6 million jobs in the country.[105]

Three main livestock husbandry systems co-exist in the region: (i) pastoral systems, characterized by animal mobility (extensive cattle and small ruminant production systems); (ii) traditional sedentary systems (village-based systems found throughout the country for ruminants, including dairy, as well as poultry), and (iii) improved systems (mainly peri-urban, semi-intensive poultry production, ruminant fattening, and dairy). [106]

Nigeria is the largest producer of beef amongst the West African countries, producing over 50 percent of the region's total cattle meat. In 2018, Burkina Faso, Ghana, Cote d'Ivoire, Mali, and Nigeria together produced over 700 thousand tonnes of beef, of which Nigeria produced 390 thousand tonnes. Mali was the second-largest producer, producing around 200 thousand tonnes of beef in 2018.

101 FAO & ECOWAS (2016a). Revue Des Filières Betail/Viande & Lait Et Des Politiques Qui Les Influencent Au Burkina Faso.
102 FAOSTAT (2020). Primary Livestock data. Accessed on 17th September 2020.
103 IDA, IFC, MIGA (2018). Country Partnership Framework for Burkina Faso for the period F18-FY23, June 5, 2018.
104 EasyPol (2007). Analyse de la filière bétail- viande au Burkina Faso.
105 FAO & ECOWAS (2016b). Review of the Livestock/Meat and Milk Value Chains and Policy Influencing Them in Nigeria. Published by the Food and Agriculture Organization of the United Nations and the Economic Community of West African States. Available at: http://www.fao.org/3/a-i5259e.pdf ;
FAO & ECOWAS (2016c). Review of the Livestock/Meat and Milk Value Chains and Policy Influencing Them in Ghana. Published by the Food and Agriculture Organization of the United Nations and the Economic Community of West African States. Available at: http://www.fao.org/3/a-i5264e.pdf
106 FAO & ECOWAS (2016a), ibid.

Figure 24. Production of Cattle Meat/Beef in West Africa



Source: FAOStat

Table 24. Production Zones in Nigeria

Production Zones	Volumes produced (MT)	Percent of National/ Regional production
North-East	5,324,651	25.9 percent
North-West	10,790,016	52.4 percent
North-Central	4,140,181	20.1 percent
South-South	163,741	0.8 percent
South-East	16,985	0.1 percent
South-West	149,578	0.7 percent
Total	**20,585,152**	**100 percent**

Source: National Agricultural Extension and Research Liaison Services, 2020; Data from fieldwork

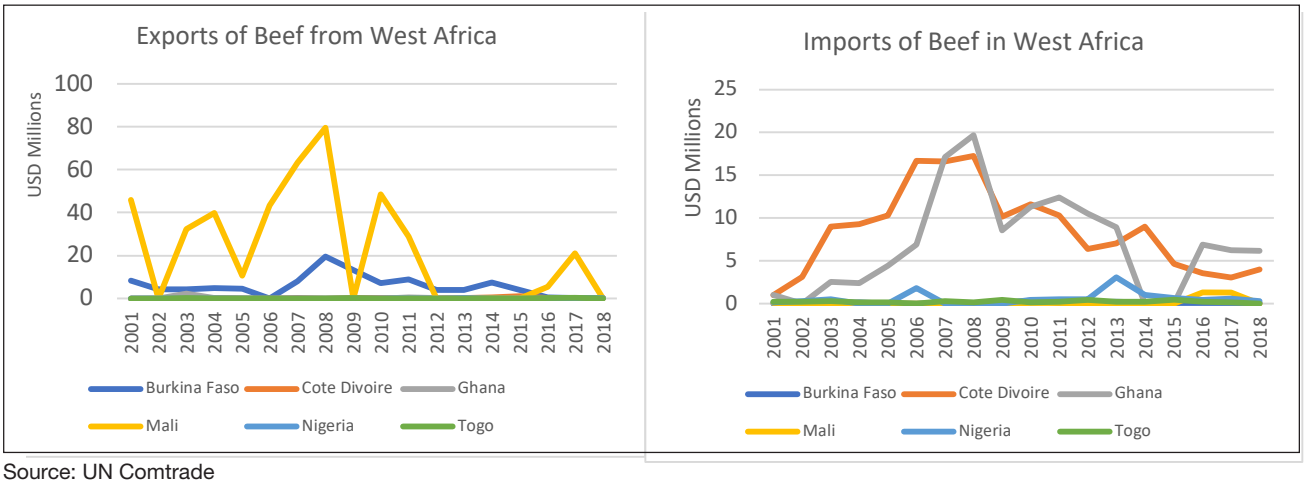
The West African countries' exports of beef are negligible. In 2017, the region exported USD 21.7 million worth of beef, of which USD 21 million were exported by Mali. In 2018, only Cote d'Ivoire exported above USD 100 thousand. Nigeria, being the world's 35th largest producer of cattle meat, exported USD 22 thousand to the world. Overall, exports of beef remain low in the rest of the region due to (i) the lack of production and transport infrastructure, (ii) difficulty in complying with standards, and (iii) presence of technical barriers (administrative paperwork) to trade. Along with the difficulties related to exporting across the region, the growing domestic demand for beef also contributes to lower exports.[107]

The region imported more beef than it exported. In 2018, Cote d'Ivoire, Ghana, and Nigeria imported above USD 10 million worth of beef from the world. The largest importer of beef was Ghana, with imports worth USD 6.1 million in 2018. Mali and Togo had no imports in 2018; however, they had cumulative imports of over USD 1.4 million in 2017. [108]

107 Salla, A. (2017). Review of The Livestock/Meat and Milk Value Chains And Policy Influencing Them In West Africa, FAO and ECOWAS. Available at: http://www.fao.org/3/a-i5275e.pdf

108 An overview of Market Information Systems in Africa is presented in Annex 4

Figure 25. Exports and Imports of Beef in West Africa

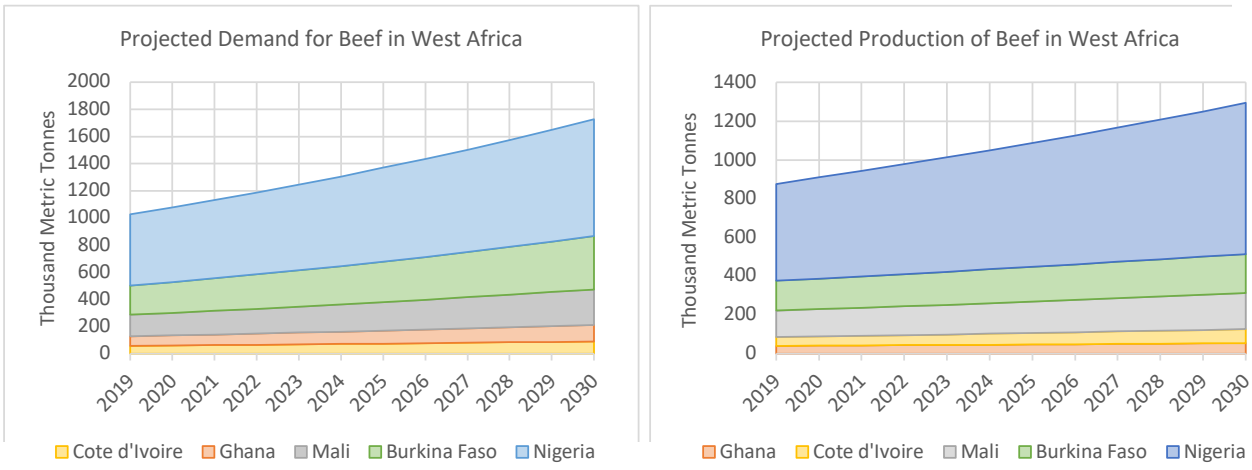


Source: UN Comtrade

The potential for the livestock sector is huge. By 2050, the African meat market is projected at a total of 34.8 million tonnes. Africa's increase in the volume of meat consumed will be on par with that of the developed world and that of Latin America. The African livestock markets hold the potential to generate major business opportunities for livestock producers, in many cases larger than those of other regions in the world.[109]

In terms of future demand, IFPRI forecasts a deepening of the existing production deficit for West Africa, as local demand increases from 1 million metric tonnes in 2019 to around 1.7 million metric tonnes in 2030, and production moves from 880 thousand metric tonnes to over 1.3 million metric tonnes.

Figure 26. Production vs Demand for Beef in Burkina Faso and Mali



Source: IFPRI

109 FAO (2013). Investing in African Livestock: business opportunities in 2030-2050. World Bank, FAO, ILRI, AU-IBAR.

9.2. Key regional competitiveness drivers and challenges

The sector has a strong comparative advantage that favors growth, such as a diversified livestock population. The livestock/meat export sector is competitive and potentially highly profitable and attractive to investors. The livestock sector already contributes significantly to economic value-added and growth, and the feed value chains exhibit a high potential for growth that should promote further development.

Besides, the sector is a major lever for creating jobs and combating poverty and food insecurity. Building on its assets, the sector could take advantage of many opportunities, with a focus on three aspects:

(i) the large potential to increase animal productivity by improving animal health, exploiting the genetic potential of improved breeds, and instilling better livestock husbandry practices.

(ii) the existence of a domestic market that is constantly expanding through demographic growth, urbanization, and national enrichment; and

(iii) outlets for animal products in the surrounding markets, and the development of sub-regional exchanges (WAEMU and ECOWAS).[110]

Several strategic frameworks have been developed to manage the livestock sector in Western Africa. In Burkina Faso, over the past fifteen years, the government adopted a steering brief on the action plan for Livestock Development Policy in 1997, which was accompanied by a Document for Strategic Guidelines in 1998, and the Action Plan and Investment Programme for the Livestock Sector in Burkina Faso (PAPISE) in 2010. [111] The government made livestock a priority through the Strategy for Accelerated Growth and Sustained Development (SCADD) 2011-2015, as well as through the adoption of a National Policy for Livestock Development 2010-2015. The 2010-2025 National Policy for the Sustainable Development of Livestock (PNDEL) is based on the promotion of growth strategies for core livestock value chains (meat, milk, poultry, hides, and skins). The Action Plan and Investment Programme for the Livestock Sector aims to boost the contribution of livestock to the balance of payments, value addition, and food and nutrition security. These strategies reaffirm the government's priorities for the livestock sector by aiming to strengthen capacities, secure more land tenure, sustainable management of pastoral resources, growth in productivity and production, and improvement in competitivity and marketing.

In Nigeria, the Agricultural Transformation Agenda of 2011-2015 focuses on six livestock value chains, including beef, which was chosen for Value Chain development. More specifically, the value chain development for beef aimed at generating 44 commercial livestock breeding centers to produce required animals for herd growth and fattening, eight artificial insemination outfits, 35,000 smallholder fattening operators to produce well-fed animals for slaughter, 76 standard abattoirs linked to 76 cold stores, 700,000 jobs through direct employment, a national meat development and marketing corporation, and a livestock breeding policy.[112]

110 World Bank (2017). Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS). The World Bank Mali Livestock Sector Development Support Project (PADEL-M) (P160641).

111 World Bank Group, Creating Markets In Burkina Faso, Country Private Sector Diagnostic, July 2019

112 FAO and ECOWAS (2016a). Review of the Livestock/Meat and Milk Value Chains and Policy Influencing Them in Nigeria. Published by the Food and Agriculture Organization of the United Nations and the Economic Community of West African States. Available at: http://www.fao.org/3/a-i5259e.pdf

Table 25. Livestock Sector Policies in West Africa

Country	Policy Name	Objective	Key Actions
Ghana	Ghana Livestock Development Policy and Strategy (2016)	To develop a competitive and more efficient livestock industry that increases domestic production reduces importation of meat and livestock products and contributes to the improvement of the livelihoods of all livestock value chain actors.	- Facilitate private participation and investment into livestock breeding - Establish linkages with other breeding centres to share information on non-conventional livestock production. - Provide attractive packages to encourage graduate students to work in livestock breeding. - Build capacity of feed mill operators for proper feed formulation and production. - Provide education on the prudent and proper use of veterinary pharmaceuticals, biologicals, and probiotics. - Develop and enforce regulations on veterinary pharmaceuticals, biologicals, and probiotics.
Burkina Faso	National Policy for Sustainable Livestock Development (PNDEL, 2010-2025)	To strengthen the contribution of livestock to the growth of the national economy and hence to the food and nutrition security, and the improvement of people's living conditions.	- Capacity building of sector stakeholders - Security and sustainable management of pastoral resources. - Enhance animal productivity and production. - Improve competitiveness and marketing of animal products.

Source: MFA (2016), Ashley (2020)[113]

9.3. Regional transportation and logistics routes

In Western African countries such as Nigeria, there are no known organized and structured transport arrangements for either livestock or fresh meat in local markets. The value chains are operated mostly by the private sector. In Ghana, livestock products are transported mainly by road and by boats on the Volta Lake. Live animals, destined for slaughter, are transported in open vehicles, by hoof, on bicycles, and on motorbikes. The main transport corridors in Nigeria are given in Table 26.

