WACOMP

WEST AFRICA
COMPETITIVENESS PROGRAMME
REGIONAL INVESTMENT PROFILE

CASSAVA VALUE CHAIN

Funded by
the European Union

Implemented by:
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UEMOA

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2022

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This investment profile has been prepared under the framework of the West Africa Competitiveness Programme (WACOMP), which is funded by the European Union. WACOMP is implemented by the International Trade Centre and the United Nations Industrial Development Organization (UNIDO) in collaboration with the Commission of the Economic Community of West African States (ECOWAS). WACOMP covers all ECOWAS member States plus the Islamic Republic of Mauritania. WACOMP focuses on four selected value chains, namely mango, textile/garments, information and communications technology, and cassava. It aims to strengthen the competitiveness of West African countries and enhance their integration into the regional and international trading system, through an enhanced level of production, transformation and export capacities of the private sectors in line with the regional and national industrial and small and medium-sized enterprise (SME) strategies.

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ECOWAS COMMISSION

The regional investment profile on the cassava value chain is being developed with the support of the International Trade Centre (ITC) within the framework of the West Africa Competitiveness Programme (WACOMP), which is funded by the European Union (EU) and implemented by the United Nations Industrial Development Organization (UNIDO) and ITC Geneva.

The WACOMP programme aims to strengthen West Africa's economic competitiveness and develop various national and regional value chains, including cassava, mango, textiles and garments, and information and communication technology, and to improve the business climate in the region.

This investment profile is a compendium of information on the region's potential in the cassava value chain. It is designed to support the private sector in its search for new project ideas and facilitate investment decisions.

In this respect, its development contributes to the implementation of the West African regional industrialization policy, the EU investment policy and the ECOWAS trade policy.

Africa is the most important region for cassava production, accounting for 62.6% of global output. In West Africa, cassava is one of the most important tropical root crops; 52% of total cassava production on the continent is found in West Africa, compared to 25% in East Africa. The demand for and consumption of cassava-based food in the ECOWAS region is such that, despite the fact that the region produces more cassava than any other region in the world, West African nations do not currently play a leading role in the export of cassava and cassava products. The abundance of arable land suitable for expansion of cassava cultivation and a yield gap arising from a low level of adoption of Good Agricultural Practices (GAP) are key investment opportunities that could enable ECOWAS nations to participate meaningfully in the global cassava market.

The population of West Africa exceeds 397 million and the current supply of cassava-based products does not meet the market's needs. With the implementation of the African Continental Free Trade Area (AfCFTA), the needs of an African market of more than 1.4 billion people will be met.

The ECOWAS Commission welcomes the publication of this investment promotion tool for West Africa and would like to take this opportunity to thank its partners for their support and efforts in its design and production.

We wish future users of these profiles every success.

Mr. Mamadou TRAORE
Commissioner for Industry
and Private Sector Promotion

EUROPEAN UNION DELEGATION TO NIGERIA AND ECOWAS

At the EU, we are delighted at the dynamic cooperation between ourselves, the regional economic communities (RECs) and the private sector across the region. The investment profile study is being supported by the West Africa Competitiveness Programme (WACOMP). This is one of our flagship programmes implemented in West Africa. As a programme dedicated to improving the competitiveness of the region in several value chains, it is imperative to showcase the potential of some of those developed value chains. In order to boost local and international investment and create jobs, especially for the youth in a world struggling and recovering from the COVID-19 pandemic, there is no better time than now to promote the investment opportunities in West Africa/ECOWAS.

We are, therefore, wholeheartedly in support of the publication of the ECOWAS investment profiles for mango, information and communications technology, textiles and cassava. Approximately 62% of global cassava production takes place in West Africa. With improved production, processing and packaging practices, the sector will enjoy tremendous growth.

Attracting investment and creating an enabling business environment is key to the successful diversification and development of the economies in the region and the whole continent. This is also true for the mango, ICT, textile and cassava value chains. Investment facilitation is at the heart of the EU Global Gateway initiative, which aims at EU institutions and EU member states jointly mobilizing up to €300 billion of investments in selected sectors. The EU is also partnering with Africa under the EU External Investment Plan (EIP). With this, the EU is committed to creating jobs, boosting economies and offering people a brighter future.

This report will provide investors with relevant information about how to take advantage of opportunities across the value chains, from production to the market. By taking strategic investment opportunities, investors will contribute to the region's economic development.

I would like to thank ITC and our other WACOMP partners for undertaking this very useful study of the investment profiles in four critical sectors (mango, ICT, textiles and cassava) that will boost and support investment in the public and private sectors, governments and the people of West Africa.

Cecile TASSIN-PELZER
Head of Cooperation, European Union Delegation to Nigeria
and ECOWAS

1. ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS) AS AN INVESTMENT DESTINATION

1.1. INTRODUCTION: REGIONAL INTEGRATION IN AFRICA AND ECOWAS

There is wide and long-standing recognition within African leadership that economic prospects in most African countries are limited by small national markets. Approximately one-third of African countries have a gross domestic product (GDP) of less than $10 billion, nearly half have a per capita income of less than $1,200 and one-third have a land mass of less than 100,000 km^2. Accordingly, since independence in the 1960s, national leaders have consistently made efforts to secure regional integration – a grouping of national economies intended to create a liberalized single market through harmonized economic policies and the removal of tariff and non-tariff restrictions on trade within the corresponding bloc. The expectation is that this would allow member countries, especially smaller ones, access to scale efficiencies and exploit any existing synergies among economies that would materialize into rapid economic transformation and growth and development.

Table 1: Extent of economic integration in the eight major African RECs

Economic Community of West African States (ECOWAS)	Free trade area; customs unions; common currency in force for the Western African Economic and Monetary Union (WAEMU) subset, in progress for the whole region
Arab Maghreb Union (AMU)	Stalled
Common Market for Eastern and Southern Africa (COMESA)	Free trade area; customs union; currency union in progress
Economic Community of Central African States (ECCAS)	For the ECCAS subset: free trade area; customs unions; currency union
Southern African Development Community (SADC)	For the Southern African Customs Union (SACU) subset: free trade area and customs union; currency union in progress for the whole region
East African Community (EAC)	Free trade area; customs union; currency union in progress
Community of Sahel-Saharan States (CEN-SAD)	No free trade; no customs union; no currency union
Intergovernmental Authority on Development (IGAD)	No free trade; no customs union; no currency union

Source: United Nations Economic Commission for Africa (UNECA).

The Economic Community of West African States (ECOWAS) was the first post-independence regional economic community (REC) to be established following the Treaty of Lagos on 28 May 1975 (with a Revised Treaty on 24 July 1993).[1] Other countries and regions followed suit, creating as many as 14 RECs. As a result of various initiatives to unite African countries into regional markets, the overlapping of African RECs offers a visual depiction of a 'spaghetti bowl'. Eight of these regional bodies constitute the building blocks of the African Economic Community, which was established by the 1991 Abuja Treaty and is the overarching framework for continental economic integration.[2]

One of the region's advantages is its geographical location. It stands at the crossroads of important routes linking Europe, the Americas and the rest of Africa. This relative proximity to some of the world's economic epicentres undoubtedly makes the region a true hub, which makes trading with these parts of the world relatively less costly. This uniquely favourable geographical position, combined with ever-improving living conditions and an increasingly attractive

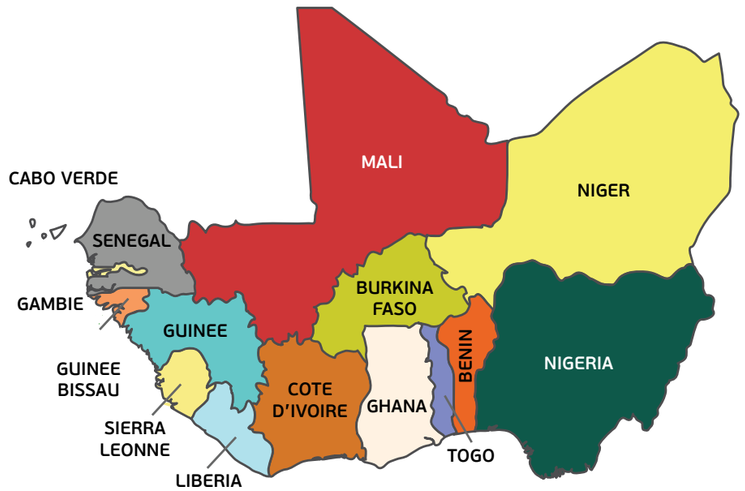
1 The signatories included all current 15 West African countries, except the Republic of Cabo Verde, which joined the following year. Mauritania withdrew in 2000, but applied for a new associate membership in August 2017. The Kingdom of Morocco has also shown interest in joining the community since February 2017.

2 The remaining regional blocs are the Mano River Union (MRU) in Western Africa, the Indian Ocean Commission (IOC) in Southern Africa, the Economic Community of the Great Lakes Countries (ECGLC) in Central and Southern Africa, the Liptako–Gourma Authority (LGA) in Western Africa, the Greater Arab Free Trade Area (GAFTA) between North African and Middle Eastern states) and the Southern African Customs Union (SACU).

business environment, helps explains the 13.3% increase in international arrivals from both business and leisure tourism in 2015–18. The figure is more than twice the 5.7% average in the rest of Africa.

The region also enjoys a vast array of natural resource endowments in a general climatic context, ranging from the northern arid and semi-arid Sahara Desert and the Sahel to the southern tropical monsoon and rainforest. It is estimated that the region hosts more than 29% of total proven oil reserves in Africa and more than 36% of natural gas reserves.[3] The resource portfolio also includes minerals such as diamonds, gold, uranium, platinum, copper, cobalt, iron, bauxite, silver, iron ore and phosphate, to name a few. This largely untapped wealth provides limitless opportunities for industrialization and economic development in the face of ever-increasing world demand for such commodities.

Figure 1: ECOWAS member states



Source: Retrieved from ECOWAS.

Table 2: ECOWAS in the context of some of the major African RECs

	ECOWAS	AMU	COMESA	ECCAS	SADC
Establishment date	1975	1988	1994	1983	1980
Number of member countries	15	5	19	11	15
Landmass (million km²)	5.1	5.8	12	6.5	10
Population (million)	386.9	102.5	553.8	198.5	353.1
Regional integration performance (United Nations Economic Commission for Africa, 0-1)	0.43	0.49	0.37	0.44	0.34
Trade integration	0.44	0.48	0.45	0.36	0.34
Productive integration	0.22	0.45	0.33	0.32	0.24
Macroeconomic integration	0.47	0.57	0.37	0.68	0.42
Infrastructure integration	0.30	0.51	0.32	0.37	0.21
Free movement of people	0.73	0.44	0.39	0.47	0.49

Source: Author's calculations, from World Bank and United Nations Economic Commission for Africa.

3 *Source:* http://www.bp.com/statisticalreview.

The drive towards a common regional market that would effectively provide the basis for greater economic efficiency has progressed along the following steps:

i. The free movement of goods and services through the removal of tariff and non-tariff barriers, under the framework of the ECOWAS Trade Liberalization Scheme (ETLS), adopted in 1979;

ii. Also in 1979, the adoption of the Protocol on the Free Movement of Persons, Right of Residence and Right of Establishment, further facilitated since 2014 by a common biometric ID card to be used as a travel document within the region in place of the ECOWAS Travel Certificate; the protocol, in particular, pertains to non-national investors, including those outside the region, who can start and do business anywhere in the region and hire workers from any nationality;

iii. A common external tariff (CET), effective since 1 January 2015, with a simplified code made up of five tariff bands;

iv. Macroeconomic stability surveillance mechanisms through convergence criteria;

v. A single currency (CFA franc) for the subgroup of eight countries that make up WAEMU, with a common central bank (in charge of monetary policy) and a fixed exchange rate regime against the euro.[4] In the future, a single common currency is planned for the whole ECOWAS region – with ECO being the official name of the regional currency.

The dynamism has been reaffirmed through Vision 2020, adopted through a resolution in June 2007, which actively seeks to 'create a borderless, peaceful, prosperous and cohesive region, built on good governance and where people have the capacity to access and harness its enormous resources through the creation of opportunities for sustainable development and environmental preservation'.[5]

The ensuing collective and national efforts are meant to further raise the region's attractiveness, which rests on improved peace security and stability, strong institutions, ease of doing business, high-quality infrastructure, strong economic performance, intraregional and international trade performance, and large foreign direct investment (FDI) inflows.

1.2. ECOWAS: A PEACEFUL, SECURE AND STABLE REGION

The region has become a more peaceful place to live and do business. The World Bank ranks countries in the region among the most politically stable and least violent on the continent. The latest World Governance Indicators, in the 'political stability/no violence' dimension, ranked the region as a very peaceful place compared to the rest of the continent. The region averages of 37.5 out of 100, which represents a 1.6% differential with the rest of the continent's average.[6]

The number of internally displaced persons in the region as a result of conflict and violence has decreased by 27.3% since 2013 to reach 318,944 in 2018. Elsewhere in Africa, the trend has been in the opposite direction, with corresponding figures of 47.5% and 624,071. Security has also improved significantly, with an average of 2.5 crimes per 100,000 people against 10 elsewhere in Africa.