Table 26. Transport Corridors for Beef in Nigeria

Starting Point	Corridor(s) / Roads Used	Destination Region	Volumes traded
Northern Region	Kano –Kaduna – Ilorin – Ibadan – Lagos Road (The Kano to Lagos corridor spans approximately 990km)	South-West	41.5 percent
Same as above	Kano – Abuja – Enugu – Port-Harcourt Road	South-South	11.0 percent
Same as above	Kano – Abuja – Enugu – Imo - Ebony Road	South-East	25.7 percent

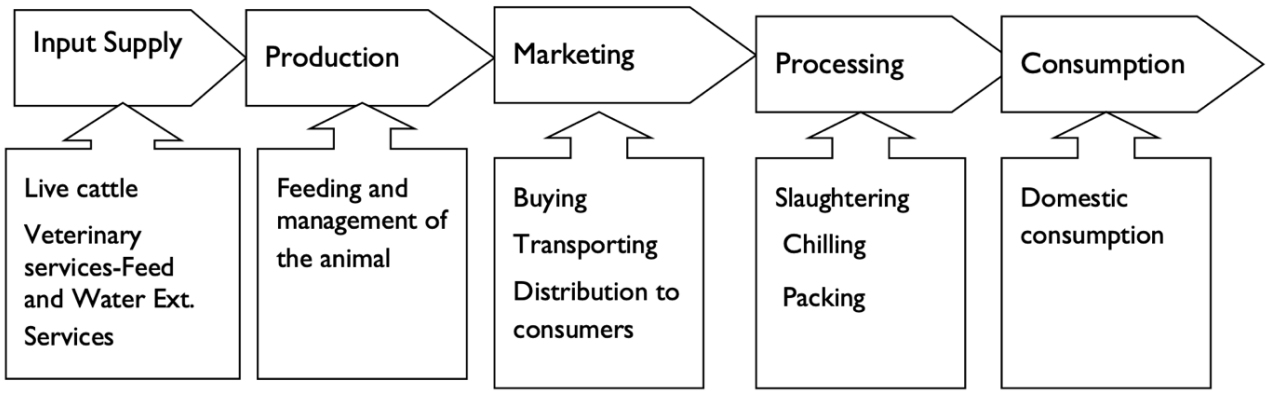
Source: Information from fieldwork

113 Ministry of Food and Agriculture (MFA) (2016). Ghana Livestock Development Policy and Strategy, April 2016. Available at: http://www.fao.org/faolex/results/details/en/c/LEX-FAOC169291/;
Ashley, L. (2020). Climate and livestock policy coherence analysis in Burkina Faso, Niger, Rwanda, Nepal and Cambodia, Working Paper No. 311. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: https://cgspace.cgiar.org/bitstream/handle/10568/108732/http://WP_311.pdf

9.4. Value chain stakeholder analysis

A typical beef value chain in West Africa consists of 5 stages, starting with input supply, production, marketing, processing, and consumption (Figure 27). However, the specific value chain for beef varies from country to country in West Africa.

Figure 27. Core Functions across Beef Value Chain



Source: FAO & ECOWAS (2016b), FAO & ECOWAS (2016c)

Burkina Faso has two channels for livestock supply chain: a short, or direct, supply chain, which is characterized by short distances between the rearing areas and the marketing areas with few or no intermediaries, and a long supply chain, which is more organized, and involves livestock being sent to markets, slaughterhouses, or exported. The direct supply chain sells directly to the closest urban centre, self-consumption, and a small proportion for exports. The products passing through the direct channel are often not involved in sanitary controls, nor are they taxed. On the other hand, the long supply chain is organized, involving six main types of agents with different functions: breeders or producers, collectors, traders, processors, and retailers. The processing of beef is done through five (5) refrigerated slaughterhouses. However, almost all of these slaughterhouses do not comply with international standards, leading to a low volume of exported beef.[114]

In Mali, there are two types of stakeholders involved in the beef value chain: the production cycle stakeholders and the marketing stakeholders. In the production cycle, direct producers are transhumant and nomadic pastoralists, sedentary farmers who raise animals, and are traditional and smallholder commercial farmers. The traditional owners manage and feed their animals on natural pastures, while the modern sedentary farmers manage animals on farms where animals receive feed and mineral supplements. In the marketing stakeholders' group, the informal nature of relations between stakeholders is the fundamental characteristic of livestock/meat marketing. All transactions are based on trust between people who know each other over a long period. Except in farm transaction, the marketing transaction is done in three main types of market, which are (i) collection markets in the area of production, (ii) re-grouping markets that bring together large numbers and distribute livestock and are located in large villages or medium-sized towns, and (iii) terminal markets situated in large cities and/or at borders between countries. In these markets, various actors intervene as buyers and sellers, mediators, collectors. Their activity in livestock or meat marketing can be continuous or occasional.[115] Industrial meat processing is scarcely practiced in Mali. Artisanal and semi-industrial processing activities are carried out by butchers, roasters, and broilers. The main meat products are meat carcasses (slaughterhouses), processed meats (modern butchers), deli meats (modern butchers/delicatessens), grilled meats, and dried meats (traditional butchers/ delicatessens).[116]

114 EasyPol (2007). Analyse de la filière bétail- viande au Burkina Faso, Module EasyPol 105, Noveber 2007. Available at: http://www.fao.org/docs/up/easypol/885/analyse_filiere_b percentE9tail-viande_105fr.pdf

115 World Bank (2017). Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS). The World Bank Mali Livestock Sector Development Support Project (PADEL-M) (P160641).

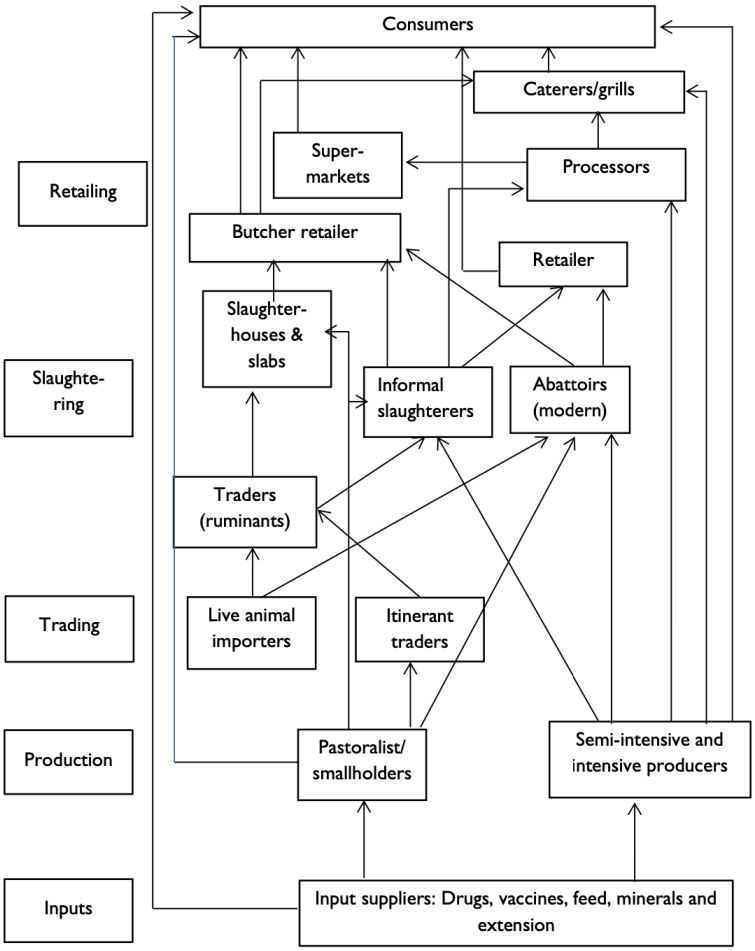
116 Feed the Future (2018). Constraints to Accessing Finance and Insurance in Mali's Livestock Sector. Feed the Future Enabling Environment for Food Security Project.

In Ghana and Nigeria, the value chain actors include inputs and services providers such as input dealers, transporters of various inputs, feed millers, livestock breeders for the supply of breeding animals, drug suppliers for the provision of drugs and vaccines, farmers for primary production, market actors such as middlemen for intermediary trade or marketing, butchers for slaughtering and cutting of meat, processors, wholesalers and retailers, and industrial and home consumers.

The physical flow of livestock/meat for cattle starts with the production of cattle by pastoralists. Live cattle imported from neighboring West-African countries such as Burkina Faso, Mali, and Niger get into the chain. Itinerant traders collect animals from pastoralists and smallholders, which end up with traders in live animal markets. Further, these live animals are directed towards butchers who formally slaughter the animals in abattoirs, slaughterhouses, and slaughter slabs. Some butchers also obtain cattle directly from pastoralists and smallholders. [117]

Other actors along the value chain include (i) collectors who buy animals at the farms or local markets and sell them at the regrouping markets, (ii) middlemen who hold the role of facilitator between animal owners or sellers and purchasers at market levels, (iii) exporters who buy animals at large markets directly from owners or indirectly through mediators or col-lectors, and (iv) importers who buy animals through middlemen or directly from livestock owners at the collection and regrouping markets. [118] The relationship among the actors across the beef value chain can be intertwined and complex, as illustrated in an example of the case of Ghana (Figure 28).

Figure 28. Livestock Value Chain in Ghana



Source: FAO & ECOWAS (2016b); FAO & ECOWAS (2016c)

A list of stakeholders and contact details is presented in Annex 3.

117 FAO & ECOWAS (2016b), ibid; FAO & ECOWAS (2016c), ibid.
118 FAO & ECOWAS (2016b), *ibid;* FAO & ECOWAS (2016c), *ibid.*

9.5. Key findings on value chain

Despite the existing potential for trade and food security, there a number of constraints that hinder the impact that beef can have in the communities.

The meat value chains' current underperformance is related to quality issues arising from slaughterhouses and butchers' loose hygiene standards and meat transportation logistics. Cold storage facilities for freezing meat are often not available. Most of the meat retailers at the regional markets encounter loss of beef meat due to the lack of a central cold storage facility. In cases where there are cold storage facilities, an unstable power supply affects the quality of the meat as they are unable to meet the required cooling temperatures.

Informality and distrust of formal institutions are common sentiments among livestock raisers. Market access and price discovery are restricted by the reliance upon the services of a broker to guarantee trades between strangers. Personal relationships and trust-based transactions are the underpinning modus operandi of the livestock sector. As a result, the value chain is not well-integrated vertically or horizontally. [119]

Poor market and marketing information leaves the producer in an inferiority position in front of other actors in the value chain. There also exists a general lack of knowledge on improved animal husbandry.

Animal diseases are persistent; veterinary services are hard to access, and animal health delivery systems (public and private) are thin on the ground. Research and development for animal diseases and veterinary science are limited. There is a lack of skilled manpower that provides veterinary services as well as a lack of veterinary products, particularly vaccines and medicines.

There also exist management problems of beef cattle amongst pastoralists, including breed and breeding issues, housing, disease control, and health care delivery.

There is a prevalence of unsupervised slaughtering, which is partly a result of processors' incentive to bypass the fees charged on licensed meat processing facilities. Most slaughterhouses are government-owned, poorly managed, and present issues in terms of hygiene and sanitary standards.

There are high unhygienic practices in most abattoirs where cattle/beef meats are processed. Also, there is a lack of enforcement of standards in slaughtering cattle in open-air markets. Sometimes, sick or already dead animals, which are not fit for consumption, are slaughtered and sold. Similarly, the Veterinary Services are under-resourced. As highlighted by USAID (2016), "[for] *animals brought for breeding purposes arriving at Paga (Ghana), officials send blood samples to the Pong Tamale Central laboratory for diagnosis of brucellosis, contagious bovine pleuropneumonia (CBPP), and bovine tuberculosis. Normally laboratory results take up to seven days, depending on the lab's workload, but often less. Even if less than seven days, however, this potential delay is a disincentive for traders to tolerate official biosecurity measures. Furthermore, traders use threats of violence and harassment to pressure sanitary agents not to condemn diseased animals. These traders risk significant losses of income from condemnation*."[120]

The existing means of transport represent a major constraint to the marketing of quality meat. As such, the absence of cold chain management makes meat exporting a difficult proposition. Most processors rely on third party-logistics firms to deliver meat to their customers, and often there are delays in fulfilling the services, either as a result of traffic or poor internal operations issues such as the availability of cold chain transport vehicles. This delay affects the quality of the beef.

Furthermore, the poor management of live animals significantly reduces meat's competitiveness in the sub-region. Zootechnical or managerial inputs are seldom used, and their quality is usually

119 Feed the Future (2018). Constraints to Accessing Finance and Insurance in Mali's Livestock Sector. Feed the Future Enabling Environment for Food Security Project.

120 USAID (2016). Evaluation Of Sanitary And Phytosanitary (Sps) Trade Policy Constraints Within The Maize And Livestock Value Chains In West Africa. USAID. Check this source for futher information on SPS barriers in Western Africa.

inconsistent (limited fodder crop dissemination and adoption; limited supply and unregulated production of feed for livestock, poultry, and fish; expensive aquaculture inputs).

Low incentive in fulfilling international requirements has led to inadequate capacity of West African countries to export. Countries in the region lack the determination to rise to the export potential of beef. The country-level government initiative to enhance the exportability of beef is lacking. For example, in Ghana, the law concerning the inspection of meat, which is the Local Government Act, 1961, Act 54, has not been revised nor updated, thus proving to be inapplicable. Slaughterhouse inspections are irregular and often inadequately carried out, leading to poor quality enforcement.[121]

Table 27. Some of the key constraints in the beef value chain in West Africa

Area of constraints	Details
Institutional	- Lack of means and intervention capacity among State services. - Inadequate and/or unenforced laws. - Inadequate databases. - Weak systems for planning, information gathering, and monitoring, and evaluation. - Actors in the livestock sector are not well organized—for instance, producer organizations and cooperatives have little structure or capacity for economic organization. - Little technical and economic information is available on new livestock intensification systems. - Animal diseases are persistent, veterinary services are hard to access, and animal health delivery systems (public and private) are thin on the ground. - Zootechnical inputs are used infrequently and their quality is variable (limited fodder crop dissemination and adoption, limited supply and unregulated production of feed for livestock, poultry, and fish, expensive aquaculture inputs). - The genetic potential of animal breeds is not well developed, and artificial insemination (AI) services are not widely available.
Industrial	- Use of old and obsolete production, processing, and marketing equipment. - Low valorization of certain livestock by-products such as hides and skins.
Financial	- The formal banking sector is reluctant to finance private operators, particularly over the medium term. - The sector suffers from inadequate investment funding and operational support, as shown by the lack of large-scale industrial infrastructure.

Source: World Bank (2017)

121 FAO & ECOWAS (2016c). Ibid.

9.6 Recommendations

Recommendations for intervention specific to the beef value chain in West Africa are presented in the table below.

Table 28. Recommendations for Beef Value Chain in West Africa

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Time-line***	Potential Partners
Develop an improved and robust animal husbandry curriculum suitable for the vast majority of smallholder farmers related to improving selection methods, breeding practices, etc. Promote access to vaccinations and veterinary treatments.	Improving productivity of livestock and meat production sector.	Producers	Medium	Medium	Medium	Medium	Ministries/ Departments of Agricul-ture, FAO, IFAD, US-AID, FCDO, BMGF
Establish associ-ations and other formal institutions that regulate the sector to enhance trust and trans-parency in the sector activities. Promote better handling and dis-tribution of meat for cheaper and better available produce in the region.	Better managed organizational capacity of livestock producers/ processors to enhance their bargaining power and better integration in the regional value chains.	Producers, processors	High	High	Low	Short	Ministries/ Departments of Agricul-ture, FAO, IFAD, US-AID, FCDO, BMGF, Pri-vate sector
Increase invest-ment in slaughter facilities/abattoirs in the producer regions, with a focus on upgrad-ing sanitation conditions at the abattoirs/ slaughterhouses and cold chain supply systems to international standards.	Improved processing capacity and quality to be in line with international standards.	Proces-sors	High	High	High	Medium	Ministries/ Departments of Agricul-ture, FAO, IFAD, US-AID, FCDO, BMGF, Pri-vate sector

Recommended Intervention	Expected outputs	Potential Targets in the VC	Priority Level *	Impact *	Investment Level**	Time-line***	Potential Partners
Establish, disseminate and enforce transparent food safety and quality standards for processed food products. Adapt harmonized standards across the region in accordance with consumer preference and requirements in potential export markets.	Harmonized and transparent standard regulations that meet market requirements.	Processors, wholesalers, retailers, exporters	High	High	Medium	Medium-Long	Ministries/ Departments of Agriculture, FAO, IFAD, USAID, FCDO, BMGF
Improve the infrastructure of the region such as logistics, including rural electrification, rural road network, warehousing facilities, cold storage, etc.	Reduced overall costs and ensured product quality. Enhanced linkages from producers to end-consumers	Off-takers, wholesalers, retailers, exporters	High	High	(Very) High	Long	Ministries/ Departments of Agriculture, World Bank, IFC, IFAD,

**For Regional Food Trade; ** Investment level: Low (0-5 million); Medium (5-15 million); High (>15 million); ***Timeline (Short 0-2 years, Medium 3-5, Long 5+). Notes: BMGF = Bill & Melinda Gates Foundation. Source: Author's compilation*

References

ACTA (2019). Cassava, a 21st Century Staple Crop: How can Nigeria Harness Its Enormous Trade Potentials?, 2019

AfDB (2015). Africa Competitiveness Report 2015. African Development Bank.

AfDB (2018). African Economic Outlook 2018. African Development Bank, Abidjan.

AGRA. (2019). Africa Agriculture Status Report: The Hidden Middle: A Quiet Revolution in the Private Sector Driving Agricultural Transformation (Issue 7). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA).

Agribusinessdata.com (2019). Filières fruits et légumes au Togo: état des lieux et contribution à la sécurité alimentaire et nutritionnelle, Lomé, le 14 mars 2019, available at https://agribusinessdata.com/filieres-fruits-legumes-togo-etat-lieux-contribution-securite-alimentaire-nutritionnelle/

Akihiro, N. (2019). The private sector can be a powerful partner in West Africa and the Sahel. World Bank Blog, September 25, 2019. Available at https://blogs.worldbank.org/voices/private-sector-can-be-powerful-partner-west-africa-and-sahel

Apata, Temidayo. (2019). Analysis of cassava value chain in Nigeria: pro-poor approach and gender perspective. International Journal of Value Chain Management. Available at: https://www.researchgate.net/publication/333941874_Analysis_of_cassava_value_chain_in_Nigeria_pro-poor_approach_and_gender_perspective

Ashley, L. (2020). Climate and livestock policy coherence analysis in Burkina Faso, Niger, Rwanda, Nepal and Cambodia, Working Paper No. 311. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: https://cgspace.cgiar.org/bitstream/handle/10568/108732/http://WP_311.pdf

Bergh, K., Kpala, C., Orozco, P., Gugerty, M.K., & Anderson, C.L. (2012). Yam Value Chain: Ghana. EPAR Brief No. 206. Evans School Policy Analysis and Research (EPAR).

Biovision (2019). Cassava in Malawi and Zambia, Agroecology Info Pool. Avaialble at: https://www.agroecology-pool.org/portfolio/promotion-of-cassava-in-malawi-and-zambia/

Blancher, C., D'Alessandro, C., & Tondel, F. (2020). Promoting West African rice: The crucial role of coherent trade policies, ECDPM blog, 31 January 2020

Brenda Ampomah (2019). The Impact of Climate Change on Water Supply in the Sahel Region: The case of Burkina Faso, available at: https://iwa-network.org/the-impact-of-climate-change-on-water-supply-in-the-sahel-region/

Cambridge Economic Policy Associates Ltd (CEPA) (2015). Global Agriculture and Food Security Program (GAFSP) Private Sector Windo. Agribusiness Country Diagnostic - Cote D'ivoire.

CILSS. (2014). Cross Border Trade Flow of Agricultural Products in West Africa. Available at http://portails.cilss.bf/IMG/pdf/Cross_Border percent20trade_of_ percent20Agricultural_Products_Report_ percent20Juin_2014.pdf

Coalition for African Rice Development (CARD) (2020). ECOWAS Consultative Meeting on Rice Offensive - (West Africa region's Rice Development Strategy), 4 - 5 Feb 2020. Available at https://riceforafrica.net/meetings-page/regional-workshop/ecowas/ecowas-meeting,-feb-2020

Competitive African Rice Initiative (CARI) (2019). Nigeria - Project Factsheet. Available at https://www.cari-project.org/imglib/downloads/08_19_Nigeria_Factsheet_CARI_II.pdf

Coulibaly O. et Al (2014). Regional Cassava Value Chains Analysis in West Africa: Regional Summary, Technical Report. Available at: https://www.researchgate.net/publication/269989723_REGIONAL_CASSAVA_VALUE_CHAINS_ANALYSIS_IN_WEST_AFRICA_REGIONAL_SUMMARY

Coulibaly, O., Arinloye, A.D., Faye, M., and Abdoulaye, T. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Nigeria. DOI: 10.13140/2.1.3421.6001.

Coulibaly, O., Arinloye, A.D., Faye, M., and Abdoulaye, T. (2014). Regional Cassava Value Chains Analysis in West Africa: Regional Summary, Technical Report. Available at: https://www.researchgate.net/publication/269989723_REGIONAL_CASSAVA_VALUE_CHAINS_ANALYSIS_IN_WEST_AFRICA_REGIONAL_SUMMARY

Crossboundary (2018). On the functioning of agricultural markets in Mali: Strategies for Development, USAID.

Djokoto, J., Afari-Sefa, V., & Addo-Quaye, A. (2015). Vegetable supply chains in Ghana: production constraints, opportunities and policy implications for enhancing food and nutritional security (No. RESEARCH).

EasyPol (2007). Analyse de la filie?re be?tail- viande au Burkina Faso, Module EasyPol 105, Noveber 2007. Available at: http://www.fao.org/docs/up/easypol/885/analyse_filiere_b percentE9tail-viande_105fr.pdf

ECOWAS Department of Agriculture, Environment and Water Resources (DAEWR) (2017). 2025 Strategic Policy Framework Summary.

Elbehri, A. (2013). Rebuilding west Africa's food potential: Policies and market incentives for smallholder-inclusive food value chains, FAO/IFAD.

Elbehri, A., J. Kaminski, S. Koroma, M. Iafrate and B. Marwan (2013). West Africa food systems: An overview of trends and indicators of demand, supply, and competitiveness of staple food value chains. Rebuilding West Africa's Food Potential.

Evans Institute (2012) Crop value chains: Yams in Nigeria

FAO & ECOWAS (2016a). Revue Des Filie?res Betail/Viande & Lait Et Des Politiques Qui Les Influencent Au Burkina Faso.

FAO & ECOWAS (2016b). Review of the Livestock/Meat and Milk Value Chains and Policy Influencing Them in Nigeria. Published by the Food and Agriculture Organization of the United Nations and the Economic Community of West African States. Available at: http://www.fao.org/3/a-i5259e.pdf.

FAO & ECOWAS (2016c). Review of the Livestock/Meat and Milk Value Chains and Policy Influencing Them in Ghana. Published by the Food and Agriculture Organization of the United Nations and the Economic Community of West African States. Available at: http://www.fao.org/3/a-i5264e.pdf

FAO (2007). Analysis of the sector: market gardening in Burkina Faso.

FAO (2013). Analysis of incentives and disincentives for rice in Ghana, April 2013.

FAO (2013). Investing in African Livestock: business opportunities in 2030-2050. World Bank, FAO, ILRI, AU-IBAR.

FAO (2015). “Country fact sheet on food and agriculture policy trends” and World Bank (2016) “Ghana Peri-urban Vegetable Value Chains Project. Pest Management Plan”.

FAOSTAT (2020). Primary Livestock data. Accessed on 17th September 2020.

Fatima Damulak (2012) The Yam Value Chain: Constraints and Opportunities for Small-Scale Farmers.

Feed the Future (2018). Constraints to Accessing Finance and Insurance in Mali’s Livestock Sector. Feed the Future Enabling Environment for Food Security Project.

FEWS (2019). Regional Supply and Market Outlook, West Africa December 23, 2019.

FEWS Net (2017). Burkina Faso, Staple Food and Livestock Market Fundamentals, September 2017.

Flibert, Guira & Som,et Al (2016). Origins, production, and utilization of cassava in Burkina Faso, a contribution of a neglected crop to household food security. Food Science & Nutrition. 5. 10.1002/fsn3.408. https://www.researchgate.net/publication/305487625_Origins_production_and_utilization_of_cassava_in_Burkina_Faso_a_contribution_of_a_neglected_crop_to_household_food_security

Forum for Agricultural Research in Africa (FARA) (2017). Innovation for sustainable agricultural growth in Mali.

Fuglie, K. O. and N. E. Rada (2013). Resources, Policies, and Agricultural Productivity in Sub-Saharan Africa. ERR-145. Washington, DC: US Department of Agriculture, Economic Research Service.

Grow Africa (undated). Briefing Paper Rice Market Factsheets. Available at https://www.growafrica.com/topics/rice-market-factsheets

Hema, K. B., Paré, B. A. M., & Somé M. A. (2018). Local Techniques for Crop Conservation in Burkina Faso: Analysis of the Valorization Status and Perception of Tilgr-Baore Technology. DOI: 10.5772/intechopen.85179

Ibeawuchi, I., N. Okoli, R. Alagba, M. Ofor, L. Emma-Okafor, C. Peter-Onoh and J. Obiefuna (2015). “Fruit and vegetable crop production in Nigeria: The gains, challenges and the way forward.” Journal of Biology, Agriculture and healthcare 5(2): 194-208.

IDA, IFC, MIGA (2018). Country Partnership Framework for Burkina Faso for the period F18-FY23, June 5, 2018.

IFAD (2019). Burkina Faso Country Strategic Opportunities Programme 2019 - 2024

IFAD (undated). Cote d’Ivoire, available at https://www.ifad.org/en/web/operations/country/id/cote_divoire

Inusah, M. & Anthony, C. (2017). Willingness of Local Rice Producers to Supply and Participate in the Ghana School Feeding Programme Market: A Case Study of Selected Districts in Northern Ghana, International Journal of Economics and Financial Research, 2017

Ir. Jan Arie Nugteren (2018). Horticulture in Côte d’Ivoire - Opportunities for Dutch Businesses, published by Netherlands Enterprise Agency (RVO), available at: https://www.rvo.nl/sites/default/files/2018/09/Horticulture-Cote-divoire.pdf

ITRA (2015), Vegetable production in Togo and potential impact of pesticide use practices on the environment

Jarvis, A., J. Ramirez-Villegas, B. V. H. Campo and C. Navarro-Racines (2012). “Is cassava the answer to African climate change adaptation?” Tropical Plant Biology 5(1): 9-29.

Manzamasso H. & Ram N. A. (2015). Rising Imports and Domestic Rice Production in Togo., Adjognon, S. (2012). Efficiency and performance of rice marketing chain in Togo. https://sriwestafrica.files.wordpress.com/2018/04/sri-waapp-book-single-p-8mb.pdf

Marcopolis (2012). Côte d’Ivoire report, Agriculture in Côte d’Ivoire: The National Agricultural Investment Program, 2012

Mike Coates, Richard Kitchen, Geoffrey Kebbell, Catherine Vignon, Claude Guillemain and Robin Hofmeister (2011). Financing Agricultural Value Chains in Africa, Focus on Cotton and Cassava in Burkina Faso. GIZ. Available at: http://www.ruralfinanceandinvestment.org/sites/default/files/04__giz2011-0371en-agricultural-value-chains-burkina-faso.pdf.

Ministry of Food and Agriculture (MFA) (2016). Ghana Livestock Development Policy and Strategy, April 2016. Available at: http://www.fao.org/faolex/results/details/en/c/LEX-FAOC169291/.

NEPAD, GrowAfrica & AGRA (2020). ECOWAS Rice Factbook.

Netherlands Enterprise Agency (2018). Horticulture in Côte d’Ivoire - Opportunities for Dutch Businesses. Netherlands Enterprise Agency

Netherlands Enterprise Agency (2019). Report on Youth Employment in Agricultural Value-Chain: Burkina Faso. Available at https://www.rvo.nl/sites/default/files/2019/12/Report-on-Youth-Employment-in-Agricultural-Value-Chain-Burkina-Faso.pdf

Nhemachena, C., Murwisi, K., & Njiwa, D. (2020). Intra-African food trade. Chapter 7, Africa Agriculture Status Report. Feeding Africa’s Cities: Opportunities, Challenges, and Policies for Linking African Farmers with Growing Urban Food Markets (Issue 8). Alliance for a Green Revolution in Africa (AGRA). Available at: https://agra.org/wp-content/uploads/2020/09/AASR-2020-Feeding-African-Cities.pdf

Nicholson, K. (2019). Policy Dialogue: The role of governments in developing agriculture value chains.

Otekunrin, O. A. and B. Sawicka (2019). “Cassava, a 21st Century Staple Crop: How can Nigeria Harness Its Enormous Trade Potentials?”, Acta Scientific Agriculture 3(8).

Program of Accompanying Research for Agricultural Innovation (PARI) (2015). Burkina Faso Potentials and Possibilities for German Collaboration in Agriculture, September 2015’

Republicque Togolaise. (2016). Programme National d’Investissement Agricole et de Securite Alimenraire. Cadre fe Gestion Environmentale et Sociale (CGES). Rapport Final.

Sahel Capital Partners & Advisory (2014). Yam Improvement for Processing (YIP). Ghana. Submitted to the Bill & Melinda Gates Foundation. April 2014.