There are some concerns related to political and religious turmoil. They include the instability and violence that often mars national election processes, such as recently in Guinea and Cote d'Ivoire, or military coups that undermine the democratic process, such as in Mali. Religion-based violence and terrorism are also prevalent, most notably in the Sahel region of Mali, Burkina Faso, the Niger and the Federal Republic of Nigeria. The Sahel is the transition region between the Sahara Desert to the north and the Sudanese savanna to the south, stretching between the Atlantic Ocean to the west and the Red Sea to the east. If the West African Sahel has indeed experienced instability in recent decades, the region outside the Sahel, which is larger (except in the Niger), is more of a haven, being spared from such instability. As a result of national and collective efforts, with support in many cases from Western powers, the situation is improving, although the way to lasting peace, security and stability proves relatively long.

Additionally, the June 2015 establishment of the Mediation Facilitation Division (MFD), a directorate within the ECOWAS Directorate of Political Affairs, Peace and Security (PAPS), constitutes an important instrument for conflict prevention, management, resolution, peacekeeping and security. It aims to promote 'preventive diplomacy in the region through competence and skills enhancement of mediators, information sharing and logistical support'. Specific interventions include the creation of an enabling

4 The eight WAEMU countries are the Republic of Benin, Burkina Faso, the Republic of Guinea-Bissau (joined in May 1997), the Republic of Cote d'Ivoire, the Republic of Mali, the Republic of the Niger, the Republic of Senegal and the Togolese Republic.

5 *Source*: https://comm.ecowas.int/?page_id=56.

6 *Source*: https://info.worldbank.org/governance/wgi/.

environment for the resolution of pre-electoral/political disputes prior to holding elections (such as in Guinea in 2015 and in the Niger in 2015–16), and providing technical support to ECOWAS special envoys tasked with the resolution of political and institutional crises (such as in Guinea-Bissau in 2015). All of these are a further indication of the region's strong commitment to greater peace and stability.

1.3. INSTITUTIONAL DEVELOPMENT

The quality of the institutional setting has also been on the rise as populations and governments across the region (and the whole continent) resolutely embrace democratic principles and rule of law. Almost all related indicators show significant improvement across the region, often at a faster pace than the rest of the Africa. For example, ECOWAS countries rank higher in the Index of Economic Freedom[7] that captures countries' ability to 'promote economic opportunity, individual empowerment and prosperity' through:

- The rule of law (property rights, government integrity and judicial effectiveness);
- Government size (government spending, tax burden and fiscal health);
- Regulatory efficiency (business freedom, labour freedom and monetary freedom);
- Open markets (trade, investment and financial freedom).

In the last decade, countries across the region gained 2.3% to reach the average score of 55.8/100 in 2020. More than half of them (eight) make up the 20 African countries with the highest scores. Overall, the region is second to the SADC, which scored 57.5 in the same year.

The region is also consistently ahead of the rest of the continent when it comes to the World Bank's indicators that capture governance quality. They comprise voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption, in addition to political stability and absence of violence. In each one of these dimensions, the 2019 survey reveals positive and significant differentials in favour of ECOWAS countries, ranging from 1.6% (political stability and absence of violence) to 5.5% (regulatory quality) and 12.7% (voice and accountability).[8] These differences are indicative of how far traditions and institutions, by which authority is exercised, have been accommodating business activities in the regional context, as opposed to other parts of Africa. In fact, investors tend to be very sensitive to 'the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them'.

When it comes to dispute settlements between an investor and a State, the Protocol on the Community Court of Justice established the ECOWAS Court of Justice in 1991, based in Abuja, Nigeria. Since a Supplementary Protocol in 2005, any private person can access the judicial organ for disputes arising under ECOWAS community law. In particular, under Article 9 of the Protocol, the court has jurisdiction 'over any matter provided for in an agreement where the parties provide that the court shall settle disputes arising from the agreement'. Its rulings supersede national legislations and have to be automatically enforced by national courts. Disputes can be between a private party (investor or business, etc.) and a member State, or between two private parties. One case between two private parties involved Nigeria-based Petrostar Nigeria Ltd and Blackberry Nigeria Ltd, in which the court was willing to determine a contractual dispute between two private parties on the basis of a forum selection clause in their agreement that provided that disputes should be settled by the court.

7 *Source:* https://www.heritage.org/index/ranking.

8 *Source:* https://info.worldbank.org/governance/wgi/; ensuing quotes are from the same source.

Table 3: Institutional quality in ECOWAS and other major African RECs

	ECOWAS	AMU	COMESA	ECCAS	SADC
Global Innovation Index (score 0–100)	20.2	26	23	22.6	24.5
Political stability/no violence (score 0–100)	37.5	28.7	35.0	32.8	43.6
Rule of law (score 0–100)	38.3	36.7	35.4	27.6	38.4
Control of corruption (score 0–100)	40.4	36.2	34.6	29.7	40.0
Regulatory quality (score 0–100)	38.3	29.8	33.0	29.5	38.0
Index of Economic Freedom (score: 0–100)	55.8	55.3	54.8	52.6	57.5

Source: Author's calculations, based on data from the World Bank and World Intellectual Property Organization.

In addition to the judicial organ, the administrative structure includes the ECOWAS Commission, the administrative governing instrument that is viewed as the 'engine room of all ECOWAS programs, projects and activities'.[9] Headquartered in Abuja, Nigeria, it is mainly tasked with implementing regional programmes and protocols through the adoption of rules that have legal force. The commission also makes recommendations, gives advice and provides support to country members to develop their capacities for national appropriation of regional agreements.

The ECOWAS Bank for Investment and Development (EBID) is another important regional institution.[10] Since its establishment in 1999, as a replacement of the Economic Community of West African States Fund for Cooperation, Compensation and Development (ECOWAS Fund), the EBID has contributed to the 'financing of infrastructure projects relating to regional integration or any other development projects in the public and private sectors' and 'assisting in the development of the Community by funding special programs'. It has two subsidiaries: the ECOWAS Regional Development Fund (ERDF) for financing the public sector and the ECOWAS Regional Investment Bank (ERIB) for financing the private sector.

One of its corporate objects pertains to carrying out any commercial, industrial or agricultural activity, although such activity is secondary to its objective. Among the beneficiaries of EBID financial and technical assistance are corporate bodies from ECOWAS member States or from foreign countries desirous of investing in the ECOWAS zone, in sectors within EBID's areas of intervention. For private sector project funding, requests submitted to the bank's president can top $22.5 million, insofar as they fall within the scope of its areas of intervention. The latter include industrial activities such as agribusiness, mining and other industries, technology transfer or technological innovation, and services sectors such as financial services and services related to information technology, financial engineering or hotels.[11]

9 More details about the ECOWAS Commission's specific responsibilities and functions and how it is manned can be found here: https://ecowas.int/institutions/.

10 Additional intuitions include the Authority of Heads of State and Government, the Council of Ministers, the Community Parliament and specialized technical committees. Besides these institutional bodies, there are the ECOWAS specialized agencies, such as the West African Health Organization (WAHO), the West African Monetary Agency (WAMA), the West African Monetary Institute (WAMI), the Inter Governmental Action Group Against Money Laundering in West Africa (GIABA), the ECOWAS Gender and Development Centre (EGDC), the ECOWAS Youth & Sports Development Centre (EYSCD), the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), the ECOWAS Regional Electricity Regulatory Authority (ERERA), the West African Power Pool (WAPP), the Regional Agency for Agriculture and Food (RAAF), the ECOWAS Projects Preparation and Development Unit (PPDU), the Water Resources Coordination Centre and the ECOWAS Brown Card Insurance Scheme. Overall, the general structure resembles that of the European Union.

11 Additional details, including specific private sector projects already funded at national or regional levels, can be found here: https://bidc-ebid.org/en/home/aboutus.

1.4. EASE OF DOING BUSINESS

Doing business in the region is becoming easier. The overall score has increased by 10.6% in the last decade to reach 53.4 out of 100 in the 2020 survey. The increase is the largest in Africa: it is more than double the changes in other RECs. The corresponding strong pace of reforms would, in the short term, make doing business in the region equally easy or even easier than the rest of Africa.

The current business environment makes starting a business much easier and less costly in the ECOWAS region, on average, compared to other African RECs. For example, it takes less time to register a business, there are fewer procedures involved and the corresponding fees are also among the lowest in Africa.

When it comes to legal rights protection, the region provides the strongest system in Africa as far as the credit market and minority shareholders are concerned.

Trade costs, as related to border and document compliance, are among the lowest on the continent, as well as the recovery rate when it comes to resolving insolvency.

Additionally, the region is also well perceived by domestic and international business communities when it comes to market prospects such as size, growth, intensity, consumption capacity and receptivity, as well as commercial infrastructure, economic freedom and country risk. According to the 2020 Market Potential Index, three out of the 15 African countries were located in the region: Cote d'Ivoire, Nigeria and the Republic of Ghana. They scored an average of 19 out of 100, which was more than their fellow Africans (15.5).[12]

Moreover, when it comes to the ranking of countries that are best for business, Ghana, Senegal, Cabo Verde, Nigeria, Cote d'Ivoire and Benin are ranked among the Top 20 African countries, as a combination of GDP growth, the level of development (GDP per capita), trade performance (trade balance/GDP) and market size (population).[13]

12 *Source*: https://globaledge.msu.edu/mpi/2020.

13 *Source*: https://www.forbes.com/best-countries-for-business/list/#tab:overall.

Table 4: Doing business in ECOWAS and other major African RECs

	ECOWAS	AMU	COMESA	ECCAS	SADC
Overall score 2020	**53.4**	**54.9**	**54.9**	**44.5**	**58.2**
Change – since 2010	**10.6**	**4.9**	**6.6**	**4.7**	**5.0**
Starting a business					
Starting a business – procedures (number)	5.5	6.6	7.6	7.6	7.8
Time (days)	9.6	15.4	23.1	22.3	25.7
Paid-in minimum capital (% of income per capita)	3.5	6.0	7.5	25.8	0.3
Dealing with construction permits – score	**58.7**	**58.6**	**56.9**	**57.4**	**65.0**
Procedures (number)	16.1	14.8	13.9	14.3	14.0
Time (days)	137.2	106.5	137.0	154.0	149.7
Cost (% of warehouse value)	11.1	4.5	8.0	10.4	7.0
Getting electricity – score	**49.9**	**70.0**	**54.4**	**46.8**	**59.7**
Procedures (number)	5.3	4.4	4.5	5.5	5.3
Time (days)	124.3	73.0	100.1	94.1	111.1
Reliability of supply and transparency of tariff index	15.0	45.0	24.3	12.5	31.7
Price of electricity (US cents per kWh)	21.0	10.5	13.7	14.2	14.1
Registering property – score	**53.4**	**58.8**	**60.6**	**50.0**	**56.7**
Procedures (number)	5.8	5.0	6.0	5.7	6.3
Time (days)	51.1	31.8	36.7	58.5	51.1
Cost (% of property value)	7.4	4.8	4.6	8.8	6.7
Reliability of infrastructure index	15.8	43.8	35.8	18.2	30.0
Getting credit – score	**47.3**	**29.0**	**51.3**	**37.7**	**53.7**
Strength of legal rights index	50.6	15.0	47.9	42.4	41.7
Credit bureau coverage (% of adults)	7.0	6.3	12.0	1.4	23.9
Protecting minority investors – score	**40.5**	**40.4**	**46.4**	**27.8**	**47.3**
Extent of shareholder rights index	45.6	33.3	38.5	--	38.9
Extent of corporate transparency index	23.8	31.4	29.5	--	34.3
Strength of minority investor protection index	40.5	40.4	46.4	27.8	47.3
Paying taxes – score	**56.2**	**63.3**	**67.5**	**45.0**	**70.6**
Payments (number per year)	40.7	18.6	28.1	42.0	31.3
Time (hours per year)	268.7	344.6	239.8	458.8	206.5
Total tax and contribution rate (% of profit)	46.9	54.4	35.4	53.3	31.8
Trading across borders – score	**56.7**	**64.7**	**55.7**	**39.0**	**61.1**
Time, border/doc. compliance, export/import (hours)	91.8	66.9	100.6	144.0	78.7
Cost, border/doc. compliance, export/import (USD)	388.7	340.1	426.0	657.4	419.4
Enforcing contracts – score	**50.1**	**58.3**	**51.4**	**41.1**	**49.2**
Time (days)	658.9	553.0	632.6	777.4	694.7
Cost (% of claim)	42.0	24.1	40.1	50.2	43.6
Quality of judicial processes index	39.3	37.2	41.3	33.6	43.7
Resolving insolvency – score	**38.5**	**52.1**	**45.6**	**36.4**	**44.6**
Time (years)	3.1	2.0	2.5	3.9	2.2
Cost (% of estate)	20.9	10.7	19.1	33.5	16.7
Recovery rate (cents on the dollar)	25.1	43.6	30.5	15.3	34.9

Note: All scores are on a 0–100 scale, unless otherwise specified. Darker grey shadings represent areas where the ECOWAS region fares better than the rest, and lighter grey shadings correspond to the region being ranked second.