Salla, A. (2017). Review of The Livestock/Meat and Milk Value Chains And Policy Influencing Them In West Africa, FAO and ECOWAS. Available at: http://www.fao.org/3/a-i5275e.pdf

Sanginga, N. (2015). Root and Tuber Crops (Cassava, Yam, Potato and Sweet Potato). International Institute of Tropical Agriculture (IITA).

Soullier, G., Demont, M., Arouna, A., Lançon, F., del Villar, P.M. (2020). The state of rice value chain upgrading in West Africa, Global Food Security, Volume 25, June 2020, 100365.

Taste (2015) Horticulture Sector Study for Nigeria. Available at https://www.rvo.nl/sites/default/files/2015/11/Report percent20Horticulture percent20Study percent20Nigeria.pdf

TogoFirst (2020). An overview of agriculture in Togo: present and future. Available at https://www.togofirst.com/en/agriculture-panorama/2502-5007-an-overview-of-agriculture-in-togo-present-and-future

Tondel, F., D'Alessandro, C., Hathie, I., and Blancher, C. (2020). Rice trade and value chain development in West Africa: An approach for more coherent policies, ECDPM, Discussion Paper No. 283.

Torres, C. & van Seters, J. (2016). Overview of trade and barriers to trade in West Africa: Insights in political economy dynamics, with particular focus on agricultural and food trade. ECDPM Discussion Paper No. 195. Available at http://www.ecdpm.org/dp195

Torres, C., van Seters, J., Karaki, K., & Kpadonou, R. (2017). An exploratory analysis of measures to make trade facilitation work for inclusive regional agro-food value chains in West Africa, ECDPM, No. 214, August. Available at http://www.ecdpm.org/dp214

USAID (2018). On the functioning of agricultural markets in Mali Strategies for development.

USAID (2018a). Global Food Security Strategy (GFSS). Mali Country Plan. August 2018.

USAID (2018b). On the functioning of agricultural markets in Mali. Strategies for Development.

USAID (2019). Agriculture and Food Security. USAID - West Africa Regional, December 27. Available on: https://www.usaid.gov/west-africa-regional/agriculture-and-food-security

WAC (2011). The 2008 rice crisis: Shock and new challenges, OECD, Sahel and West Africa Club Secretariat, No. 02 June 2011

Wageningen UR (2016). Vegetable Business Opportunities in Ghana: 2016.

World Bank (2015). Connecting Food Staples and Input Markets in West Africa : A Regional Trade Agenda for ECOWAS Countries. Available at https://openknowledge.worldbank.org/handle/10986/2199

World Bank (2017). Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS). The World Bank Mali Livestock Sector Development Support Project (PADEL-M) (P160641).

World Bank (2018). Côte d'Ivoire: World Bank Approves $70 Million to Support E-Agriculture, 2018, available at:

World Bank (2019). Creating markets in Burkina Faso. Growing Burkina Faso's private sector and harnessing it to bolster economic resilience. Country Private Sector Diagnostic July 2019.

WTO (2017). Trade Policy Review: Members of the West African Economic And Monetary Union (WAEMU). World Trade Organisation, Geneva.

ZEF, FARA, IER (2017). Country Dossier: Innovation for Sustainable Agricultural Growth in Mali. Program of Accompanying Research for Agricultural Innovation. Bonn and Accra: Centre for Development Research, Forum for Agricultural Research in Africa and Council for Scientific and Industrial Research.

Annexes

Annex 1. Common Challenges to the Agricultural Sector

The table below summarises the common challenges to the agricultural sector in West Africa via the study of five value chains.

Summary of Challenges	Value Chains
Inadequate or lack of access to irrigation leading to high dependence on rainfed cultivation	Rice, Vegetables, Yams
Susceptibility to natural risks such as drought, pest, and disease	Vegetables, Yams, Cassava, Beef
Lack of knowledge of modern and sustainable farming techniques, high-quality seeds, fertilizers, and crop protection practices	Rice, Vegetables, Yams, Cassava,
Deteriorating soil structure and fertility leading to declining crop productivity and production	Yams, Cassava
Stakeholders are neither sufficiently organized nor involved in developing the supply chain	Rice, Vegetables, Cassava,
Value chain highly fragmented with limited access to working capital financing	Rice
Fragmented or limited processing system and capacity with outdated equipment at small-scale processing facilities	Rice
Lack of good quality inputs for large scale processing facilities to operate at full capacity	Rice
Power failures increase processing costs dramatically	Rice
Lack of access to finance/working capital for expanding production/ processing facilities	Rice, Vegetables, Yams
High cost of inputs for processing	Yams, Cassava,
Lack of adequate packaging facilities	Vegetables
Lack of adequate storage facilities leading to large post-harvest losses	Rice, Vegetables
Underperformance is related to quality issues	Beef
Poor infrastructure/road network increasing transportation costs and losses	Rice, Vegetables, Yams, Cassava
Lack of adequate transportation facilities (such as coolers)	Vegetables, Yams, Beef
Competition with low price imported products	Rice
Weak commercial links; scattered market chains with fragile/ informal partnership among actors	Rice, Vegetables, Cassava, Beef
Lack of access to and transparency of market information system (including price)	Vegetables, Cassava, Beef
Lack of access by smallholder farmers to large distribution channels accessible to large-scale farmers	Vegetables, Yams, Cassava,
Lack of formal extension system, fragmented provision of advisory services	Rice
Bureaucracy and other barriers to domestic and cross-border trade	Vegetables, Yams
Lack of continued policy support for the selected sectors	Vegetables, Cassava

Source: Author's compilation

Annex 2. Regional Policy Overview

Regional Agricultural Policy Framework

The ECOWAS Common Agricultural Policy (ECOWAP), introduced to the ECOWAS community in 2005, is the regional policy framework that aims to guide and accompany the desirable changes in the agricultural sector of the 15 member states and to define, in West Africa, the broad continental policy directions set by the African Union in the context of New Partnership for Africa's Development (NEPAD). The policy set out the principles and objectives for the agricultural sector, the direction that agricultural development is expected to take, and the main lines of intervention in the sub-region. These are designed to enable it to exploit its potential to achieve (i) sustainable food security in member countries; (ii) decent remuneration for those involved in the agricultural sector; and (iii) to expand trade on a sustainable basis, both within the sub-region and with the rest of the world. The three major themes of this policy are: (i) Increasing the productivity and competitiveness of West African agriculture; (ii) Implementing a trade regime within West Africa; (iii) Adapting the trade regime vis-à-vis countries outside the region.

The last two strategic areas were justified in the absence of a common trade policy and the particular expectations of the agricultural and food sector. In that area, the context has changed considerably since the region now has a Customs Union with a Common External Tariff. Moreover, significant efforts have been made to move towards a genuine free trade area (implementation of the principles of free movement of goods and people within ECOWAS).

The updated 2025 Strategic Policy Framework proposes to restructure the areas of intervention to adapt them to this changing context and to allow more coherent management of the specific objectives as formulated for the period 2016-2025. The four new strategic pillars were identified as follows:

- Strategic Pillar 1: Contribute to increasing agro-forestry-pastoral and fisheries production and productivity through diversified and sustainable production systems, and to reducing post-production losses
- Strategic Pillar 2: Promote contractual, inclusive, and competitive agricultural and food value chains oriented towards regional and international demand, and to integrate the regional market.
- Strategic Pillar 3: Improve access to food, nutrition, and resilience of vulnerable populations
- Strategic Pillar 4: Improve the business environment, governance, and funding mechanisms of the agricultural and food sectors.[122]

Mali

Mali's main objectives of fostering socio-economic development and improving food security are expressed in four main documents: the Growth and Poverty Reduction Strategic Framework 2012–2017 (CSCRP), the Agricultural Orientation Law (LOA), the National Food Security Strategy (SNSA), and the Strategic Framework for Economic Recovery and Sustainable Development in Mali 2016–2018 (CREDD).

- The **Growth and Poverty Reduction Strategic Framework 2012–2017** (CSCRP III – Cadre Stratégique pour la Croissance et la Réduction de la Pauvreté) builds on CSCRP 2007–2011 and aims at transforming Mali into an emerging economy. The CSCRP-III relies on five axes: (i) strengthening peace and security; (ii) strengthening macroeconomic stability; (iii) promoting accelerated, sustainable and pro-poor growth; (iv) strengthening the foundations of long-term development and equitable access to quality social services; and (v) improving institutional development and governance.
- The **Agricultural Orientation Law** (LOA – Loi d'Orientation Agricole), adopted in 2006, con-

122 ECOWAS Department of Agriculture, Environment and Water Resources (DAEWR) (2017). 2025 Strategic Policy Framework Summary.

stitutes the broad framework and long-term vision for the agricultural sector. It aims at promoting sustainable, modern, and competitive agriculture based on family farming.

- The **National Food Security Strategy** (SNSA – Stratégie Nationale de Sécurité Alimentaire), adopted in 2002, aims to shift the focus from managing short-term food crises to sustainable food security, based on agriculture-led economic growth and the creation of market-compatible social safety nets. In 2005, the government launched the National Programme for Food Security (PNSA – Programme National de Sécurité Alimentaire, 2006–2015) whose overall objective is to eradicate hunger and food insecurity at national and household levels. In 2017, the government developed the new National Food and Nutrition Security Policy (Politique nationale de sécurité alimentaire et nutritionnelle), which aims at improving sectoral policy coordination, enhancing food security and nutrition governance, and fostering regional and subregional integration processes.
- The **Strategic Framework for Economic Recovery and Sustainable Development in Mali 2016–2018** (CREDD – Cadre Stratégique pour la Relance Economique et le Développement Durable du Mali), formulated in 2016, aims at achieving the Sustainable Development Goals (SDGs) by 2030 through the promotion of intensive, diversified and sustainable agriculture.

The country recently adopted the **Agricultural Development Policy** (PDA – Politique de Développement Agricole, 2011– 2020), moving from a project-oriented to a sector-wide approach for agricultural development. In 2015, Mali validated its **Comprehensive Africa Agriculture Development Programme** (CAADP) ten-year investment plan, the **National Programme for Investment in the Agriculture Sector** (PNISA – Programme National d'Investissement dans le Secteur Agricole), which identifies strategic investments in five value chains: rice, maize, millet and sorghum, inland fisheries, and livestock products (both meat and dairy). In 2014, the government adopted the **National Nutrition Policy** (PPN – Politique Nationale de Nutrition), whose goal is to halve malnutrition by 2021 through the promotion of a multisectoral approach to nutrition. Then in 2016, the government developed the **National Social Protection Policy and Action Plan for 2016–2018**, whose main objectives are to strengthen financing mechanisms, restructure coordinating mechanisms, and implement social safety net programmes aimed at strengthening resilience, food security, and nutrition.

Overall, Malian agricultural policies over the 2007-2017 period demonstrated the below trends:

- *Producer-oriented policy decisions* via improving access to land through new land policy, increasing the budget for input subsidies, attempts to liberalize the cotton sector and sustained emphasis on irrigation in response to climate change.
- *Consumer-oriented policy decisions* via enhancing food security and nutrition, increasing country ownership over school feeding programmes, and restoring food stock systems.

Burkina Faso

The Government has put in place ambitious policies and strategies that put the rural sector at the centre of inclusive economic growth. These initiatives have yet to be translated into effective measures for family farmers, the rural poor, and the most vulnerable. The Government has also undertaken initiatives to harmonize rural sector policies and regulatory frameworks for development projects. While the harmonization of technical and financial partners' operational approaches in the sector remains a challenge, public procurement procedures and difficulty mobilizing counterpart funds represent real institutional constraints.

The **National Plan for Economic and Social Development (PNDES) 2016-2020** is the national reference for development. Its objective is to structurally transform the Burkinabe economy for strong, sustainable, resilient, and inclusive growth that creates decent jobs for all and leads to greater social welfare. PNDES has three strategic thrusts, the third of which aims at galvanizing sectors that are key to the economy and employment. In particular, the COSOP 2019-2024 will support the Sector Policy on Agro-Sylvo-Pastoral Production (PS-PASP) 2017-2026 that was adopted to operationalize the PNDES in agriculture. Its objectives are to reduce the proportion of people vulnerable to food and

nutrition insecurity by 50 percent and the incidence of rural poverty to less than 35 percent.

The **National Rural Sector Programme (PNSR) II 2016-2020** aims is to guarantee food and nutrition security through sustainable development of more market-oriented, productive, and resilient agro-sylvo-pastoral, fishing, and wild game subsectors. The operational strategies for PNSR II are prepared by the sector ministries.

The **2010-2025 National Policy for the Sustainable Development of Livestock (PNDEL)** is based on the promotion of growth strategies for core livestock value chains (meat, milk, poultry, hides, and skins). The Action Plan and Investment Programme for the Livestock Sector aims to boost the contribution of livestock to the balance of payments, value addition, and food and nutrition security.

Regarding food security, the **National Food and Nutrition Security Policy (PNSAN) 2018-2027** has been introduced to guarantee equitable access by all people at all times to sufficient quantities of food and a balanced and healthy diet. The National Nutrition Policy (PNN) spells out the required nutrition-sensitive activities in agriculture, including small-scale irrigation, nutrition education, cultivation of nutritious legumes (moringa, baobab, and orange-fleshed sweet potato), and empowerment of women and their organizations through access to land and processing equipment.[123]

Cote d'Ivoire

Cote d'Ivoire's agricultural investment is governed by the 2012 **National Agricultural Investment Programme (PNIA). The Agricultural Policy Law (2015**) was recently adopted, aiming to foster harmonized and coherent actions in this sector, and grants legal status to farmers, family farms, and agricultural enterprises.