Source: Author compilations, based on data from Doing Business 2020, World Bank (https://www.doingbusiness.org/en/data).

1.5. INFRASTRUCTURE (HARD AND SOFT)

According to the African Infrastructure Development Index, the region is trailing other RECs when it comes to physical or hard infrastructure. However, there is noticeable improvement that suggests it is catching up, as it has embarked on ambitious regional and national infrastructure development programmes.

As far as logistics performance is concerned, the overall World Bank ranking puts the region third among Africa's RECs. The dimension in which the region comes first is the 'ability to track and trace consignments'. For the remaining sub-components of the overall index, the region comes second for 'ease of arranging competitively priced shipments'.

Furthermore, from the perspective of the Global Cities Index, Abidjan, Accra and Lagos are ranked among Africa's most vibrant and competitive cities in 2015–19.[14] These rankings are indicative of high competitiveness in key areas ranging from business activities to culture to human capital, political engagement and information exchange. They are suggestive of the general state of personal well-being, the economy, innovation and governance, which are 'important factors multinational corporations to non-governmental organizations should consider as they decide where and why to invest'.

Further to the region's dynamism and vibrancy, the 2020 Global Innovation Index ranked four West African countries (Senegal, Ghana, Cote d'Ivoire and Nigeria) among the Top 15 most innovative economies in Africa.[15] This favourable outcome is a result of high-quality and fairly supportive 'institutions, human capital and research, infrastructure, market and business sophistication and the scope of knowledge and technology and creative outputs'.

As a way to attract FDI, increase exports, create jobs and generate productivity spillovers, each one of the West African countries has developed at least one special economic zone (SEZ). The general goal is to strengthen the tendency for manufacturing and service industries to geographically concentrate in cities and industrial clusters as a way to 'build resilient infrastructure, promote sustainable industrialization and foster innovation'.[16]

Table 5: Infrastructure quality in ECOWAS and other major African RECs

	ECOWAS	AMU	COMESA	ECCAS	SADC
Logistics Performance Index (World Bank): Overall score	**48.9**	**48.0**	**49.7**	**47.8**	**50.0**
Ability to track and trace consignments	51.4	48.3	49.5	46.5	50.7
Competence and quality of logistics services	46.7	45.7	49.7	47.4	49.4
Ease of arranging competitively priced shipments	50.4	46.6	49.6	50.9	49.5
Efficiency of customs clearance process	44.1	44.0	46.4	43.6	46.9
Frequency with which shipments reach consignee within scheduled or expected time	56.3	57.3	56.3	54.0	57.5
African Infrastructure Development Index (AfDB): Overall	**20.6**	**58.5**	**34.0**	**18.2**	**33.3**
Transport	6.9	16.8	15.7	6.1	13.9
Electricity	17.0	32.5	19.7	13.0	25.0
Information and communications technology (ICT)	17.0	32.5	19.7	13.0	25.0
Water and sanitation system	63.1	90.2	66.5	61.3	67.0

Note: Values are between 0 and 100, and higher scores indicate better performance.

Source: Author calculations based on data from the World Bank's Logistics Performance Index, and from the African Development Bank (http://infrastructureafrica.opendataforafrica.org/hwkjvvf/national-infrastructure).

14 *Source*: https://www.kearney.com/global-cities/2019; the following quote is from the same source.

15 *Source*: https://www.globalinnovationindex.org/analysis-indicator; the following quote is from the same source.

16 This is one of the UN Sustainable Development Goals (SDGs, the 9th), and it is said to have been adopted at the urging of African delegations.

These SEZs' functionality is very diverse, in line with the main objective assigned to them by law. They range from export processing zones to free zones, international business centres, technology villages, business parks, industrial parks, gas parks and economic cities. Fifty-six SEZs were located in West Africa in 2018. Each ECOWAS member country has at least one SEZ, either fully operational or under development. The most recent ones include the cross-border SEZ between Cote d'Ivoire, Burkina Faso and Mali in 2018.[17] The smallest SEZ is in the Republic of Sierra Leone (less than 100 hectares) and the largest, from an African perspective, are in Senegal and Ghana (more than 1,000ha).[18] Additionally, these SEZs tend to be multi-activity platforms (53 of them), as they are open to a large variety of business activities, often interrelated, while only three are specialized in specific activities.

While the qualitative performance of SEZs in the region and in Africa in general tends to be limited, these schemes still remain attractive and viable instruments for industrial policies.[19] Past experience and lessons from success stories around the world tend to underlie the design of the most recent SEZs across the region (14 since 2000). The expected greater potentials for industrialization mean that investors established in these specific locations can enjoy a host of fiscal and regulatory incentives and infrastructure support

1.6. ECOWAS ECONOMIC PERFORMANCE

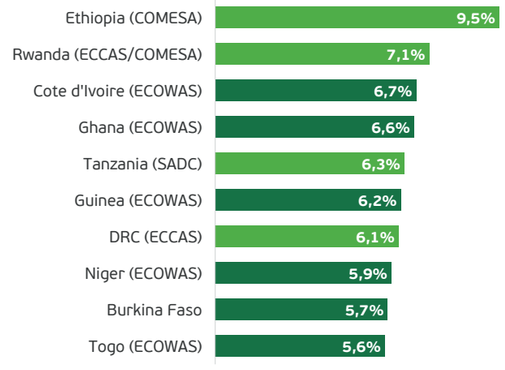
Prior to the global COVID-19 pandemic, the ECOWAS region performed well above other RECs when it comes to economic growth. Since 2010, the region has grown an average of 4.7%, which is almost 1% higher than the closest region (SADC, with 3.8%). Moreover, the region is home to six of the 10 fastest-growing African economies in 2010–20, with an average growth of 5.6% (Togo) to 6.7% (Cote d'Ivoire).

Moreover, the region has performed relatively well with respect to key macroeconomic indicators. It has the lowest unemployment rates, especially for youth. Inflation rates are also very low, as well as public debt burden. All of these point to a greater macroeconomic stability, a key driver to reduced risk and uncertainty for businesses.

Economic growth has also been relatively inclusive, as poverty has been on a significant decline. Most of the countries in the region have gone from high rates of 60% on average in the early 2000s to an average of 30% (32.6% in Senegal and 33.5% in Cote d'Ivoire) 2016–17.[20]

Population dynamics has also benefitted economic growth. The total population has increased an average of 2.7% faster in the region than on the whole continent, which averages 2.5%. In 2019, it reached 386.9 million, or 28.9% of the total African population of 1.34 billion, making the region the second-largest consumer market in Africa.

Figure 2: Real GDP growth of the fastest-growing African economies (2010–19)



Source: Author, from World Bank data.

17 So far, the shared SEZ has yet to be effective and various aspects such as related to its governance or management, issuance of licences or permissions and tax collection have not yet been formally developed. Lack of significant political will and insecurity in the region are some reasons often mentioned.

18 *Source:* United Nations Conference on Trade and Development (UNCTAD): World Investment Report 2019 – Special Economic Zones. Retrieved from https://investmentpolicy.unctad.org/publications/1204/world-investment-report-2019---special-economic-zones.

19 Additional discussions can be found in Newman, C. and Page, J. (2017). 'Industrial clusters: The case for Special Economic Zones in Africa'. Wider Working Paper 2017/15. Retrieved from https://www.wider.unu.edu/publication/industrial-clusters-1#:~:text=The%20case%20for%20Special%20Economic,to%20learning%20and%20technology%20transfers.

20 *Sources*: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2018AEO/African_Economic_Outlook_2018_West-Africa.pdf and http://www.uemoa.int/sites/default/files/bibliotheque/indicateurs_de_pauvrete_monetaire_et_dinegalite_de_la_premiere_enquete_harmonisee_sur_les_conditions_de_vie_des_menages_dans_les_etats_membres_de_luemoa.pdf.

As a result of improved living conditions, urban population has increased by 9.7% since the turn of the century, above the continental average of 8.9%. Of the 48 African metropoles with a population of more than one million in 2019, more than one-third (14) are located in West Africa, the largest being Lagos, Nigeria, with 21.3 million. Furthermore, ownership of an account at a financial institution or with a mobile money service provider has also increased to reach between 38.5% (Benin) and 58.6% (Ghana). At the same time, access to electricity has almost doubled in the last two decades to reach 48% in 2019. Human capital has also improved, with literacy rates averaging 48.6% among adults in 2019. Among youth (15–24 years old), the average is much higher, at 64%, with a significant difference across gender: higher for young males (69%) than their female counterparts (57.1%).

Table 6: Economic performance in ECOWAS and other major African RECs

	ECOWAS	AMU	COMESA	ECCAS	SADC
GDP (nominal, USD billion)	689.2	387.2	746.1	246.3	691.2
Share of agriculture (%)	27.1	14	18.6	19.8	10.4
Share of industry (%)	19.2	29.6	23	31.9	25.8
GDP growth, real, 2010–19	4.7	1.7	3.6	2.6	3.8
GDP per capita (nominal, USD)	1 301.6	3 966.3	3 244.2	2 460.2	4 089.5
Competitiveness score, 0–100	47.3	53.4	48.6	37.0	48.2
Population (million)	386.9	102.5	553.8	198.5	353.1
Population growth (%)	2.6	1.7	2.2	2.7	2.0
Urban population (% of total)	45.9	68.1	38.4	51.6	43.5
Labour force (% of total population)	37.4	32.0	41.5	39.8	42.9
Literacy, adults (+25 years, %)	48.6	69.6	75.8	68.1	83.7
Literacy, youth (15–24 years, %)	63.0	86.4	87.4	75.9	90.4
Male	69.0	88.9	88.0	79.3	91.3
Female	57.1	83.8	86.8	72.8	89.6
Unemployment, youth (% of total labour force, 15–24yrs)	8.6	30.6	14.2	12.1	21.4
Self-employed, total (% of total employment)	78.8	34.2	61.1	69.1	57.7
Inflation – consumer prices (%)	3.4	2.8	9.3	3.4	5.5
External debt stock (% of gross national income)	38.2	58.3	50.6	38.6	42.7
Domestic credit to the private sector (% of GDP)	20.2	48.0	24.3	15.1	36.8
FDI stock (current, USD billion)	171.7	137.0	253.1	75.0	316.3
Domestic private investment (% of GDP)	23.6	35.4	23.1	20.8	23.8
Trade balance (% of GDP)	-15.6	-5.2	-6.7	-0.5	-13.5
Poverty rate, $1.9, 2011, purchasing power parity (PPP) (%)	33.9	2.4	33.7	41.0	33.4
Access to electricity (% of population)	48.5	82.3	52.1	46.8	52.3
Account ownership (% of population, ages 15+)	36.5	39.0	49.4	32.9	50.3

Source: Author calculations, based on World Bank and World Economic Forum data.

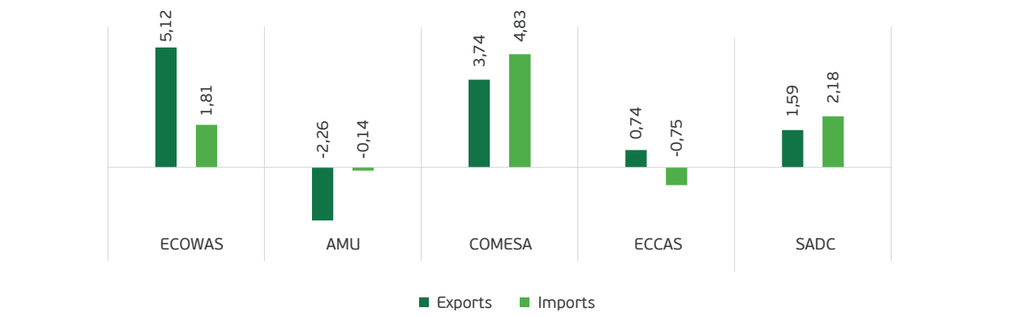
1.7. TRADE AND FOREIGN MARKET ACCESS

As far as trade performance goes, the ECOWAS region experienced the largest increase in total exports, with an average of 5.1% annually, to reach $196.2 billion in 2018 at constant prices (the third-largest among the RECs). In the same period, imports increased by 1.8% to culminate at $134 billion in 2018. Combined export and import growth suggests a reduction in trade deficit.

The region traded 12% with itself in 2016, only second to SADC (21%). This is up from the 1980's figure of 3.9% when the ECOWAS Trade Liberalization Scheme (ETLS) entered into force.[21] Current major trading partners are outside the continent and represent 83.7% of the region's total. African partners outside the region account for only 5.6%.

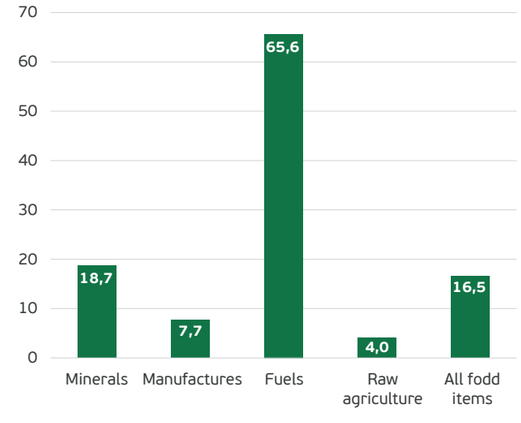
Trade composition, which has changed relatively little in the last decade from the perspective of commodities, shows a noticeable concentration of the export portfolio along the regional (revealed) comparative advantages. Fuels and minerals represented 58.3% and 16.6% respectively of total merchandise exports of the region in 2018.

Figure 3: Export and import growth (%) in ECOWAS and other RECs (2010–18)



Source: Author calculations, based on World Bank data.

Figure 4: Commodity exports composition of West African countries (USD billion, 2018)



Source: United Nations Conference on Trade and Development (UNCTAD) (https://stats.unctad.org/handbook/MerchandiseTrade/ByProduct.html).

21 *Source*: UNCTAD (https://unctad.org/system/files/official-document/ditctab2019d3_en.pdf).

Table 7: Comparative advantages of ECOWAS member countries (2018)

Member countries	Products
Benin	Cotton; Oilseeds and oleaginous fruits; fruits and nuts (excluding oil nuts), fresh or dried; wood in the rough or roughly squared; fixed vegetable fats and oils, crude, refined
Burkina Faso	Cotton; gold, non-monetary; oilseeds and oleaginous fruits; zinc; fruits and nuts (excluding oil nuts), fresh or dried
Cabo Verde	Fish and crustaceans; non-ferrous base metal waste and scrap; textiles; animal oils and fats; ferrous waste, scrap; re-melting ingots, iron, steel
Cote d'Ivoire	Cocoa; natural rubber and similar gums, in primary forms; cotton; fruits and nuts (excluding oil nuts), fresh or dried; coffee and coffee substitutes
Gambia	Wood in the rough or roughly squared; worn textile/clothing articles; fruits and nuts (excluding oil nuts), fresh or dried; fuel wood and wood charcoal; fabrics, woven, of man-made fabrics
Ghana	Cocoa; gold, non-monetary; wood in the rough or roughly squared; fruits and nuts (excluding oil nuts), fresh or dried; natural rubber and similar gums, in primary forms
Guinea	Aluminium ores and concentrates; gold, non-monetary; iron ore and concentrates; natural rubber and similar gums, in primary forms; fish, dried, salted or in brine and smoked fish
Guinea Bissau	Fruits and nuts (excluding oil nuts), fresh or dried; fish, fresh (live or dead), chilled or frozen; fish, dried, salted or in brine and smoked fish; wood in the rough or roughly squared; cotton
Liberia	Natural rubber and similar gums, in primary forms; wood in the rough or roughly squared; ships, boats and floating structures; iron ore and concentrates; silk
Mali	Cotton; gold, non-monetary; live animals; fixed vegetable fats and oils, crude, refined; wood in the rough or roughly squared
Mauritania	Crustaceans, molluscs and aquatic invertebrates; animals oils and fats; works of art, collectors' pieces and antiques; fish, fresh (live or dead), chilled or frozen; iron ore and concentrates
Niger	Ores and concentrates of uranium or thorium; radioactive materials and associated materials; rice; fixed vegetable fats and oils, crude, refined; worn textile/clothing articles
Nigeria	Petroleum oils, crude; fuel wood and wood charcoal; natural gas, whether or not liquefied; petroleum gases; cocoa
Senegal	Crude fertilizers; inorganic chemical elements, oxides and halogen salts; fish, fresh (live or dead), chilled or frozen; crustaceans, molluscs and aquatic invertebrates; lime and cement
Sierra Leone	Aluminium ores and concentrates; cocoa; iron ore and concentrates; wood in the rough or roughly squared; sugar, molasses and honey
Togo	Crude fertilizers; cotton; lime and cement; hides and skins, raw; electric current

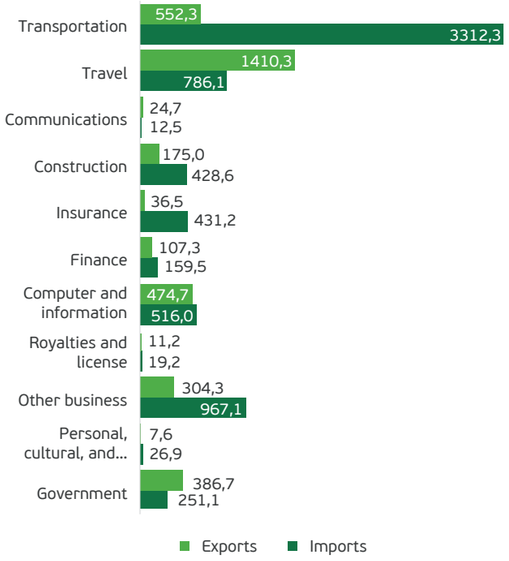
Source: UNCTAD.

The services trade is also relatively important, and has picked up speed in the last decade to reach 7.1% of GDP on average across the region. Structurally, except for travel, communications and government-related services, the region is a net importer of services, especially for transportation, where the deficit is the largest. The trend has been towards a deterioration of trade balances overall, similar to the rest of the continent, while it is the opposite in the rest of the developing world. These trends are indicative of the relatively large potential for expansion of domestic production and trade to meet increasing demand. This is especially the case for insurance, financial, intellectual property, and other business and travel services, which registered the fastest-growing exports at rates of 3.2%–6.9% in the 2013–18 period.

Foreign market access is key to international trade promotion for the region. With the European Union (EU), ECOWAS member countries, along with other African countries, have ease of access to the European market through overall political and economic relations with the Organisation of African, Caribbean and Pacific States (OACPS).[22] This privilege has contributed to making the EU the main export destination for West African transformed products from sectors such as fisheries, agribusiness and textiles.

22 The EU–OACPS agreements constitute the overarching framework first set up in 1975 by the Lomé Convention (replaced in 2000 by the Cotonou Agreements, which introduced the economic partnership agreement). This cooperation scheme, the largest of its kind between developed (EU countries) and developing countries (some 79, of which 48 are in Sub-Saharan Africa), evolves around three main pillars: development cooperation, economic and trade cooperation, and a political dimension.

Figure 5: Services trade composition of ECOWAS (2018)



Source: Author calculations, based on UN Comtrade data.

The existing framework is set to evolve into economic partnership agreements, through which West Africa and other OACPS countries will have to remove import tariffs on EU-originated goods, but only partially in a 20-year transition period.[23] The new scheme is intended to help West Africa (and all OACPS partners) to better integrate into the global trading system and is expected to support investment and economic growth in the region. It will lead to increased exports to the EU, stimulate investment and contribute to developing productive capacity, with a positive effect on employment.[24]

The EU–West Africa economic cooperation also includes Aid for Trade and trade-related assistance. Under this framework, the ECOWAS region has effectively benefitted from the development of:

- Trade-related infrastructure, which includes transport and storage, communications, and energy generation and supply;
- Productive capacity in the forms of business development and activities aimed at improving the business climate, privatization, assistance to banking and financial services, agriculture, forestry, fishing, industry, mineral resources and mining, and tourism.

The framework also includes trade- and non-trade-related capacity building. The corresponding total Aid for Trade efforts amounted to €1.2 billion in commitments as of 2017.[25]

With respect to the US market, the region has benefitted from the African Growth and Opportunity Act (AGOA) since 2001 (renewed in 2015 for another 10 years) and the trade and investment framework agreements (TIFA) since 2014.[26] The former is a non-reciprocal trade preference programme that offers duty-free and quota-free access to the huge US market for selected Sub-Saharan African products.[27] TIFAs are more of an institutional platform that 'provides strategic frameworks and principles for dialogue on trade and investment issues between the United States and the other parties', mostly around 'issues of mutual interest with the objective of improving cooperation and enhancing opportunities for trade and investment'. Discussed topics at TIFA council yearly meetings include market access, labour, the environment, protection and enforcement of intellectual property rights, and, in appropriate cases, capacity building. There are various TIFAs both at the regional level with ECOWAS and with WAEMU, and with individual countries such as Ghana, Liberia and Nigeria.[28]

23 The economic partnership agreements were enacted in 2000 (Cotonou Agreements), then revised in 2005. There have been concerns about the potentially negative impacts of the removal of tariffs on EU products, given the less competitive production systems and the loss of government tariff revenues in OACPS economies, which explained the slow pace of the negotiations to implement the agreements, at both national and regional level (jointly between WAEMU and ECOWAS). For example, 'stepping stone' agreements with Côte d'Ivoire and Ghana entered into provisional application on 3 September 2016 and 15 December 2016 respectively.

24 *Source*: https://trade.ec.europa.eu/doclib/docs/2014/july/tradoc_152694.pdf.

25 *Source*: https://ec.europa.eu/international-partnerships/system/files/eu-aid-for-trade-progress-report-2019_en.pdf.

26 All member countries are currently eligible for the African Growth and Opportunity Act (AGOA) provisions, except Mauritania (since 1 January 2019). Eligibility for product category-specific compliance can be different across benefitting countries. For example, since 1 January 2020, the Gambia and the Niger are not eligible under the 'wearing apparel' provisions. See here for more details: https://agoa.info/about-agoa/country-eligibility.html

27 See here for the detailed listing of products: https://agoa.info/about-agoa/products.html.

28 *Source*: https://ustr.gov/trade-agreements/trade-investment-framework-agreements.

1.8. FDI IN ECOWAS: INFLOWS AND INCENTIVES

The region has always been an attractive place for foreign investment, as shown by relatively large FDI inflows that have positively responded to the improving regulatory environment. In 2010–19, the FDI stock in the region has increased at record pace to reach $191.5 billion in 2019, the third-largest behind SADC ($316.3 billion) and COMESA ($302.9 billion). The increase by a factor of 2.2 in the region, or equivalently, at an annual rate of 9%, is by far the largest in Africa.

States and investors. Enacted in July 2018, the code aims to 'establish in the ECOWAS territory transparent, harmonized and predictable legal and institutional framework that applies to investment and to any investment-related measures'.[29] More specifically, under the monitoring of a regional body to be established by the ECOWAS Common Investment Market Council and to work with national advisory committees, the code seeks to:

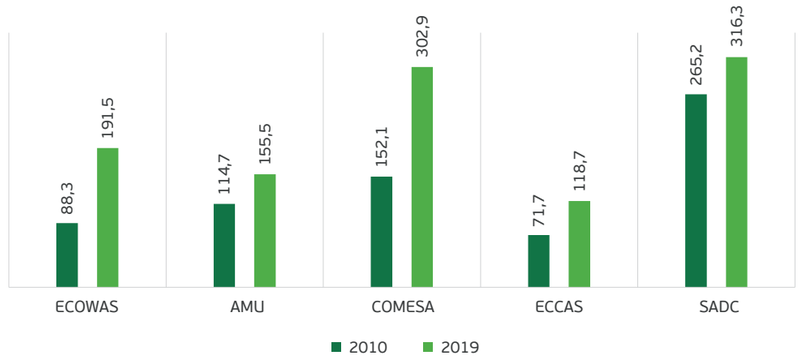
- Promote, facilitate and protect investment that fosters the region's sustainable development;
- Promote the adoption of common regional rules on investment;
- Improve investment and trade relations within the region and between the region and foreign investors, conducive to regional stability and sustainable development;
- Enhance the role of both domestic and foreign direct investments in reducing poverty, increasing productive capacity, furthering growth, creating jobs, expanding trade, improving technology and transferring technology.[30]

Several provisions of this landmark code set the conditions for a viable business environment that would mutually benefit both investors and the host country. For example, member States are encouraged to provide relatively strong incentives to investors, domestic and foreign alike. These incentives can take various forms, such as financial incentives in the forms of investment insurance, grants or loans at concessionary rates, tax holidays, subsidized infrastructure or investment guarantees.[31]

Foreign investment is generally viewed as part of the overall development of local economies. Investors are indeed expected to promote technology transfer and comply with international transfer pricing standards. When considering the investment, they are also expected to account for:

- Participation in the implementation of national or regional economic and social plans;
- Creation of employment and vocational training;
- Priority of use of local raw materials and, in general, local products;
- Environmental and social impact assessment of their economic activities.

Figure 6: FDI total stock in ECOWAS and other African RECs (USD billion, 2019)



Source: Author, from UNCTAD data.

29 *Source*: https://wacomp.projects.ecowas.int/wp-content/uploads/2020/03/ECOWAS-COMMON-INVESTMENT-CODEENGLISH.pdf (same source for the next quotes).

30 ECOWAS Common Investment Code (ECOWIC) Article 2.

31 ECOWAS Common Investment Code (ECOWIC) Article 19.

Two additional components of regional and national approaches to further making the region an attractive place for FDI are:

- National investment promotion agencies that provide up-to-date information regarding the process by which investors, particularly foreigners, can settle into the host country, as well as guidance through the procedures for investment and setting up a business activity; the set of information generally relates to starting a business, legal obligations, obtaining an investment certificate, foreign taxpayer registration, dealing with local banks, import/export registration, land/building ownership, rules and regulations for foreigners, and investing in any existing SEZ;
- Single windows at national levels for: (i) Starting a business, with the aim to streamline and speed up the administrative process; and (ii) Engaging in foreign trade, generally through an electronic platform used by all operators and users of the foreign trade community (import, export, transit and transhipment), providing a single entry point for all customs and collection procedures and formalities.[32]

1.9. STRUCTURAL REFORMS ACHIEVED/PLANNED

Ongoing ambitious and profound reforms are rightly expected to structurally change the region's trade and investment landscape. These reforms are part of well-thought-out programmes. The West Africa Competitiveness Programme (WACOMP) seeks to strengthen the performance, growth and contribution of industry, regional trade and exports of selected value chains, and improve the business climate at national and regional levels. The West Africa Common Industrial Policy (WACIP) aims to accelerate the region's industrialization. The West Africa Quality System Programme (WAQSP) seeks to strengthen the quality of infrastructure for greater effectiveness, enhanced competitiveness and better intraregional and interregional trade participation. The Strategic Framework for Private Sector Development Strategy aims to make the private sector a vibrant engine of economic growth.