Agricultural Value Chain Development Support Programme (2017-2025) was developed in 2017 for stimulating economic growth and improving the food and nutritional security as well as the incomes of the smallholder households in the programme area. The goal of this programme is "to improve post-harvest activities – packaging, storage, processing, and marketing- of three strategic value chains: rice, vegetables, and mango." The programme aims to facilitate commercial partnerships, particularly contracting between producers' organizations and the downstream value chain actors to promote agriculture as a business that can generate a surplus for smallholder producers. The programme will also have provisions covering the mobilization of investments by the domestic private sector through the promotion of co-financing, risk-sharing mechanisms, and other financial products and services to foster the development of private initiatives.[124]

Support to Agricultural Production and Marketing Project-Western Expansion (2014-2020) aims to reduce poverty and stimulate economic growth in the regions of Bafing, Béré, Folon, Kabadougou, Tonpki, and Worodougou in Cote d'Ivoire with the focus on increasing agricultural productivity of rice, maize, cassava, and the vegetable value chain. Food security has been targeted through this project and improvements will be done by increasing smallholder farmers' access to services, technologies, and markets while strengthening the resilience of their production systems to climate change. The project will also expand and improve the smallholder farmers' access to rural finance services. [125]

The World Bank also approved a programme to support **e-agriculture** in 2018. Through this, rural communities in Côte d'Ivoire will have increased access to digital services, which will eventually help improve farm productivity and access to markets. The project will ensure that farmers have timely information on key aspects of the agriculture value chain, like the seed market and that public institutions can collect agricultural and rural statistics for more efficient sector policies and strategies.[126]

In 2016, the government has also established a new approach to agriculture in Côte d'Ivoire called

123 WTO (2017), ibid, pp 148-192
124 IFAD (undated). Cote d'Ivoire, available at https://www.ifad.org/en/web/operations/country/id/cote_divoire
125 Ibid.
126 World Bank (2018). Côte d'Ivoire: World Bank Approves $70 Million to Support E-Agriculture, 2018, available at: https://www.worldbank.org/en/news/press-release/2018/05/25/cote-divoire-world-bank-approves-70-million-to-support-e-agriculture

the **National Agriculture Investment Program (NAIP)** aiming to achieve national food sufficiency, and to increase the agricultural industry's growth to 8.9 percent.[127]

Ghana[128]

Ghana's national economic plan, known as "**Ghana Vision 2020**" launched in 1995, envisions Ghana as the first in governmental programmes, including in the agricultural sector. African nation to become a developed country between 2020 and 2029 and a newly industrialized country between 2030 and 2039 through the integration of science and technology.

The **Ghana Shared Growth and Development Agenda** (GSGDA 2010-2013) focused on supporting oil and gas development, with investments in infrastructure, energy, housing, and agricultural modernization. GSGDA social policy has focused on human development, including health, education, and the fight against poverty.

The **Ministry of Food and Agriculture** (MOFA) stated the sector's vision as a "*modernized agriculture culminating in a structurally transformed economy and evident in food security, employment opportunities and reduced poverty*". In accordance with this vision, all governmental strategic frameworks and plans identify infrastructure development, agricultural research, and extension as focus areas of policy intervention to achieve greater agricultural productivity for improved livelihoods. The approach adopted in governmental actions is meant to follow a market-driven logic and foresees greater engagement of the private sector.

Among the main objectives stated in the **Food and Agriculture Sector Development Policy** (FASDEP II, 2007) is the modernization of agriculture and increased productivity of Ghanaian farmers. The **Medium-Term Agriculture Sector Investment Plan** (METASIP 2010-2015) is the implementation plan of FASDEP II and comprises six programmes that represent Ghana's priorities, with Food Security and Emergency Preparedness and Increased Growth in Incomes being the major areas for investment.

The **National Social Protection Strategy** (NSPS, 2008), launched in 2008, aims to manifest the government's vision of creating an inclusive and empowered society through the provision of sustainable mechanisms for the protection of vulnerable people. Its main objective is to meet the basic needs of extremely poor populations through social protection programmes and by improving access to livelihood opportunities.

The **Ghana Irrigation Development Policy** 2010 aims to address the problems, constraints, and opportunities that cut across the whole irrigation sub-sector and specifically for informal, formal, and commercial irrigation. It will be complemented with the strategic framework **National Irrigation Development Master Plan** (NIDMAP) to specify strategies implemented to put an area of 500,000ha under irrigation in the medium term.

The **National Land Policy** provides for the protection of water bodies and the environment in the long-term national interest under any form of land usage be it for human settlements, industry and commerce, agriculture, forestry, and mining.

The **National Environment Policy/Action Plan** aims at ensuring sound management of resources and the environment and to avoid any exploitation of these resources in a manner that might cause irreparable damage to the environment. Specifically, it provides for the maintenance of ecosystems and ecological processes essential for the functioning of the biosphere, sound management of natural resources and the environment, and protection of humans, animals, and plants and their habitats.

127 Marcopolis (2012). Côte d'Ivoire report, Agriculture in Côte d'Ivoire: The National Agricultural Investment Program, 2012

128 This section is inspired by FAO (2015) "Country fact sheet on food and agriculture policy trends" and World Bank (2016) "Ghana Peri-urban Vegetable Value Chains Project. Pest Management Plan".

Ghana also developed specific key policy areas targeting producers, consumers, and trade and market. Some main features of each policy areas are summarized as follows:

(i) *Producer-oriented policy decisions*

National Fertilizer Subsidy Programme was re-introduced in 2008, to increase the rate of fertilizer application among farmers, which is one of the lowest in the world. However, even after the implementation of the input subsidy programme, fertilizer consumption has remained low.

Agriculture Mechanization Services Enterprises Centres (AMSECs) programme was launched in 2007 as a credit facility, assisting qualified private sector companies in purchasing agricultural machinery at a subsidized price and interest rate which in turn is rented to rural farmers at affordable prices. The programme has been extended and, as of 2015, 89 AMSECs have been established throughout the country. However, analyses on the viability of AMSEC enterprises indicate that they do not represent a viable business model attractive to private investors, even with the current level of subsidy, and providing heavy subsidies on large and more costly tractors does not seem to be the most appropriate solution in a country dominated by small-scale farming.

'**Block Farm Programme**,' which was launched in 2009 as a component of the Youth in Agriculture Programme was complementary to AMSECs, aiming to provide large blocks of arable land for the production of selected commodities, as well as to generate employment for the poor rural youth. The block farms receive a bundle of subsidized mechanization services and inputs, in addition to extension services, which are repaid in-kind by the farmers after the harvest.

National Food Buffer Stock Company (NAFCO) was established in 2010, to reduce post-harvest losses, ensuring price stability, and establishing emergency grain reserves. Currently, 73 Licensed Buying Companies (LBCs) are mandated to purchase maize, rice, and soya beans from farmers at minimum prices, which include the total cost of production and a 10 percent profit margin for farmers. Analyses on the effectiveness of NAFCO indicate that the positive results are expected through the establishment of the system (i.e., higher price stability, reduction in post-harvest losses, lower prices for consumers, and higher prices for farmers resulting in increased production) have not been achieved, despite significant investments.

Agricultural Development Bank was established in the mid-1960s, with lower lending rates to farmers. However, low repayment rates have resulted in a lower lending share to agriculture (only 29 percent in 2010). Ghana's **Collateral Registry** was established in February 2011, is subsidized by the Central Bank, and charges low fees to its users, to support and increase access to agricultural finance.

(ii) *Consumer-oriented policy decisions*

The Livelihood Empowerment Against Poverty (LEAP) programme was introduced in 2008 as a Conditional Cash Transfer (CCT) programme, providing cash and free health insurance to extremely poor households. It is the flagship programme of the **National Social Protection Strategy**, reaching over 71.000 households across Ghana's 10 regions in 2013, with an annual expenditure of approximately USD 20 million. Impact evaluations show that food security and school enrolment increased for LEAP families and that 90 percent of them were enrolled in the National Health Insurance Scheme. Nevertheless, the overall low value of the cash transfers, coupled with sporadic payments, limited the programme's impact on food and non-food consumption.

Ghana's School Feeding Programme (GSFP), piloted in 2005 and expanded nationwide in 2007, is currently benefiting over 1.6 million children in almost 5.000 public schools. GSFP's objective is to enhance school enrolment and attendance and to improve the nutritional and health status of children by providing one nutritious meal per day for all school children aged 4-12 years. Food is produced and procured locally, to provide an output market for poor smallholder farmers. Official school enrolment data suggest the programme has been successful, with a 16.7 percent increase in basic level enrolment from 2008 to 2013 and enhanced health and nutrition indicators among enrolled students.

(iii) *Trade- and market-oriented policy decisions*

Trade is an integral component of Ghana's economic policy and development agenda, with the government focusing on promoting agricultural exports. Ghana's trade guidelines and objectives are specified in the 2004 Trade Policy, which has since been reviewed and adapted to the country's long-term strategic vision of achieving middle-income status by 2015 and becoming a leading agro-industrial country in Africa. Nevertheless, in recent years, Ghana has periodically adopted some protectionist measures, such as the rice import ban in 2013 or the broiler protection programme in 2014. On the export policy side, '**Ghana Export Promotion Authority**' (GEPA), established in 1969, and the '**Ghana Export Trade Information Centre**' (GETIC), established in 2005, are the main institutions providing trade information and services such as market access facilitation, technical advice and human resources development to the business community. A **National Export Strategy for the Non-Traditional Export Sector** (2012-2016) and a **National Export Development Programme** (2013) also provide guidelines for the implementation of Ghana's domestic and international trade agenda. In 2008, Ghana signed the bilateral interim Economic Partnership Agreement (iEPA) with the EU, which has eliminated tariffs on virtually all of Ghana's exports to the EU and 80 percent of imports from the EU over 15-year period.

Nigeria

Nigeria has adopted an innovative framework for transforming the agriculture sector through the Agricultural Transformation Agenda (ATA). The vision of the Transformation Agenda of FMARD (Federal Ministry of Agriculture and Rural Development) is "to achieve a hunger-free Nigeria through an agricultural sector that drives income growth, accelerates the achievement of food and nutritional security, generates employment, and transforms Nigeria into a leading player in global food markets to grow wealth for millions of farmers". Key priority sectors of the ATA are cassava, rice, and sorghum, but also horticulture, livestock (including dairy), and aquaculture. Support is given on: Extension services, Growth enhancement support, Agro-processing and marketing, Agricultural infrastructure, Cooperatives, Rural development, Land resources, Food reserve and storage, Quarantine service, R&D. Insurance, Mechanization.

The **Agriculture Promotion Policy (APP) 2016** seeks to partner closely with private investors across farmer groups and companies to develop end-to-end value chain solutions. Through this initiative operators will receive facilitated government support, as they make deep commitments to engaging a new generation of farmers, improving the supply of specialized agro chemicals, as well as wider scale use of high yielding seeds. The government will also, work with investors, to sharply improve the distribution system, reduce post-harvest losses and overall, improve nutritional outcomes in the country.

The **National Seed Policy (2014)** endows the government with the responsibility of maintaining public-service infrastructural and service support required to maintain efficient seed supply across regions, enhancing farmer demand for improved seeds, and creating an enabling environment that is favorable for investment in the seed business. The policy also stipulates the withdrawal of the public sector from commercially producing seeds.

The **Water Resources Act (1993)** allows any person to take water without charge for his domestic purpose or for watering his livestock from any watercourse to which the public has free access and to use water for fishing or navigation. The Act also allows any landowner to take and use water from the underground water sources or if sharing boundaries on the bank of any watercourse, from that watercourse.

Togo[129]

Agriculture development is one of the three pillars in Togo's National Development Plan for 2018–2022. The **National Programme for Agriculture for 2017–2026** is among the sectoral policies further articulating the Government's priorities in this core sector. Togo's National Programme for Agriculture for 2017–2026 has the aim of increasing the overall productivity of the agriculture sector by 10 percent, doubling the incomes of smallholder farmers and creating 15,000 new jobs in agriculture and a further 2 million in related sectors by 2026. The national agricultural investment programme is a key driver of agricultural policy implementation and promotes women's empowerment, particularly through enhanced access to productive assets for food production, livestock, and fisheries.

The Government of the Republic of Togo has prepared, with the support of development partners and donors, the **National Agriculture and Food Security Investment Programme (Programme National d'Investissements Agricoles et de Sécurité Alimentaire, PNIASA**). This programme's objective is "to increase the income of farmers and to contribute to the improvement of the trade balance and the living conditions of rural populations under sustainable development, with special attention to the poorest and most vulnerable populations". To achieve this objective, five priority areas have been defined as (i) intensification and sustainable development of agricultural production systems to increase the income of farmers and improve the living conditions of rural populations ; (ii) promotion of diversification and development of agribusiness ; (iii) structuring of the rural areas and professionalization of agricultural producers ; (iv) strengthening the institutional capacities of services providers (public and private) ; (v) promotion of the rights to food and good governance around food and nutritional security.

The PNIASA is structured into 5 sub programs with 14 components described as follows:

(i) Promotion of plant sectors

This sub-program is structured into four components: sustainable management of natural resources, the establishment of rural infrastructure, development of food supply chains, and development of export supply chains.

The first component emphasizes the fight against the degradation of natural resources, the restoration of land and other degraded resources, as well as the promotion of forestry through the empowerment of producers.

The second component is structured around actions to control water, improve lowlands, develop infrastructure, conservation, and commercialization of agricultural production. The development of small infrastructures will be monitored by local committees; and the works will be carried out by service providers, under the supervision of public services.

In the third component, the GoT is committed to developing actions and mechanisms for improving access to means of production and development of value chains to increase the production of cereals (corn, rice, sorghum, etc.), roots and tubers (cassava and yam, etc.), pulses (beans, peanuts, and soybeans, etc.) and vegetable crops by developing partnerships with the private sector.

Finally, the fourth component is focused on access to production factors, promotion of the processing of cash crops (cotton, coffee, cocoa), promotion of diversification crops (pineapple, cashew, potatoes, etc.), revitalizing the structuring of the rural world, and setting up a competitive export promotion fund.

129 Republicque Togolaise. (2016). Programme National d'Investissement Agricole et de Securite Alimenraire. Cadre fe Gestion Environmentale et Sociale (CGES). Rapport Final.

(ii) **Promotion of livestock sector**

The GoT is committed to significantly reducing its deficit in meat production through the two components of this sub-program: (i) development of traditional livestock production chains and (ii) promotion of small and medium-sized livestock enterprises. It will intervene in supporting the development of short-cycle species in traditional farming that have the greatest impact on poverty reduction in rural areas, including small ruminants (sheep and goats), pigs (where the role of women is preponderant), and traditional poultry farming.