More specific action plans include multimodal transport infrastructure and the implementation of policies to promote physical cohesion among country members and to facilitate the movement of persons, goods and services within the region, with special emphasis on increased access to landlocked countries. These harmonized national efforts, mainly through the West Africa Regional Road Transport and Transit Facilitation Project, a common initiative developed by ECOWAS and its subset, WAEMU, to speed up road transport facilitation, include:

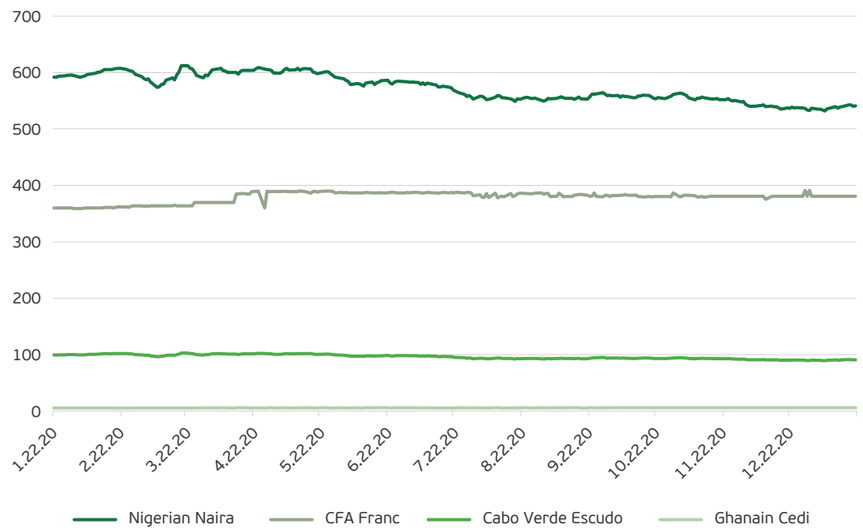
- The erection of joint border posts and controls along the interstate corridors;
- The simplification and harmonization of national rules, procedures and documents related to road transport;
- The harmonization of standards and procedures for the control of dimensions, weight and axle load of goods vehicles within ECOWAS member States;
- The update of the road transit information system;
- The development of transport corridors, such as the Nigeria–Cameroon multinational highway as part of the Trans-African Highway programme, the Praia–Dakar–Abidjan highway (capital cities of Cabo Verde, Senegal and Cote d'Ivoire), the Trans-Gambia Road Transport Corridor and the Abidjan–Lagos Corridor;
- A deposit system to guarantee transit operations in the absence of such State-sponsored guarantee mechanisms.

The regional single currency project is also expected to further facilitate and rationalize cross-border movement of goods (and capital and persons). While the eight WAEMU countries share a single currency (CFA franc), each of the remaining ECOWAS countries has its own independent currency, with individual central banks. The CFA franc is fixed against the euro (at a constant exchange rate of CFA 655.957 to €1). The remaining currencies in the region are governed by flexible exchange rates.[33] Against the US dollar, though, each currency shows some very moderate volatility, as suggested in Figure 7, which depicts the daily exchange rate behaviour for three major currencies encompassing 10 of the West African countries (the rest tend to exhibit similar patterns).

32 As of 2019, single windows for cross-border trade existed in five West African countries: Burkina Faso, the Niger, Nigeria, Senegal and Togo (source: https://rammap-swim.wcoomd.org/).

33 In addition to the West African CFA franc, there is the Central African CFA franc shared by six countries that make up the Economic and Monetary Community of Central Africa, a subset of ECCAS. Both were created in December 1945, with similar profiles (fixed exchange regime against the euro, same rate of 655.9, with separate governing body – central bank). In exchange for CFA countries depositing 50% of their foreign reserves with the French Treasury, the latter guarantees an unlimited convertibility of their common currencies. The ECOWAS regional currency project (the ECO) is expected to mark an end to the West African CFA franc.

Figure 7: Daily exchange rates of selected West African currencies against the USD (365 days)



Note: The XOF is shared among eight countries that make up the WAEMU. The small volatility of the exchange rate appears in the small coefficients of variation (standard deviation over average), which range between 0.02 and 0.04 in the considered period.

Source: Yahoo Finance.

The process of unifying the region around a common currency is still under discussion, and the pace is marred with a great deal of political uncertainty. It involves first a common currency among ECOWAS non-CFA countries. In 2000, the latter formed the West African Monetary Zone (WAMZ). The agreement establishing WAMZ led to the set-up of the West African Monetary Institute (WAMI) in 2001, located in Accra, Ghana and tasked with the establishment of the West African Central Bank (WACB) and the launch of a single monetary unit, which will later be merged with the CFA franc to give birth to the ECOWAS common currency (the ECO). The process has been plagued by multiple delays and missed deadlines, most notably the WAMZ single monetary unit currency that has yet to be created.[34] However, the political commitments of all member States suggest that the monetary union is still a significant part of regional integration. From foreign investors' perspective, the move to the ECO would mean reduced cross-border transaction costs (associated with currency conversion and exchange rate volatility) and enhanced market predictability, and it is hoped that it will increase flows of capital, goods and persons.

When it comes to trade liberalization, mostly through the removal of tariffs and non-tariff barriers, the formal process has been designed and conducted under the framework of the ECOWAS Trade Liberalization Scheme (ETLS).[35] In order to benefit from the free trade regime, products and companies have to be registered with the national approvals' committees, except enterprises from and goods produced in export processing zones or free zones and any other special economic schemes or customs territory. In 1988–2018, the number of registrations reached 6,212 and nearly half of them (48.2%) happened in the last decade. This indicates a renewed interest by local, regional and international investors, who are increasingly incentivized by the corresponding trade and business potentials.

The harmonization of customs procedures, under the common external tariff (CET) that entered into force on 1 January 2015 as part of the ECOWAS Trade Liberalization Scheme (ETLS), has brought simplification and clarity across the region, with only five tariff bands and a common customs declaration form. While the actual implementation of the CET at national levels is the obligation of member States, the ECOWAS–WAEMU Joint Committee on CET was tasked to first finalize the adjustment of the CET tariff structure and statistical nomenclature. Following this, the joint committee would provide support and safeguard measures in addition to serving as a regional coordinator and monitoring body as countries start implementing the CET.

The ECOWAS CET's strategic design aims to ensure:

- The availability of social goods, such as health and medical products, which are tariff-free (Category 0);
- The reduced cost of production, through relatively cheap input materials not available in the region, with 5% tariff (Category 1) and those with limited supply, at 10% (Category 2);
- Some protection of domestic industries, namely final goods that are at their ultimate stage of transformation, with a tariff at 20% (Category 3) or those that are strategic due to their level of vulnerability and potential for domestic production, regional integration, industrialization and value chain development, taxed at 35%.

This CET structure is expected to promote investment and business activities by providing fiscal incentives that guarantee the availability of cheap inputs of foreign origins and some protection to final output markets.

Trading across borders also benefits from the ECOWAS Trade Information System (ECOTIS), an initiative set to 'provide timely and reliable access to trade information within and with the region, serve as a reference tool for economic players, diversify the region's market and satisfy the region's single-window trade information needs'.[36] It is an electronic platform designed by the ECOWAS Commission. Using existing information systems in the region, the portal provides a unique point of entry to support the promotion of intraregional/continental and global trade and allows investors to fully appreciate the region's trade and business landscape, and gain valuable insights into existing and potential business opportunities.

At the continental level, the African Continental Free Trade Area (AfCFTA) will further reduce trade barriers, facilitate the free movement of people and labour and the right of residence and establishment, and increase investment. The various wide-ranging protocols pertain to trade in goods, trade in services, rules and procedures on the settlement of disputes, investment, competition and intellectual property rights. Effective implementation of the agreements started in January 2021 for a 10-year period for relatively advanced African countries, and 13 years for least developed countries (LDCs).[37] It is estimated that the AfCFTA will provide valuable and unique opportunities for businesses operating in a liberalized and unified market that is projected to reach 1.7 billion consumers by 2030, with a middle class of 600 million individuals and a cumulative GDP of $3.4 trillion. By 2022, intra-continental trade is projected to increase by as much as 52.3%, while trade with the outside world would increase by 6%.[38] The many expected benefits for trade investment would profoundly reshape the continent's economies, as they could collectively emerge as a key player on the global trade and investment arena.[39]

Additionally, the World Trade Organization's (WTO's) trade facilitation agreements are expected to further improve trade and economic proximity among West African countries and between the region and the rest of the continent and beyond. Corresponding measures, which all West African countries are currently implementing at various levels, aim to simplify required paperwork, modernize procedures and harmonize customs requirements. By addressing the vast amount of red tape that discourages the flows of goods across borders, the ensuing reduction in trade costs and in the time needed to export and import has the potential to improve external market access, in the process providing greater opportunities for trade and investment.[40]

Most member countries are strongly engaged in the process of domesticating regional provisions for a competitive and conducive business environment, although to varying degrees. The corresponding harmonization and unification of national investment policy regimes would crucially add more predictability and readability of the overall regional business environment, as the region is becoming increasingly accommodating to FDI.

34 Since its first introduction in 2003, the regional single currency was postponed several times (2005, 2010, 2014, 2015 and 2020). Discussions are still ongoing.

35 Additional details found here: http://www.etls.ecowas.int/.

36 *Source*: https://ecotis.projects.ecowas.int/.

37 The agreements aim at full liberalization for 90% of products, while 7% will need more time and 3% will not be liberalized. During the implementation process, national implementation committees will come up with the list of products across these three categories

38 *Source*: https://unctad.org/system/files/non-official-document/tdb65_2d_pres_AUBramdeo_en.pdf.

39 *Source*: https://openknowledge.worldbank.org/bitstream/handle/10986/34139/9781464815591.pdf.

40 The cost reduction as a result of trade facilitation is estimated to be equivalent for developing countries, especially in Africa, to a reduction in tariff by 219%. *Source*: https://www.wto.org/english/res_e/booksp_e/world_trade_report15_e.pdf.

1.10. CONCLUSION

In the face of increased competition to attract international businesses, West African countries arguably have a strong card to play. Being the first region in Africa to effectively embark on economic integration, the region has developed a sufficiently conducive and attractive environment for trade and investment. This is largely thanks to its natural hub status, strong economic growth, the vibrancy and innovative drive of its cities, great market potentials, an increasingly peaceful, secure and stable environment, high-quality soft and hard infrastructure and strong institutional quality (rule of law, control of corruption, and regulations).

Ongoing and planned structural reforms, at both regional and national levels, are indicative of the strong political commitment to further improve the business environment's conduciveness and attract FDI. These individual and collective efforts have earned countries across the region the status of best African reformers. To the extent that investors are well aware of these positive developments, international businesses ready to settle in the region will undoubtedly enjoy great returns, while being part of a collective journey towards greater economic and social vibrancy and the emergence of a dominant economic player in Africa and beyond.

2. ECOWAS CASSAVA SECTOR IN THE GLOBAL MARKET

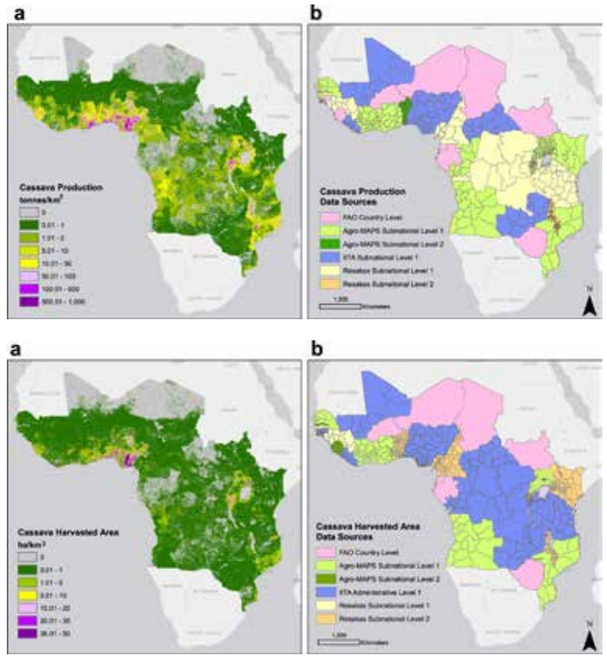
2.1. CASSAVA PRODUCTION AND CONSUMPTION IN THE ECOWAS REGION

Cassava, also known as tapioca, manioca or yucca, is a woody shrub grown in the tropical and subtropical regions of the world mainly as an edible carbohydrate for its starchy tuberous root. The crop is widely grown in rain-fed cropping regimes where farmers rely heavily on rainfall to decide when to plant and harvest it.

Depending on variety grown, soil fertility and other favourable weather conditions, cassava stems take at least six months to bear edible roots. For commercial purposes, farmers allow the crop to mature for 10–12 months. However, if the plant is not harvested after 15 months, the edible roots might become more woody or rotten (depending on variety and soil conditions). As shown in Figure 8, cassava is produced in all ECOWAS countries, with greater intensity along the Atlantic coast. On the African continent, 52% of total cassava production is in West Africa compared to 25% in East Africa in 2020 (Figure 9).

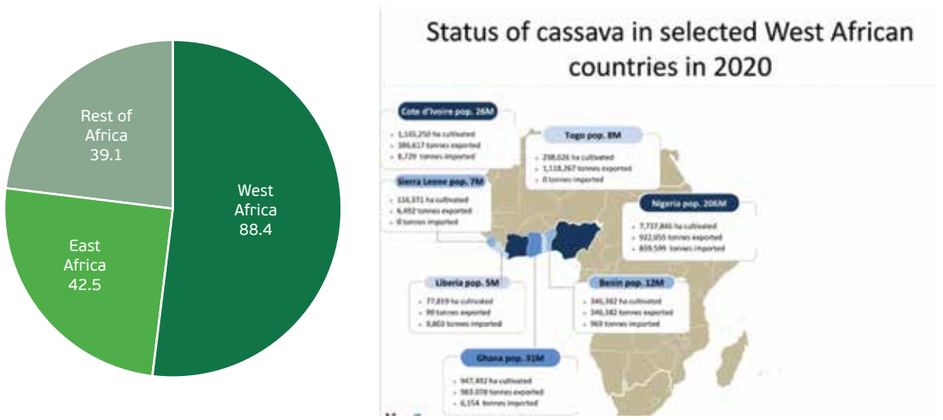
Cassava is one of the most important tropical root crops in West Africa. Cassava is used for a large variety of food and non-food uses (Table 8). The leaves are relatively rich in protein, and the storage root is consumed as a source of food, starch products and biofuels. After a successful harvest, subsistence farmers process it for family use. Those who cultivate the crop for commercial purposes often sell locally within their own communities, but new industrial uses are emerging, creating a demand for the tuberous roots beyond local communities in West Africa (Figure 10). Some of the by-products of cassava that create these demands for large orders are: starch, flour, chips, eba, akpu (fufu) and abacha (bobozi/flakes).

Figure 8: Cassava-growing regions (production and harvested area) in Sub-Saharan Africa



Source: Szyniszewska, A.M. 'CassavaMap, a fine-resolution disaggregation of cassava production and harvested area in Africa in 2014'. Sci Data 7, 159 (2020). Available from https://doi.org/10.1038/s41597-020-0501-z.

Figure 9: Cassava production in Africa by region (million tons) and selected West African countries' status



Source: Produced from Food and Agriculture Organization (FAO) data (https://www.fao.org/faostat/en/#home).

Table 8: Local cassava consumption in human diets and uses in West, East and Central Africa

Products	Country/region	Processing
Chips/flour	Global	Peeling roots, cutting into pieces, retting (optional) and drying
Gari	Global	Pre-gelatinized cassava granules obtained by root peeling, grating, pressing/fermentation, flaking, and pre-gelatinization by roasting in wood fires in large stoves with the addition of palm oil
Attiéké	Côte d'Ivoire	Cassava semolina obtained as a result of operations similar to those of the preparation of gari, except that pre-gelatinization is carried out by steam cooking
Ugali	East Africa	Paste cooked from chips or flour
Fufu	Nigeria; Central Africa	Paste cooked from fresh fermented (water fufu) or dried (fufu) pulp
Foofoo	Ghana	Pounded paste from cooked fresh roots
Chikwangue or kwanga; miondo; bobolo; mintoumba; mboung; mangbele	Central Africa	Fermented cassava paste cooked in vegetable leaves (banana; ginger). The different local names differ in terms of the fermentation conditions of the tubers during the retting and of the possible addition of other ingredients (palm oil in the case of mintoumba).
Melongo or medua-me-mbong; cassadan; mpataka or jiboh or iwaukpu	The Republic of Cameroon; the Gabonese Republic; Nigeria	Household conservation form of cooked cassava. Cooked roots are diced or sliced and then soaked in water with daily change of the soaking water. The product is consumed as a snack.
Buvard or mapala or ipoti	Gabon	Steaming of retted roots in Marantaceae or banana leaves. Conservation by drying or smoking. For consumption, the dried product is soaked in water, followed by a new steaming.
Mahiac	Gabon	Slurry prepared from retted cassava flour into which grilled peanut paste is added. This preparation is comparable to corn gruel prepared with unroasted peanut paste in savanna regions. Interest: improvement of the nutritional value of the slurry by addition of fat
Nkonda	Cameroon	Retted cassava pastes mixed with groundnut peanut and possibly crayfish, and then packaged and cooked under the same conditions as miondo, bobolo and chikwangue.
Ntobambodi	Congo	Sliced and fermented cassava leaves.

Source: Ndjouenkeu, Robert. 'Cassava in Central and Western Africa: Postharvest Constraints and Prospects for Research and Market Development'. IntechOpen (2018). Chapter 12. Available from https://doi.org/10.5772/intechopen.71507.

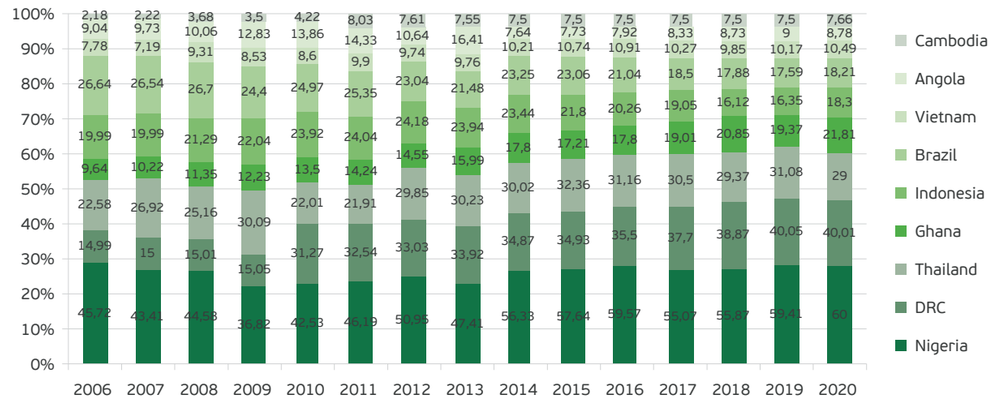
Figure 10: Some cassava products

Source: Westby, A., Adebayo, K., Oladeinde-Opeodu, B., Osikena, A., Sanni, L., Dziedzoave, N., Mahende, G., Sandifolo, V., Alacho, F., Okechukwu, R., Lamboll, R., Linton, J., Abayomi, L., Precoppe, M. and Ogunyinka, O. (2019). 'Developing value chains to benefit smallholder cassava farmers in sub-Saharan Africa'. Cassava: Adding Value for Africa Phase II (CAVA II) Project Final Report. FUNAAB-NRI 41p.

2.2. CASSAVA PRODUCTION, TRADE AND EXPORT

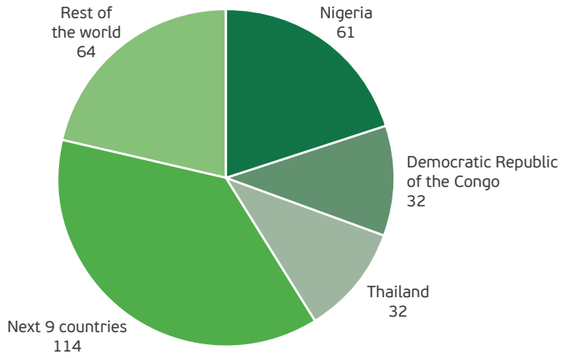
Global cassava production was 302,662,494 tons in 2020, over a land area of 28,243,258ha, of which more than half was produced in Africa (FAOSTAT, 2021). Africa is the most important region for cassava production, accounting for 62.6% of global output. In 2019, the top producer country was Nigeria, accounting for 23.4% of the global production share with a volume of 59.19 million tons. This was followed by the Democratic Republic of the Congo, the Kingdom of Thailand, Ghana, and the Federative Republic of Brazil, each having a global production share of 15.8%, 12.3%, 8.9% and 6.9% respectively (Figure 11). Almost half of all cassava produced in the world is consumed in three countries: Nigeria, the Democratic Republic of the Congo, and Thailand (Figure 12).

Figure 11: Top 10 cassava-producing countries in the world (million tons



Source: https://www.tridge.com/intelligences/mandioca/production.

Figure 12: Global cassava consumption in 2019 (in million tons)



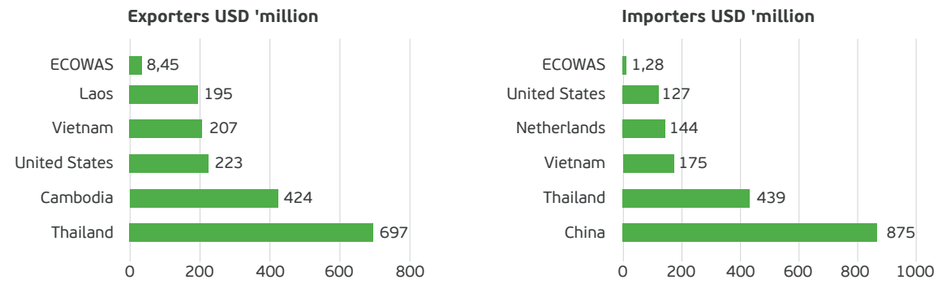
Source: Produced from data retrieved at https://www.globaltrademag.com/.

2.3. CASSAVA TRADE IN ECOWAS

Trade in cassava and cassava products in the ECOWAS region is currently dominated by smallholder farmers, small-scale marketers and processors who deal in traditional uses of cassava supported by services provided by a range of transporters, input dealers and agri-dealers. Research, extension and financial services are somewhat available, with limited influence on the performance of the cassava and cassava products markets.

Globally, cassava is exported in three forms: as a human food, as a starch, and as an animal feed ingredient. Similar to the domestic markets, price and quality competition exists in the starch and animal feed export markets. There is less competition in the human food export market. No ECOWAS nation is currently a major net exporter of cassava and cassava products (Annex I). ECOWAS' share of global export or import of cassava is less than 1%. This is mainly because most of the cassava produced is consumed locally as human food, but also due to the inability of ECOWAS producers to compete in the export market. The export market for cassava chips and pellets and cassava starch is highly price competitive. There are other barriers to entry owing to the large scale of some of the markets, quality requirements, variability in price, and the established contacts between European and North American importers and the major exporters such as Thailand and the Kingdom of Cambodia (Figure 13). The major importers of cassava are primarily the People's Republic of China, the Socialist Republic of Viet Nam and the Kingdom of the Netherlands.

Figure 13: Leading cassava exporting and importing nations versus ECOWAS



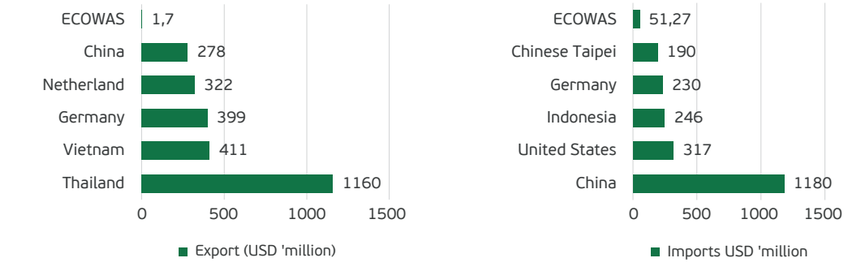
Source: Produced from data extracted from https://oec.world/en/profile/hs/cassava#.

2.4. TRADE IN STARCH

Starch is a soft, white, tasteless powder that is insoluble in cold water, alcohol or other solvents. It is a complex carbohydrate. It can occur in two forms: amylose and amylopectin. Amylose is a linear or linear polymer that scientists describe as amorphous. Amylopectin is water-insoluble. Starches are a part of the milling industry's products. They are obtainable from several plant sources, such as cassava, maize, potato and wheat. Cassava is a good source of resistant starch. It ferments and feeds gut bacteria, supporting gut health and blood sugar management. Cassava starch is also known in world trade as tapioca flour. It is often used directly, made into a group of baked or gelatinized products or manufactured into glucose, dextrin, ethanol and other products.

In 2019–20, the exports of starches grew by 1.67%, from $4.49 billion to $4.56 billion. In 2020, the top exporters of starches were Thailand ($1.16 billion), Viet Nam ($411 million), the Federal Republic of Germany ($399 million), the Netherlands ($322 million) and China ($278 million). The total ECOWAS export of starch in 2020 was $1.7 million, representing only 0.04% of world trade in starch. Conversely, the ECOWAS region imported $51 million worth of starch in the same year, representing 1.12% of global trade (Figure 13). The leading importers of starches were China ($1.18 billion), the United States of America ($317 million), the Republic of Indonesia ($246 million), Germany ($230 million) and Chinese Taipei ($190 million).