- The GoT aims to assist farmers in the development of livestock infrastructure, the production and distribution of improved broodstock, the development of health coverage of animals, improving the habitat of animals, and the development of feed production.
- The GoT will assure the sanitary quality of the meat products, in particular, by the development of the stockyards and the cattle markets, the construction of modern slaughterhouses, the acquisition of refrigerated trucks and cold chains.
- The GoT intends to pay particular attention to the sustainable management of transhumance, particularly through the development of corridors, the rehabilitation, and equipment of checkpoints, the revitalization of local transhumance management committees in the prefectures.
- To support the development of its breeding, the GoT intends to rehabilitate its breeding centres, build and equip analysis laboratories and support the emergence of modern farms.

(iii) **Promotion of fishery sectors**

The development of freshwater fish production chains and the promotion of maritime and continental fishing constitute the main components of this sub-program. The program would address the constraints of the sub-sector through targeted actions associating private fish farmers and capacity building.

In the first component, the GoT emphasizes the construction and development of ponds; the production and distribution of fry and feed for the fish farmers, who will be trained in addition to the managers of the fisheries and aquaculture department.

The GoT undertakes, through the second component, to support fishermen, among others, in the supply of fishing equipment and materials, sustainable management of resources, and information/ training, particularly in terms of knowledge of the regulations and rules.

The GoT is determined to give quality to the products by building platforms for the transfer of fishery products, accompanying fishmongers with equipment, and training for the processing, packaging, and marketing of fishery products.

(iv) **Research and Extension Sub-Program**

This sub-program will be implemented through three components: (i) the development of improved technologies that are likely to increase productivity and add value in all sub-sectors ; (ii) the dissemination of improved technologies to facilitate their adoption by production actors in the sector ; (iii) the proper functioning of agricultural research and extension systems.

The GoT is committed to ensuring the application of regulations related to seeds and pesticides in harmony with regional regulations, the establishment of the genetic map of the sectors, the construction/ rehabilitation of research and extension infrastructures, the equipment of research and extension institutions, the training of researchers and extension agents, and the revitalization of the support to research system (DARS).

The GoT will set up a competitive fund to finance demand for the development and adoption of technologies.

(v) **Sectoral coordination and institutional strengthening sub-program**

This sub-program is composed of three components: institutional strengthening, sectoral coordination, and promotion of governance around the right to food. This sub-program is the materialization of the GoT's desire to set up an adequate institutional environment for the development of the sector. It is committed to ensuring key actions, both at central and decentralized levels, at both the public services and of the profession. These include the following actions: (i) reform of MAEH and the structuring of POs; (ii) rehabilitation, construction, equipping of institutions ; (iii) the establishment of the results-based management system (RBM) and the strengthening of the staff's capacity to use RBM; (iv) promotion of agricultural financing mechanisms ; (v) the implementation of complementary measures. The measures may include environmental and social protection (part of environmental and social management, pest management plan, resettlement policy framework, etc.), public transfers (direct grant, loan guarantees, taxes, and other fiscal tools, etc.), provision of various services (agricultural training, agricultural information systems, insurance, social protection, etc.), regulatory tools (agricultural laws, adequate mechanisms aiming at providing financial services to producers, etc.) which encourage investment in the sector with a view to ensuring its development.

Competitive funds will be set up for innovative projects that seek to increase productivity, market research, providing technical support, development of research, and extension.

Determined to fight against food insecurity, the GoT will set up social safety nets, security stocks and develop an early warning system (EWS), as well as consultation and governance frameworks around the right to food. It will publish an annual report on the food security situation.

The GoT is committed to improving the performance of sector institutions through the establishment of the Strategic Analysis and Knowledge Management System (SAKSS) for the improvement of programming, implementation, and concerted monitoring - evaluation investment operations.

In order to establish the appropriate monitoring - evaluation framework, the GoT is committed to organizing the national agricultural census and setting up a reinforced monitoring and evaluation system at different levels, including a matrix of decisive actions on implementation and the effectiveness of its sectoral policy.

Annex 3. List of Stakeholders in the Value Chain in West Africa

Nigeria

	MAJOR ACTORS	CONTACT DETAILS	VALUE CHAIN
	Professional associations:		
1.	Edo State Exporters Cluster Nigeria Export Promotion Commission with about 100 members	Josephine Rhona Peters (Coordinator) edoexportercluster@yahoo.com +234803435 2934 and +234 805 717 4076	Cassava
2.	Yam Farmers, Processors and Marketers Association of Nigeria	Prof. Simon Irtuanye (Chairman of the committee and the President of the Association) +234 803 588 5567 svirtwange@yahoo.com	Yam
	Technical Committee on Nigeria Yam Export Programme		Yam
3.	West Africa Trans-border Trade Agricultural Produce, Pastoral and Allied Products	Mr. Femi Odunsanya (Secretary) +234 803 330 3758	Vegetable
4.	Nigeria Cassava Growers Association	Mr. Donatus Imaghodor (Edo State Chairman) lentusfoods@gmail.com +234 816 984 3799 and +234 802 301 4988	Cassava
	Producers		
5.	Cattleman Feedslot and Services	Mr. Kola Kuku (CEO) olakuku@gmail.com +234 803 302 7218	Beef
6.	Alhaji. Mohammad Abdul Onion farmer	+234 809 702 3010 +234 803 473 3453	Vegetable
7.	Alam Parboiled Rice	Alhaji Gambo (CEO) +234 703 186 3931	Rice
	Aggregators		
8.	AgroMall The digitized agricultural solution to optimize best agricultural practices promote financial inclusion of the rural economy and foster growth	Patrick Obodokea (Transformation Manager) patrick.obodoekea@theagromall.com +234 803 823 0570	Rice
9.	Hills Harvest Agricultural value chain company, with a focus on food marketing and distribution	Deji Rotimi (CEO) rotimi00@gmail.com +234 8120158224	Vegetable
10.	AFEX Commodities Exchange Ltd Runs a viable commodities exchange model for the West African market	Ayodeji Balogun (CEO) +234 813 933 9000 abalogun@afexnigeria.com	Rice

	MAJOR ACTORS	CONTACT DETAILS	VALUE CHAIN
11.	Novus Agro The largest private network for the collection of agricultural market information in Nigeria,	Mr. Chike Nwagwu (CEO) +234 909 245 1869 Chike.Nwagwu@novusagro.com	Cassava
	Processors		
12.	Elephant Group Multinational company in the business of exports, production, processing, sourcing, marketing & distribution of Agro Commodities	Dr. Olurotimi Fashola, (Team Head, Projects) rotimi@elephantgrp.com +234 803 454 9326	Rice & Cassava
13.	A.I.D Kura Agro-Allied Processors Company Rice cottage miller	Alhaji Ali Idris Mai Unguwa (CEO) +234 806 954 8573; +234 818 427 4991	Rice
	Transporters		
14.	Kobo 36 Tech-enabled digital logistics platform that aggregates end-to-end haulage operations	Mr. Adetoro Akindele (Supply Chain Manager) +234809 223 0013	Cross-Cutting

Ghana: Yams

Major Actors	Contact Details
Professional Associations:	
1. Ghana Yam Producers And Exporters Association (GYPEA)	Theophilus Kenneth Hayford +233 206 598 204; +233553 585 336
2. Ghana Roots And Tubers Exporter Union (GROCTEU)	Prince Edward Adu Trade Fair Accra
3. Yam Sellers Association	+233201996081, +233543654051. Nsawkaw
4. Crop Research Institute (CSIR-CRI)	Moses Brandford Mochiah mochiah64@yahoo.com Kumasi Ghana;
Producers	
1. Kobbiman Farms Ltd, Nkoranza	Mr. Kwabena Adjil-Mensah, Kadjeimansch@Yahoo.Com Tel: 233-202-013-490 Oheneba Adjei Baffo, the Ankobiahene of the Nkoranza Traditional Area, owner, and Chief Executive Officer
2. John Yamuha Farms	Mampong +233245220633
3. Acheampong Guruma	Kwame Danso +233276897532
4. Bruce Bania Yakubu Farms	Abuontem +233201827974
Aggregators	
1. Joyce Afriyie Yam Center	Nsawkaw +233244131041
2. Touch Skies Ghana Limited	Accra +233244679155/+233553778903
3.Agri-tility distribution limited	Accra +233202029964/+233500294539
4. Tahti trading enterprise	Accra +233277902177/+233302400801
5. Dankosa Ghana Ltd	Accra North 0302 665995 / 020 8116996
Other Traders	
1. Ghana Export Promotion Authority (Gepa),	Dr. Emmanuel Otoo, Otoo_emmanuel@yahoo.com Otooemmanuel@gmail.com, Cell: 233-026-452-74-25
2. Federation of Associations Of Ghanaian Exporters (Fage)	fageghana@gmail.com, +233 (0)302 766 846
5.Hormeku Engineering Works Ltd.	Kofivi Hormeku, +233244511605, Kofivihormeku@Yahoo.Com
Processors	
2. Neat Foods	Kwasi Brenya, +233244275736, Brenya1043@Yahoo.Co.Uk
3. St. Baasa Ghana Limited	Baah Dapaah, +233203452121, Dapaah1960@Yahoo.Com; Stbaasa@Yahoo.Com
4. Nhyiaeso Yam Association	Tafo wholesale market, Kumasi
Transporters (Logistic Companies)	
1. Kwasi Aryertey	Koforidua, +233244225232/+233208221166
2. Nana Owusu	Oda, +233240859512
3. Ibrahim Mohammed	Afram Plains +233542595077

Ghana: Cassava

MAJOR ACTORS	CONTACT DETAILS
Professional associations:	
1. Farm Gate Cassava Producers Association	Otuo Acheampong, +233275567445 Ashanti, Sekyere Central
2. Peasant Farmers Association Of Ghana	Charles KK Nyaaba, ckknyaaba@yahoo.com, +233 203035672 +233 (0)552 663 648, info@peasantfarmers.com
3. Adom Cassava farmers association	Isaac Asante,+233201497446, Asukese, Afram Plains South
Producers	
1. Nutifafa Cassava Production Group	Kpando- Daffor, Volta Region
2. Oseikrom Farm and Agro Ventures	Osei Kwaku, +233244256034/+233205012344, Old Edubiase Adansi North
3. Christaa Agric Ventures	Christiana Adjei ,+233243638529/+233508073891, Ashanti Mampong
4. Acquah Poyo Farms	+233242852978, Awutu Bawjiase.
5. Nyame Ye Gari	+233 276848316, Assin Fosu, Koforidua
Aggregators	
1. Ayensu Starch Company	+233 0244164929, Ayensu, Awutu Senya East
2. Damongo Cassava Growers Association	Hajia Salamatu, +233 (0) 541 594 893
3. Akata Farms	Mabel Ann Kudzo, +233 (0) 245 812 957
4. Ave Farms	Felix Biiga, +233 (0) 555 539 120, Nkoranza
5. Agrosol Ltd.	W.A. Manu, +233 (0) 546 588 737
Other Traders	
1. Star 3 Company Ltd.	Hon. Emmanuel, Bonde, +233 (0) 268 151 375
2. Amantin Agro Processing Co. Ltd	William Oppong Bio, +233 (0) 208 161 794, Amantin-Bono East
3. ITF-GRATIS	+233 (0) 244 124 611
4. National Board for Small Scale Industries (NBSSI)	NBSSI Head Office, Accra
5. Sinapi Aba Savings and Loans	Joyce Owusu-Dabo, Kumasi / Ashanti Region / Ghana - West Africa, Tel: +233 (0) 3220 27150 / 30112 / 45358
Processors	
1. Cassava Alcohol Technology (CALTECH)	CHRIS QUARSHIE; Hodzo, Ho. Volta Region, +233202015402
2. Vankharis Ghana Limited	+233 20 942 6025, Ho Volta Region
3. Amya Agro Plus	Dr. Marie Bationo, mariebationo@yahoo.com, +233241574096 Wenchi, Brong Ahafo
4. Josma Agro Industries, Ghana.	Janet Gyima-Kessie, CEO & Founder, +233208168661 Ashanti Mampong
5. Gomoa Obuasi Agrico Cassava Processing Center	John Awutey Agbeno, Peter Ogamon +233243226341/ +233247491951, Gomoa Obuasi
Transporters (logistic companies)	
1. Ghana National Cargo Association	Alhaji Mohammed Tanko, +233244842021

Ghana: Rice

MAJOR ACTORS	CONTACT DETAILS
Professional associations:	
1. Grains and Legumes Development Board (GLDB)	Dr. Robert A Asuboah (Executive Director) Ministry of Food and Agriculture
2 .Peasant Farmers Association Of Ghana	Charles KK Nyaaba,ckknyaaba@yahoo.com +233 203035672,+233 (0)552 663 648 info@peasantfarmers.com
3. Ghana Grain Council GGC	Emily Boahen, +233 547406030 eboahen@ghanagrainscouncil.org
4. Ghana Rice Inter-professional Body (GRIB)	Derick Ayeh, +233 243302815, pwmghana@yahoo.com
5. Association of Ghana Industries (Agriculture Sector)	Mr Seth Twum Akwaboah, CEO,+233208157090 setha@agrighana.org., AGI Chairperson (Agri-business), Fatima Alimohamed, fatima@africanbrandwarrior.com, +233 577141414
Producers	
1. Tono Irrigation Cooperative Farmers Union (TICFU)	+233 249439083
2. Navrongo Innovation Platform (IP), Upper East region of Ghana.	+233 20 386 6932
3. Peasant Farmers Association Of Ghana	Charles KK Nyaaba, ckknyaaba@yahoo.com +233 203035672,+233 (0)552 663 648 info@peasantfarmers.com
4. Ghana Federation Of Agriculture Producers Association	Ministry of Food and Agriculture(MOFA)
5. Ghana Grains Council	Emily Boahen,+233 547406030 eboahen@ghanagrainscouncil.org
Aggregators	
1. Agrisolve	Elorm Goh,+233244 644 633 Elormg@agrisolvegh.com
2. Sahel Grains	Kame Boateng (Managing Director), kwame@sahelgrains.com
3. Farmerline	Leila Serwah Khalid, leila@farmline.co, +23355 970 5112
4. Avnash Rice Mills	Meridian Road, Tema, Telephone (+233) 303 214384, Email info@avnash.com
5. Kedan Limited	Eric Kissi+233208613149, eric_kissi@yahoo.com
Other Traders	
1. Ghana Agricultural Insurance Pool	Ali Mohammed Katu (GM),a.mkatu@gaip-info.com, muhammedkatu@yahoo.com, +23320 8133163
2. Outgrower Business Networks (OB Networks)	Zonal Networks in Upper West Region, Upper East, and Northern Region, John DimahSissala West OB Networks dimahgbene@ymail.com Iddrisu Mac- Adams, Wa Zonal OB Networks imacadams@yahoo.com
3. Ghana Agri-Input Dealers Association (GAIDA)	Executive Secretary, Tel: +233302246343 (+233)263304054, fkbrakatu@gmail.com gaidasecretariat@yahoo.com
4. Northern Cereal Growers, Processors and Marketers Association	Tamale Northern Region, Mr. Abdul-Rahman Alhassan.