Figure 14: Starch exporting and importing nations versus ECOWAS (USD million)



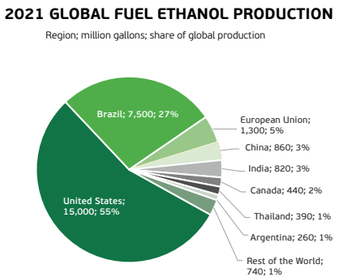
Source: Produced from data extracted from https://oec.world/en/profile/hs/cassava#.

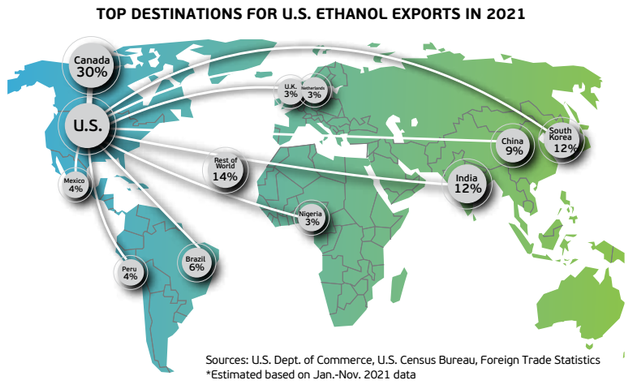
2.5. TRADE IN ETHANOL

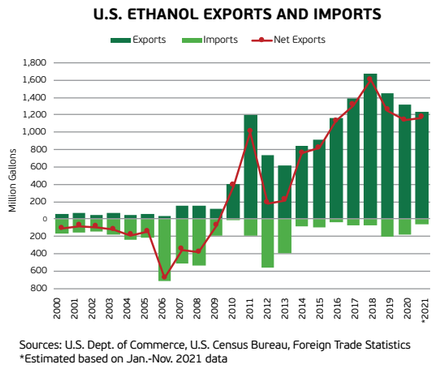
Ethanol (also called ethyl alcohol, grain alcohol, drinking alcohol or simply alcohol) is an organic chemical compound. Ethanol is a volatile, flammable, colourless liquid with a characteristic wine-like odour and pungent taste. It is one of the largest volume organic chemicals used in industrial and consumer products. It can be produced from petroleum via chemical transformation of ethylene, but it can also be produced by fermentation of glucose (from starch-based crops such as cassava, maize and sugarcane, by dry- or wet-mill processing) using yeast or other microorganisms. Current fuel ethanol plants make ethanol via fermentation.

The United States is the world's largest producer, consumer and exporter of ethanol. The 57 billion litres of ethanol produced in 2021 represent 55% of global output (Figure 15). In comparison, Brazil's share of world production declined to 27%. The EU accounted for 5% of global output. In 2021, Canada remained the top destination for US ethanol, taking nearly one-third of US ethanol shipments. Export sales to the Republic of Korea grew, surpassing the Republic of India as the second-largest destination of US ethanol. The ECOWAS contribution in the global ethanol trade is negligible at the moment despite the limited efforts in Nigeria through companies like Ekha Agro and Allied Atlantic Distilleries (AADL) to convert cassava starch to ethanol to meet a negligible part of local consumption.

Figure 15: US and global trade in ethanol







Sources: Renewable Fuels Association (RFA) analysis of public and private data sources; United States Department of Commerce, United States Census Bureau, Foreign Trade Statistics.

2.6. TRADE IN WHEAT AND MAIZE FLOUR

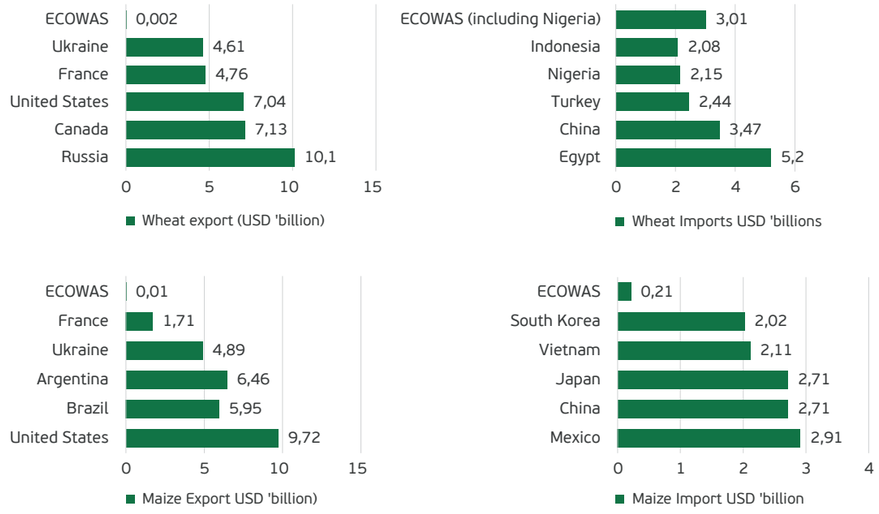
The ECOWAS region imported $3 billion worth of wheat and $214 million worth of maize in 2020 (Figure 16). Most of these are consumed as flour. The global flour market is dominated by wheat and maize flour that are used in various forms for human, industrial and pharmaceutical uses. Generally, flours contain high starch levels, but starch does not contain any flour.

In 2020, the top exporters of wheat were the Russian Federation, Canada, the United States, the French Republic and Ukraine (Figure 16). The war between the Russian Federation and Ukraine is one of the factors that contributed to the shortfall in wheat production in 2022. The impact is being felt most in the wheat importing nations led by the Arab Republic of Egypt, China, the Republic of Turkey, Nigeria and Indonesia, where prices of wheat-based foods increased 2022 (Figure 16).

Maize is a staple food for many people and a major component of livestock feed. It is used as a high-fructose sweetener in many processed foods, and it is the main ingredient in corn oil, corn starch and corn syrup. It is also used to create ethanol fuel, and even the cobs have industrial uses for their absorbent qualities. As shown in Annex II, despite favourable local weather conditions and local production of maize in the ECOWAS region, maize is imported by all ECOWAS nations, with Nigeria leading the pack in 2020 with an import value in excess of $129 million. The ECOWAS region is a net importer of maize (Figure 16).

The United States is the world's largest producer and exporter of maize, with production in the 2019–20 season pegged at 346 million tons, with approximately 50% used as feed grain for livestock. The average hectares dedicated to planting maize in the United States is approximately 36 million hectares each season. Other leading producers are China (260.8 million tons consumed almost exclusively domestically), Brazil (102 million tons, mostly consumed domestically), the Argentine Republic (51 million tons of exports; more than half), Ukraine (35.9 million tons) and India (26 million tons).

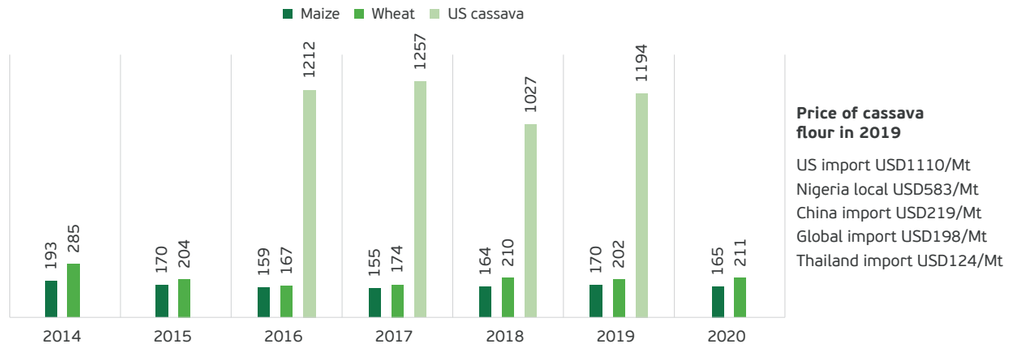
Figure 16: Global 2020 trade in wheat and maize (trade value in USD) versus ECOWAS



Source: Produced from FAO data obtained from https://www.fao.org/faostat/en/#home.

2.7. GLOBAL COMPETITIVENESS AS A KEY CONSIDERATION IN EXPORT OF ECOWAS CASSAVA

Figure 17: Global price trend for maize flour and wheat flour (2014–20) compared to cassava flour import price (2019)



Source: Produced from data extracted from https://oec.world/en and interviews.

Global competitiveness refers to nations' ability to supply high-quality goods and services at reasonable costs, resulting in satisfactory returns. Global competitiveness is greatly influenced by import prices of the commodity.

In Nigeria, for example, in 2019, the average price of cassava starch was $500–$750/ton, the price of cassava flour was $416/ton to $583/ton and the price of cassava chips was an average of $100/ton. Compared to the prices of maize flour, wheat flour and the global import price of cassava flour, there is an opportunity for Nigeria to become a player in the global cassava chips market. This is because the prices of both cassava starch and cassava flour from Nigeria are not globally competitive (Figure 17). There is, however, a need for strategic partnerships and investments in higher yields, products aggregation and a more efficient transport system for Nigeria to sell its cassava products in the global market.

Furthermore, cassava export prices are broadly attractive for potential investors in the ECOWAS region. US cassava flour was sold for $1,260/ton in 2017 and $1,030/ton in 2018. In 2019, the export price changed to $1,190/ton. Some of the best-performing markets in 2019 for US cassava were Barbados, the Republic of Peru, the Republic of Trinidad and Tobago, the Netherlands and the Republic of Panama. Cassava exports from the United States are categorized as: fresh, chilled, frozen or dried roots and tubers of manioc 'cassava', whether or not sliced or in the form of pellets (HS code 071410). In 2022, the approximate price range for US cassava flour is $1,190–$1,030/ton. FAO data suggests that imported starch costs $818–$940/ton on the global market. Given that fresh cassava roots could be purchased in the ECOWAS region for $14–$35/ton, native cassava starch could be produced locally for $264–$450/ton. (Note that 5 tons of fresh cassava roots is required to produce 1 ton of dried cassava starch. Other variable cost components are water (15%) and energy (20%)).

3. STRATEGIC ACTIVITIES AND SUBSECTORS FOR INVESTMENT

3.1. TRADITIONAL CASSAVA FOODS SUBSECTOR: KEYS TO SUCCESS

The traditional foods subsector is undoubtedly the largest user of cassava in West Africa. The market for high-quality, shelf-stable forms of traditional West African cassava-based foods is growing given the demand for these foods in the diaspora. The multitudes of small artisanal cassava processors' challenge to meet international standards in the region is a huge one. Medium-scale enterprises in Nigeria, Ghana and Côte d'Ivoire are already leading the way in bringing these foods into the global market while simultaneously catering to the needs of the mass urban middle and upper class who desire a refined taste of traditional foods. Investments in this subsector need to venture into higher hygiene standards, better packaging, consistent quality products and upgrading factory throughput by using appropriate technologies to meet large orders.

3.2. IMPORT REPLACEMENT: STARCH

Demand for starches as an industrial raw material continues to increase due to economic growth in the ECOWAS region. Since most of the starch for industrial use is imported, increasing local cassava starch production to substitute some of the imports can contribute to fixing the trade balance. The demand for cassava starch is also increasing in the subregion's countries (Burkina Faso, Mali and Senegal, etc.), which stimulates exports of starches produced within the region.

Multinational companies like Nestlé and Unilever are interested in locally produced cassava starch if it can be supplied at competitive prices. The opportunities created by this demand could require backward integration from multinationals, but could also offer investment opportunities for new investors in the cassava sector.

3.3. IMPORT REPLACEMENT: ETHANOL

The global ethanol market is currently dominated by the United States. Every country in the ECOWAS region relies mainly on imports to meet the ethanol demand in the beverage, foods, manufacturing and pharmaceutical sectors. The technical feasibility of producing ethanol from cassava is not in doubt and investors like Allied Atlantic Distilleries in Nigeria and YUEN alcohol factory in Benin have become pioneers. Yet the demand–supply gap is huge and recent lessons from the COVID-19 outbreak and the war in Ukraine point to the need for the ECOWAS region to stimulate investments in the technologies, systems and processes that makes such strategic investments feasible within the region.

3.4. IMPORT REPLACEMENT: WHEAT AND MAIZE

Wheat flour is on the daily menu in many West African homes, mainly as bread and biscuits, but also in several other forms, even though wheat cultivation is insignificant in the region. In Ghana, wheat flour is also used as a glue extender in the plywood industry. Maize is locally produced, but the demand for human consumption and the livestock sector greatly outweighs local supply. Hence, maize is also imported into the region as grains, sweet corn and corn flour. The technical feasibility of replacing at least a proportion of the wheat and maize imports with locally produced high-quality cassava flour (HQCF) has been demonstrated beyond commercial pilots. Nigeria currently leads these efforts with its cassava inclusion policy. Nascent enterprises have emerged in Nigeria, Ghana, Liberia, Sierra Leone and Côte d'Ivoire, taking up the challenge of investing in the production of HQCF. Even locally developed technologies such as the flash dryer and processes and systems linking cassava farmers to large orders have become operational in the region. However, more investment is needed beyond piloting the technologies to bringing HQCF into the global market as a replacement for wheat and maize.