MAJOR ACTORS	CONTACT DETAILS
5. Seed Producers Association of Ghana (SEEDPAG)	Patrick A. Apullah, Adingapullah@yahoo.com +233244542197
Processors	
1. Premium Foods Limited	Gladys Sampson (GM), +233249 105972 gsampson@ premiumfoodsgh.com Tom Gambrah (CEO), tgambrah@premiumfoodsgh.com
2. Amya Agro Plus	Marie Bationo, mariebationo@yahoo.com
3. AGRICARE	Isaac Ferkah, +233244 312 100, i.ferkah@agricaregh.com
4. Sahel Grains	Kame Boateng (MD), kwame@sahelgrains.com
5. AVNASH Rice Mills	Meridian Road, Tema,Telephone (+233) 303 214384, Email info@avnash.com
Transporters (logistic companies)	
1. Ghana National Cargo Association	Alhaji Mohammed Tanko, +233244842021
2. Hippo Transport Company Limited	Lake Road, Kumasi -Ghana. Email: commodities @ hippogroup-hp.com
3. Gblobal Haulage Company Limited	Achimota, Accra, Tel : + 233 302400173, + 233 244329686
4. Ghana Haulage Transport Owners Association (GHATOA)	Adams Salia, +233 244656733, Adamssalia5@gmail.com

Ghana: Vegetables

MAJOR ACTORS	CONTACT DETAILS
Professional associations:	
1. Ghana Green Label (GGL)	Anthony Tamakloe, CEO,execsec@ghanagreenlabel.org +233548639070
2. Keta Vegetable Farmers and Marketers Association	Mr. Roland Tudzi
3. Vegetables Producers & Exporters Association of Ghana (VEPEAG)	National Secretariat, Joe Tontoh +233 206 1520370, +233 302 777171,+233 302 777 220 Email:info@vepeag.org, vepeag@gmail.com
4. Food and Drugs Authority	The CEO,fda@fda.gov.gh
5. Ghana Association of Vegetable Exporters	Mr. Daniel Aladi, President
6. GhanaVeg Secretariat	Sheila Assibey-Yeboah, sassibeyyeboah@ifdc.org
Producers	
1. Eden Tree Limited	Cambodia Estates, Community 18, Lashibi edentreegh@gmail.com,+233 50 129 6110
2. Dizengoff Ghana Ltd	Mr Arie Carmon, MD, +233 (0) 302221831, 302227601
3. Kukobila farms	Mr. Hisham Seidu Managing Director
4. Calli Ghana	+233 244337341, Email: info@callighana.com
5. Amiran Farmers Kit (AFK)	Accra Ghana
6. Odotobri and Begoro Outgrower Farmers Associations	Accra Ghana
Aggregators	
1. E. Darkey and Associates Ltd	Emmanuel Darkey, +233-242-627197
2. Farmers market	Retail Manager - (233) 050 148 1140 https://thefarmersmarket.odoo.com/home
3. ATC Farms	+233 (0) 244971439, cametefe@yahoo.com Sogakope
4. 3As Agri Solutions Ltd	+233 (0) 243246818/ 2446498210, Email: 3asagsol@gmal.com
5. Volta Veg	Daniel Aladi – CEO, +233 (0) 244114474 info@voltaveg.com
Other Traders/Retailers	
1. Market Express	www.marketexpress.com.gh/vegetables
2. Nest Agro Foods	The CEO, Mr Mawutor Kumah
3. Freshmark	ShopRite, Ghana, Accra Mall
4. Koala	Osu Oxford Street, Accra
Processors/Distributors	
1. Srighan farms	+233 (0) 302412685, ponsaatheesh@hotmail.com Adoagyir Nsawam
2. Ebenliz Farms	Ebenezer Quartey, +233 (0) 244806263/302660842 Tema
3. Joro Farms Agriculture Processing Ltd	+233 (0) 302221947/244382227, josephtonto@yahoo.com
4. Whytebage Int. Ltd	+233 (0) 248121512/268121512, whytebage@yahoo.com,Achimota

5. Sowgreen Farms and Shop	+233 (0) 241234234, kobinahudson@gmail.com, kobi@sowgreenfarms.com
6. Agri-Impact Consult	+233 (0) 303 937 674, East Legon, Accra
Transporters (logistic companies)	
1. Ghana Airport Cargo Centre (GACC)	Kotoka International Airport [KIA]
2. Air Ghana Perishable Cargo (AGPC)	Kotoka International Airport (KIA)
3. Ghana National Tomato Trader and Transport Association	Christian Randolph Lartey +233245 091733/+233269853814

Ghana: Beef

MAJOR ACTORS	CONTACT DETAILS
Professional associations:	
1. Animal Research Institute -Council for Scientific and Industrial Research (CSIR)	Agostinho Neto Road, Council Close, Airport Residential, +233 302 776514, dgsoffice@csir.org.gh, headoffice@csir.org.gh
2. Ghana Standard Authority	Joyce okoree, jooko88@yahoo.com/ jokoree@gsa.gov.gh +233244381351
3. Veterinary Services - Ministry of Food and Agriculture	
4. Ghana Cattle Ranching Committee (GCRC)	Afram Plains, Eastern Region
5. West Africa Centre for the Protection of Animal Welfare (WACPAW)	Tamale, Northern Region, +233 200656940, +233 242663071 +233246716726
Producers	
1. Ghana National Association of Cattle Farmers	Hanafi Sunde Chairman
2. Mampong-Shai/Bunase Cattle Owners Association	
3. Ghana Livestock Breeders and Traders Association	Alhaji Moro Kakade +233244670117
4. Bolgatanga Cattle Dealers Association (BOCADA)	
Other Traders	
1. Prestige Trade/ Butcher Boyz	7 Dodi Link, Airport Residential Area, Accra, Emails: sales@prestige-trade.com, info@prestige-trade.com Tel:+233 55 772 7774
2. Bawku Cattle, Sheep, Goat and Onion Dealers' Associations	Bawku Municipality in the Upper East Region
Processors	
1. Accra Abattoir Company Limited (Aacl)	Dr. O. A Bonsu, Managing Director, +233 (0) 241 523 72
2. JFAMCO Ghana Limited	Madina Estate / Social Welfare, +233 247 628 588 +233 302 978 820
3. Malicat Butchers and Meat Processing	Rana Rd, Tema, Ghana, +233 303 303926
4. Francopat Company Limited	+23330 266 5682 / 3, Graphic Road, Accra, Ghana
5. Derrickson Meat Co. Limited	+233 261 168 186, +233 243 284 116, derricksonmeat@gmail.com

Cote d'Ivoire: Cassava

ACTEURS PRINCIPAUX (Raison sociale et Nom personne contact)	CONTACT DETAILS (Telephone et Emails)
Associations Professionnelles:	
1.FECREPMA - Fédération des Coopératives et Réseaux pour la promotion du manioc	+225 49542702
2. FENACOVICI - Fédération Nationale des Coopératives de Vivrier de Côte d'Ivoire	+225 08841192
3.CNAVI-CI – Confédération Nationale des acteurs du vivrier en côte d'ivoire	+225 43971412
Producteurs	
1. Coop UVETO Union Vivrière Etraikpa	COFFI BROUZ Jonas, (secr gal) 08863517 /04333464
2. Coop Les Moissonneurs	Mme SIDIBE Jeannette08346468
3. Fédé Asso femmes dynamiques	KOUAME AhouSimonne, 07908260
4. UAFA	57469825 / 05346546, KRA Céline 08545584
5. Coopérative ADJOCO	KOFFI Norbert, 09583723
Distributors – wholesalers - traders	
1. Logistics & Trade international	Charles- armand N'GOU, +225 59, 49 01 43 // 07 18 55 30, Mobile : +225 01 88 57, 88 // 06 56 59 52
2. Societe Cooperative deProduction de Manioc Doubehis Ebenezer	05 31 66 51 03 71 31 00, Kpombo BeugreJoachim
3. Societe Cooperative des Femmes de Vivriers De Bouake (Coop-Ca Cofemvib)	Tanoh Viviane EpseKouadio, 58 03 05 50 47 21 38 80
4. Mouaye N'da Manioc de CôteD'ivoire (Mouaye N'da M.Ci Scoops)	Konan N'goran Marcel, 07 78 24 89
5. Societe Cooperative Agricole et Industrielle de la Marahoue (Sicama-Ca-Coop-Ca)	Konan AffoueMarie Florence 4299 19 99
6.Cooperative Agricole Cote d'Ivoire Vivriers (CIV COOP-CA)	Kadjo Roland 07 54 47 81
Transformateurs	
1. Societe Cooperative (SOCOPA)	Yediane Marie 41 10 11 13
2. Societe Cooperative Etranou deBendressou (SOCEBE)	Kouame Akissi N'da 47 65 39 77
3. Cooperative Copacaci (SCOOPSCOPACACI)	Pulcherie Yapo08 43 46 14
4. Societe Cooperative Moye	Ouah Estelle07 57 82 18
5.Societe Cooperative Feïfe(SOCOFE)	Tien Lenou SoniaYacine Patience 06 60 67 12 89 73 51 13

Cote d'Ivoire: Vegetables

ACTEURS PRINCIPAUX (Raison sociale et Nom personne contact)	CONTACT DETAILS (Telephone et Emails)
Associations Professionnelles	
1. FENACOVICI	+225 08841192
2.CNAVI-CI	+225 43971412
3. IOCI	+225 07 50 47 04
Producteurs	
1. Societe Cooperative de Production et de Commercialisation de Produits Vivriers (COVIYOP SCOOPS)	Tchan Lou Tanan Francoise Epse Gnoleba, 45 84 81 38 07 67 25 86
2. Societe Cooperative Des Femmes De Zema (SOCOFEZEMA SCOOPS)	Zamble Lou Irie Valentine 07 30 27 21 55 44 88 35
3. Societe Cooperative De Baleninfe (SCOOPS BALENONFE)	Toh Lou Zagnan 07 28 52 91
4. Coopérative Femme Solidaire Pour L'action Et L'autopromotion De Dabou (FESAAP)	Amehoun Nee Amani Clemence 05 47 98 19 40 26 95 18
5.Societe Cooperative Chongagnigui (CHONGAGNIGUI SCOOPS)	Yeo Fanta 06 37 84 76 05 85 10 24 46 47 17 19
6. Societe Cooperative De Developpement Des Fruits Et Legumes De Cöte D'ivoire (CDFL-CI SCOOPS)	Coulibaly Sigakota Sidiki, 05 06 67 14
7. Societe Cooperative De Developpement Des Fruits Et Legumes De Cöte D'ivoire (CDFL-CI SCOOPS)	Coulibaly Sigakota Sidiki, 05 06 67 14
Distributeurs – Grossistes - Negociants	
1. FENACOVICI	+225 08841192
2 .CNAVI-CI	+225 43971412
3. IOCI	+225 07 50 47 04
Commercants	
1. Cooperative des Femmes de Vivriers de Yopougon	Boue Lou Tanan Madeleine 09 57 05 15 07 92 69 63
2. Societe Cooperative Vitalis Nagouho (ECOVINA SCOOPS)	Soro Ouorni Marie Anne Sinekamatien 05 62 00 41
3. Societe Cooperative Hermankano des Femmes de Gagnoa (SCOOPS HERMANKONO)	Kone Matene 47 47 49 74
4. Societe Cooperative de Vivriers des Femmes de Dignago (SCOOVIFED SCOOPS)	Lida Epse Koupo, 08 74 43 23
5. Societe Cooperative des Producteurs et Vendeurs du Vivrier (SO.CO.PRO.VE.VI COOP-CA)	Ta Lou Irie Jeannette 47 31 99 00 01 24 25 24
6. Societe Cooperative des Fruits, des Legumes et Vivriers du Nord (COFRUNO SCOOPS)	Vakamoue Toure, 07 05 35 12,05 97 74 79
Transformateurs	
1. Societe Cooperative Agropastorale N' Globo (EDJASSO SCOOPS)	Yao Kouassi Anicet 09 57 01 4
2. Societe Cooperative Christ Le Bon Berger	Tengue N'guessan Irene, 48 79 04 99, 46 20 85 39
3. Societe Cooperative Urmag	Koffi Kouadio Raymond 07 17 18 56
4. Societe Cooperative Djolo (DJOLO COOP-CA)	Ouhonohi Jeanette Epse Kipre 48 87 91 59, 01 75 50 01
5. Societe Cooperative M'mon Djrame des Femmes de Yopougon Koute (SOCOMOFEYOK COOP-CA)	Djauman F. Epse Djoman, 07 37 53 54, 04 83 55 15, 57 61 32 18

Cote d'Ivoire: Rice

Cote d'Ivoire: RiceCote d'Ivoire: RiceACTEURS PRINCIPAUX (Raison sociale et Nompersonne contact)	CONTACT DETAILS (Telephone et Emails)
Associations Professionnelles:	
1. OIA – RIZ ZRO BI Pierre Président national del'organisation interprofessionnelle riz	scoops.scoriv.ci@gmail.com07 43 43 76
2. ISSIAKA Coulibaly, Président du conseil d'administration du pôle deBouake (Producteur de Riz)	coulissaka66@gmail.com40 3 07 00
3. FENARIZ - CISINGO Sidiki Président du conseil d'administration du pôle de Man	fenarizci01@gmail.com, 58 83 57 32/05 38 38 39
4. DIARASOUBAMoussa Président du conseil d'administration du pôle d'Odienné	diaralanzeny@gmail.com09 04 35 35/05 66 02 71
5. CAMARA Assétou, Présidente de la plateformed'innovation de Bouake	camarabassetou@gmail.com07 72 92 95/ 40 68 63 76
Producers	
1. Kouassi kan Joseph	08676361
2. Koumoue	07514912, koumoehenri80@yahoo.fr, koumoe03@gmail.com
3. Kanga Amany Francis	53255989
4. Langui N'goran Nicole	97046615
5. N'zoué Koffi Théophile	09770006
Distributors/Wholesalers	
1. TOURE IBRAHIM, Union des distributeurs de Riz do pôles d'Odienne(U.D.R.O)	07 81 17 02
2. COULIBALY Seydou, Union des Pools des Distributeurs de Riz de l'EX-District des Savanes(UPDR-DS)	05 59 21 36
3. KOUADIO Anick Natacha Union des Distributeurs de Riz Local du Pôle de Bouake (UDRIL-PB)	07 79 01 42
4. ESSUI Affouet Emilienne Union des distributeurs de Riz du Pôle de Yamoussoukro (UDRY)	07 23 47 51
5. ZOGOURY AngeRodrigue Union des distributeurs deRiz de GAGNOA	04 12 28 25
Traders	
1.DJEQUE Boubakar	08 35 37 57
2.OUATTARA Abiba	07 12 59 54
3.Zogalou Esther	07 03 74 47
4. MAMADOU DIABY	07582957
Processors	
1. CAMARA Assétou Présidente de la plateformed'innovation de Bouake	camarabassetou@gmail.com +22507729295/07 72 92 95/ 40 68 63 76

Cote d'Ivoire: RiceCote d'Ivoire: RiceACTEURS PRINCIPAUX (Raison sociale et Nompersonne contact)	CONTACT DETAILS (Telephone et Emails)
2. Diaby Mamadou Transformateur et producteur Paddy	07582957 / 05600489 mamadoudiaby174@gmail.com
3 AMC FC	07080866
4. Mm Guey Secrétaire du groupementdes **étuveuses** de Sokoura	+22505264284
5 MIRIZCO DAGROU BI GORE	02818531/09863630 delmao@live.fr
Transporters	
1. KEIKA	09 39 75 49
2. JUMEAU	57 08 22 40
3. ABOULAYE	46060356

Togo

Name	Role	Contact details
Institutions		
CIFR - Conseil Interprofessionnel de la Filiere Riz	Wiyaou Mazibèdong - Président	Préfecture de Sotouboua Région Centrale Téléphone: +22892462543/+22897208333
CIFAN - Conseil Interprofessionnel de la Filiere Ananas	Kpindelezi Zangaba - President	Ville, Préfecture Lomé-GOLFE Région Maritime Téléphone: +22892030728
CIFMANGUE - Conseil Interprofessionnel de la Filiere Mangue	Adabra Yawovi Agbeko - Président	Téléphone : +22890113960
CIFPRT - Conseil Interprofessionnel de la Filiere Plantes a Racines et Tubercules	Eviwounou Komla	Ville, Préfecture : Blitta ;Région : Centrale. Téléphone: +22891857442
CIFIBOV - Conseil Interprofessionnel de la Filiere Gros Betail	Sambo Allassan	Téléphone: +22891673409
Producers		
Mill Bawanouridino	Rice Producer	Guérin kouka, Préfecture de Dankpen,Région de la Kara Téléphone: +22892360922/+22897010250
Bassessi Dadjatchamiè	Rice Producer	Elavagnon, Préfectured'Est-Mono Région des Plateaux Téléphone: +22890782344/+22897146854
Sambieni Bayabé	Rice Producer	Gando, Préfecture Oti Sud Région des Savanes … Téléphone: +22893752543/+22891058880
Adjogble Kossi	Fruits Producer	Ville,Préfecture Doklala-AVE ;Région Maritime
Maglo Yaovi	Fruits Producer	Ville, Préfecture Tsévié-ZIO Région Maritime Téléphone: +22890939908
Akrodou Kossi Blewussi	Fruits Producer	Ville, Préfecture Apéyémé-DANYI Région Plateaux Téléphone: +22890767545
Moussa Koudzo	Fruits Producer	Ville, PréfectureKpalimé-KLOTO Région Plateaux; Tél: +22893126576.
Senyo Koku Adegbe	Fruits Producer	Ville,Préfecture Doklala-AVE; Région Maritime
M'boma Y.Ibraïm	Fruits Producer	Savanes ; Tel : +22891211333
Bassessi Djadja Tchaamie	Fruits Producer	Plateaux ; Tel : +22890782344
Kpoti Tete	Fruits Producer	Maritime; Tel : +22897651557
Kpekou Agbarine	Fruits Producer	Kara ; Tel : +22890117112
Adjia Agbossa Aliou	Fruits Producer	Centrale; Tel : +22890030257
Abaglo Ayité Robert	Roots & Tubers Producer	Ville,Préfecture :Lomé/GolfeRégion :Maritime ;Tél : +22890 25 61 17
Maman Yakoubou	Roots & Tubers Producer	Ville,Préfecture :Bangéli/BassarRégion : Kara ;Tél: +22891143021
Ayassou Kodjovignadanou	Roots & Tubers Producer	Ville, Préfecture : Davié/ZioRégion : Maritime ;Tél : +22891 13 23 29

Name	Role	Contact details
Agbassaou Nouhoum	Roots & Tubers Producer	Ville,Préfecture :Sokodé/Tchaoudjo Région : Centrale ;Tél : +22891 75 78 07
Momoga Razakou	Roots & Tubers Producer	Ville,Préfecture :Tchatchaminadè/Bassar Région : Kara, Téléphone : +22890 54 33 20
Bomboma Kampatite Pikabé	Meat Producer	Tel : +22899 41 31 45
Koudagba Komi	Meat Producer	Tel : +22890 81 49 76
Ouro- Samah Daouda	Meat Producer	Tel : +228 90 13 83 51
Abou Massahoudou	Meat Producer	Tel : +228 90 06 47 06
Aggregators		
Gbaguidi Yemane Ammel Judas	Fruits Aggregator	Ville, Préfecture Tsévié-ZIO Région Maritime Téléphone: +22897403093
Zomayi Kossi	Fruits Aggregator	Ville, Préfecture Tsévié-ZIO Région Maritime Téléphone: +22893591212
Adabra Yawovi Agbeko	Fruits Aggregator	Ville, Préfecture Lomé-GOLFE Région Maritime
Avogan David	Fruits Aggregator	Ville, Préfecture Tsévié-ZIO; Région Maritime; Téléphone : +22891091413
Other Traders		
Nassou Tarko	Rice Trader	Kanté, Préfecture de la Kéran Région de la Kara Téléphone: +22891291413/+22898238700
Sowu Akua	Rice Trader	Lomé, Préfecture du Golfe Région Maritime Téléphone 91544939
Aboudou Zakari	Rice Trader	Dapaong, Préfecture de Tone Région des Savanes Téléphone 90338684/98485903
Simpama Eyanawa	Fruits Trader	Central ; Tel : +22891424485
Balougou Marie Abla	Fruits Trader	Plateaux ; Tel : +22890272579
Galley Kossi	Fruits Trader	Maritime; Tel : +22892498583
Kolougue Mani	Fruits Trader	Kara ; Tel : +22890129281
Salifou Adamou	Meat Trader	Tel : +22890346979
Amadou Soulémane	Meat Trader	Tel : +22890155504
Adou Hassan	Meat Trader	Tel : +22890724941
Abli Watchi Abalo	Meat Trader	Tel : +22890223741
Abdou Kérim Abdoulaye	Meat Trader	Tel : +22890101026
Processors		
Name	**Role**	**Contact details**
Satchivi Kangnikoé	Rice Processor	Agomé-glozou, Préfecture de Bas Mono,Région Maritime Téléphone: +22898381848
Akpama Komivi	Roots & Tubers Processor	Ville, Préfecture : Sotouboua ;Région : Centrale ;Téléphone : +22890 55 29 52

Name	Role	Contact details
Djibril Méri	Roots & Tubers Processor	Ville, Préfecture : DAOUDE Région : Kara ;Téléphone : +228 92 30 95 38
Akata Afi	Roots & Tubers Processor	Ville, Préfecture : Agoé ;Région : MaritimeTéléphone : +228 90 27 87 54
Ognanki Koffi Dodji	Roots & Tubers Processor	Ville, Préfecture : Atakpamé/Ogou Région : PlateauxTél : +228 91 15 09 10
Agbalenyo Kossi	Roots & Tubers Processor	Ville, Préfecture : Davié/Zio ;Région : Maritime ;Téléphone : +228 90 09 05 84
Kadjeta Tchilaabalo	Roots & Tubers Processor	Ville, Préfecture : Blitta ;Région : CentraleTéléphone : +228 90 31 58 49
Fousseni Maman Nassirou	Meat Processor	Tel : +228 90 15 85 39
Issa Issaka	Meat Processor	Tel : +228 90 15 10 54
Ouro – Djobo Aîcha	Meat Processor	Tel : +228 92 61 66 74
Naya Abou Bakari	Meat Processor	Tel : +228 91 07 29 58
Transporters (Logistic Companies)		
Name	**Role**	**Contact details**
Union Nationale Des Transporteurs Routiers Du Togo (Unatrot)	Transporteurs	Téléphone : +22822274742

Annex 4. Market Information System

Name of the system	Lead Implemented (Company or donor)	Country/Region coverage	Commodities covered	Variables collected	Data collection methodology	Dissemination methodology
AMIS G20 Agricultural Market Information System http://www.amis-outlook.org/home/en/	Governed by a Steering Committee that includes: FAO, GEOGLAM, IFPRI, IFAD, International Grains Council, OECD, UNCTAD, World Bank Group, WFP & WTO	G20 countries (including South Africa) + Spain and 7 other major countries in the agricultural sector (Egypt, Japan, Kazakhstan, Nigeria, Philippines, Saudi Arabia, Thailand, Ukraine & Vietnam).	Global food supplies mainly wheat, maize, rice, and soybeans	Unit supply, opening stocks, production, food use, feed use, closing stocks (Yearly)	Mainly based on the *FAO Food Price Index, Cereals Price Index, Sugar Price Index, Vegetable Oils Price Index, Dairy Price Index, Meat Price Index.*	Through the dashboard, information can be obtained yearly
GIEWS FMPA (Food Price and Monitoring Analysis) Tool https://fpma.apps.fao.org/giews/food-prices/tool/public/#/home	Governed by FAO	Worldwide coverage	Food supplies (including bread, cassava, maize, meat, milk, palm oil, potatoes, rice, sugar, and wheat)	Commodity coverage, Unit of measure and Prices in USD & home currency,	Data sourced from each country's respective Ministry and their agricultural institutions/ organizations	Through the tool, weekly, monthly retail, and wholesale prices.
InfoTrade https://infotradeuganda.com/	Led by FIT Insights Group	Uganda	Food supplies such as Mushroom, cabbage & shea oil	Sharing of information on production, market, and payment transaction (in terms of prices, volume & quantity)	Data collected from 25 major markets across the country	Has monitoring dashboards, and can provide weekly reports as well as historical information
Regional Agricultural Trade Intelligence Network (RATIN) https://ratin.net/	Led by USAID	Regional coverage in East Africa for 5 countries (Burundi, Kenya, Rwanda, Tanzania & Uganda)	Maize, Mixed Beans (Red beans, yellow beans, black beans, etc), Millets & Peas	Market prices, border volumes,	Through Border observation technique, Tracking technique, and Stocktaking techniques	Dashboards providing information relating to warehouse grain storages, early marketing, and trade info
Afrique Verte Internationale (AVI) http://www.afriqueverte.org/index.cfm	Main donor: European Commission	Burkina Faso, France, Guinea, Mali & Niger,	Food supplies (cereals, grains, rice)	Technical information regarding prices, grain operators, farming season, and overall food situation	Data collected by field animators from AcSSA (in Niger), AMASSA (in Mali), and APROSSA (in Burkina Faso)	Monthly bulletin issued electronically

Name of the system	Lead Implemented (Company or donor)	Country/Region coverage	Commodities covered	Variables collected	Data collection methodology	Dissemination methodology
National Association of Producer Organizations of Ivory Coast (ANOPACI)	Funded by Members' contribution	Ivory Coast	Agricultural products	Consumer & wholesale prices, the average trend of market products	Via interviews done by animators of Village Information Points (VIP)	Disseminated through radios (main) and billboards
National Society for the Management of Food Security Stock (SONAGESS) https://sonagess.bf	Government of Burkina Faso	Burkina Faso	Agricultural products (cereals, protein & oil products)	Warehouses & stock management cost, Prices, (producer, wholesale & consumer prices)	Data collected via interview covering over a 48 markets	Disseminated through paper/ electronic format and over the radio (weekly basis)
Observatoire du Marche Agricole (OMA) http://www.oma.gov.ml/	Assemblée Permanente des Chambres d'Agriculture du Mali (APCAM)	Mali	Products in Agro-Industry	Prices (wholesale and consumer) & Production capacity	Via interviews and Observation by reporters	Via monthly bulletins and disseminated over the radio & on TV
Ethiopian Commodity Exchange (ECX) https://www.ecx.com.et/	Government in partnership with its Members	Ethiopia	Agricultural products	Prices, Volume of trade & Warehousing cost	Via monitoring transaction changes for products	Via website, Electronic ticker board, Print media, TV & Radio
SIMA Mozambique	Governed by Ministry of Agriculture	Mozambique		Price, Transport Costs, Availability of product flow	Via interviews and Observation by reporters	Via weekly bulletin (Quimbe Quimbe), radio & notice boards https://cgspace.cgiar.org/handle/10568/57537
Kenya Agricultural Commodity Exchange (KACE)	In partnership with West Media Limited (WML)	Kenya	Agricultural products	Prices, Demand & Supply of various commodities traded,	Via interviews and Observation by reporters	Via website, Electronic ticker board & Print media
Esoko Ghana https://esoko.com/	In initial partnership with USAID	Ghana	Agricultural products	Price	Via the mobile app tool "Insyt" – (mobile surveys)	Providing market prices through SMS

AGRA
Growing Africa's Agriculture

Alliance for a Green Revolution in Africa (AGRA)
West End Towers, 4th Floor
Muthangari Drive, off Waiyaki Way, Nairobi, Kenya
PO Box 66773, Westlands 00800, Nairobi, Kenya

WWW.AGRA.ORG