Cassava flour is a good gluten-free alternative to wheat flour and a potential maize replacement, particularly in livestock feed and ethanol. It comes from the dried, ground root of the cassava plant. Cassava flour contains resistant starches. There are a variety of possible health benefits to eating resistant starches. As resistant starch ferments in the large intestine, more beneficial bacteria are created, boosting overall gut health and leading to decreased levels of constipation, lower cholesterol and a lower chance of gas pains.

3.5. FRESH CASSAVA ROOTS SUPPLY

Even though the West African subregion grows more cassava than any other regional hub globally, the consumption level of cassava products in traditional foods matches this production level very well. The investment opportunities in the supply of fresh cassava roots to meet current and future demand can focus on adoption of good agronomic practices targeted at higher yields, as well as bringing new farmlands into cultivation to strategically increase local supply of fresh cassava roots as demand by new enterprises rises.

There is also an investment opportunity in the development of suitable transport and communication infrastructure as well as the location of cassava processing factories in SEZs where the requisite infrastructures to support cassava production and processing are strategically provided.

3.6. KEY POINTS FOR SUCCESSFUL INVESTMENT IN THE ECOWAS CASSAVA SECTOR

- Stimulate national and subregional demand for cassava products.
- Provide essential infrastructure to support the expected growth in cassava-based economic opportunities.
- Incentivize the sustainability of emerging investments with appropriate policies at national and regional levels.
- Ensure a stable supply of fresh cassava roots.

4. REGIONAL INVESTMENT OPPORTUNITIES IN THE CASSAVA SECTOR

In 2016, ECOWAS adopted the ECOWAS Investment Policy (ECOWIP[41]) and the Economic Community of West Africa Agricultural Policy (ECOWAP[42]), which provide the framework for investments in the region. The ECOWAS region's population is more than 400 million people spread over a land area of 5.12 million km², with a per capita income of $1,778 in 2021.[43] Much of this population's demand for cassava-based food is such that, despite the fact that the region produces more cassava than any other region in the world, cassava consumption is so high that West African nations do not currently play a leading role in the export of cassava and cassava products. The abundance of arable land suitable for expansion of cassava cultivation and a yield gap arising from a low level of adoption of Good Agricultural Practices (GAP) are key investment opportunities that could allow ECOWAS nations to participate meaningfully in the global cassava market.

The case of Sierra Leone stands out as a unique case in the region, as it is the only county in the region whose production of cassava exceeds the local demand. For the other focus countries, the production usually falls short of meeting the demand. The nature of the crop, however, would not permit trade in fresh cassava roots over long distances. Fresh cassava root is bulky, with 60%–70% moisture content and an irregular shape. For this reason, transport over long distances is not cost-effective. In addition, the starch content in fresh roots falls rapidly 24 hours after harvest. For these reasons, processing factories, or at least drying facilities to bring to moisture content to 10%–12%, are best located near raw materials sources. The main opportunity for investors in the cassava sector is to establish cassava processing facilities in Sierra Leone and create a trading stream between Sierra Leone and its neighbours in the short term. The focus in the long term could be for Sierra Leone to become more active in the global market for cassava products.

Cross-border trade in cassava products is a major activity in the ECOWAS region. It is reported in all the country profiles in this profile. Neighbouring Sahelian nations such as the Niger, Mali, Burkina Faso, Guinea and Senegal rely almost entirely on this cross-border trade for their supply of cassava-based products. There is a real opportunity in the development of this trading activity for the improvement of the products' quality and capturing the real economic opportunities between countries that can grow cassava (on the Atlantic coast) and those that cannot (on the fringes of the Sahara Desert).

Almost all the ethanol consumed in the ECOWAS region is imported. If the volume of cassava produced in the region can be efficiently increased through investment in GAP and cultivation on additional farmland, there is a significant opportunity to replace imported ethanol by locally produced ethanol. In the short term, Nigeria, Cote d'Ivoire and Ghana seem to possess the required system for increasing production of ethanol from cassava. Trade relationships that allow other ECOWAS nations to supply cassava chips or frozen cassava mash to ethanol factories in these countries will foster regional growth and development along these lines.

The demand for convenient forms of traditional cassava-based foods in urban areas of West Africa as well as global demand created by the highly mobile West Africans in the diaspora is another regional opportunity that could be explored. Ghana has created a nucleus in Europe and North America that demonstrates the viability of these opportunities. Some Nigerian traders use the trade platforms in Ghana to trade in cassava products emanating from Nigeria. The extent to which these practices can be formalized and mainstreamed will foster regional economic growth.

Finally, investment in trade logistics (particularly transportation and communication) as well as security across the region is desirable. The challenges posed by the threat of the Islamic State's West Africa Province (ISWAP) and Boko Haram require regional investment to ensure free movement of persons and goods and create a suitable environment for economic prosperity in the region.

41 *Source*: https://wacomp.projects.ecowas.int/wp-content/uploads/2020/03/ECOWAS-INVESTMENT-POLICY-ENGLISH.pdf.
42 *Source*: https://www.diplomatie.gouv.fr/IMG/pdf/01_ANG-ComCEDEAO.pdf.
43 *Source*: https://countryeconomy.com/countries/groups/economic-community-west-african-states.

5. BENIN COUNTRY PROFILE

5.1. COUNTRY OVERVIEW

This West African country, formerly known as Dahomey until 1975, is located on the Gulf of Guinea. It borders Togo to the west, Nigeria to the east, and Burkina Faso and Niger to the north. The southern equatorial climate has two dry and two rainy seasons. The main dry season between mid-November and mid-March is followed by the longest rainy season, which lasts until mid-July. Temperatures tend to vary between 22°C and 34°C, while the relative humidity is often uncomfortably high. Toward the north of the country, the dry season is more prevalent, and the Harmattan (hot and dry wind) blows from the north-east from December to March. Temperatures average 27°C, although it can significantly vary between day and night. March remains the hottest month, with daytime temperatures reaching 43°C.

Benin was set up as a colony by the French in the nineteenth century as a political unit, and it played a significant role in the slave trade (the coastal Kingdom of Ouidah being a main departing centre for the Atlantic trade). The precolonial era was marked by a host of independent states, each one with its own language and culture. The south was dominated by Ewe-speaking people originally from the town of Tado (now Togo), and mainly located in the Kingdoms of Allada and Dahomey. The largest group in the north was the Bariba, which could be found in the Kingdom of Nikki, part of a confederacy including other Bariba states located in what is today Nigeria.

Independence came on 1 August 1960, and the country embarked on an early experience of a multiparty regime, with three political formations. The last of a series of military coups, on 26 October 1972, marked the start of a communist and socialist experience. A shift in the political ideology occurred in 1989, when the country again embraced a liberal economy and greater democratization, including the promulgation of a new constitution in 1990 that enshrined the general principles of unity, liberty and power to and by the people. The country went on to become a stable African democracy, and the first multiparty elections were organized in 1991 and lost by the incumbent Mathieu Kérékou to Nicéphore Soglo.

Benin – key facts	
Capital city	Cotonou
Area	112,760
Population, total	12.5
0–14 years	*42.2%*
15–65 years	*54.5%*
Youth literacy (15–24 years)	60.9%
Male (%)	*69.8%*
Female (%)	*51.9%*
GDP (nominal, USD billion, 2019)	14.4
GDP growth (real, 2014–19)	4.9%
FDI, inflows	230.2 (1.6% of GDP)
Gross domestic private investment	3,067.2 (21.3% of GDP)
Employment to population ratio (+15years)	69.3%
Employment to population ratio (15–24 years)	40.3%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	4,262.4 (29.6% of GDP)
Main exported products	*Cotton; cereals; meat and edible meat offal*
Imports of G&S, 2014–19 (USD billion, 2019)	4,910.4 (34.1% of GDP)
Main imported products	*Cereals; mineral fuels and oils; animal and vegetable fats and oils*
Inflation, 2014–19 (2019)	-0.7%
Bank credit to private sector	2,534.4 (17.6% of GDP)
Gov. expenditure	2,304 (16% of GDP)
Gov. revenue	1,857.6 (12.9% of GDP)
Total public debt	7,747.2 (53.8% of GDP)
Currency	CFA franc (XOF)
Language	French (official), Fon, Yoruba, Goun and Bariba

Source: World Bank; International Monetary Fund (IMF); UNCTAD; Comtrade.

Approximately 47.9% of the 12.5 million Beninese live in modestly sized cities, none with more than 1 million inhabitants. They include Cotonou (the capital city, the most populous with 780,000 individuals), Abomey-Calavi (the former capital of Dahomey, with a population of 385,000), Djougou, Porto-Novo and Parakou, mostly located in the south. The cultural setting is relatively diverse. Benin is the birthplace of the Vodun (or Voodoo) religion, which is practiced alongside Christianity (almost half the total population) and Islam (approximately one-quarter of the population, mostly in the north and south-east). The large number of ethnic groups and languages, which resisted various governments' attempts to foster greater national unity and integration since independence, includes the Fon (representing approximately two-fifths of the population, mostly located in Cotonou), the Yoruba (approximately one-eighth of the population, mainly in the south-east) and the Bariba (in the north-east). French remains the official language.

5.2. BROAD ECONOMIC OVERVIEW

AMONG THE 10 MOST COMPETITIVE AND INNOVATIVE ECONOMIES IN WEST AFRICA

According to the World Economic Forum's 2019 Global Competitiveness Index, Benin is the 125th most competitive economy globally, with a score of 45.8/100. It came 21st on the continent and 8th in the West African region. This performance owes to the potential and functioning of its product markets (2nd in the region), a stable and predictable macroeconomic environment (3rd), the availability and depth of the skill set (4th) and its strong institutions (6th).

Furthermore, the 2020 Global Innovation Index ranks Benin 126th in the world, 27th in Africa and 9th in West Africa. Enabling factors include the second-highest quality human capital and research inputs in the region and the third-strongest institutions.

INSTITUTIONS AMONG THE STRONGEST IN THE REGION

According to the World Bank's Governance Indicators, the country comes 120th worldwide, 15th in Africa and 6th in West Africa. The component elements in which the country fares relatively well are voice and accountability (4th in the region), government effectiveness (4th) and regulatory quality (5th).

FAIRLY GOOD INFRASTRUCTURE AND LOGISTICS SYSTEM

The African Development Bank ranks the country 36th in Africa and 10th in the region for the overall quality of its physical and soft infrastructure, with an overall score of 16.5/100. Road quality is the dimension in which the country fares better, and it comes 9th in West Africa and 30th in Africa.

The World Bank's Logistics Performance Index ranks the overall quality of the logistics system in Benin 76th globally, 6th in Africa and 2nd in West Africa, with a score of 2.75/5. The country tops the ranking in the region for the component element of the frequency with which shipments reach consignees within the scheduled or expected time, and it comes 2nd for the efficiency of customs clearance process.

AMONG THE BEST WEST AFRICAN COUNTRIES FOR BUSINESS

Benin is ranked the 118th best country for business globally, 19th in Africa and 6th in West Africa, according to the Forbes Magazine. This owes to its economic growth, level of development, trade performance and population size. Additionally, the business environment comes 149th globally, 28th in Africa and 9th in West Africa according to the World Bank's Ease of Doing Business, with an overall score of 52.4/100. The country fares relatively well in the regional context when it comes to trading across borders (3rd), dealing with construction permits (4th) and protecting minority investors (5th).

5.3. INVESTING AND DOING BUSINESS IN BENIN

AN INCREASINGLY DYNAMIC ECONOMY

In the five-year-period preceding the COVID-19 pandemic, the Beninese economy grew at an average rate of 4.9%, the 9th highest in the region. The pace increased in 2018–19 to more than 6%. The main contributors to this growth dynamic are the trade sector (mostly informal re-export and transit trade with Nigeria, estimated at approximately 20% of GDP) and agriculture (especially cotton, the country's leading export commodity). The shock of the pandemic reduced growth to 3.8% in 2020, and the economy is expected to grow at 5% in 2021 and beyond 6% in the ensuing years, hence fully recovering from the pandemic.

A COMPETITIVE BUSINESS ENVIRONMENT

In 2019, the country attracted $230.2 million in FDI and, in 2010–19, total inflows increased on average by 3%, the 5th highest in the region. This undoubtedly speaks of the business environment's attractiveness to foreign investors.

Starting a business in Benin takes an average of eight days, and a total of five procedures are involved, the 3rd lowest figure in Africa: (i) Verify the uniqueness of the company name at the country's one-stop shop (Investment and Export Promotion Agency – APIEX); (ii) Deposit the minimum authorized amount in a bank and activate the bank account, and the paid-in minimum capital requirement is CFA 25,000 or $45; (iii) Register the company at the one-stop shop; (iv) Register the company and its employees with social security (Caisse Nationale de Securité Sociale – CNSS); and (v) Register the company with the tax authorities (Direction Nationale des Impots et des Domaines). An additional procedure that applies only to women is to obtain a marriage certificate for the national identification card from the municipal authority. The charges for all of these administrative procedures amount to CFA 17,300 ($32).

When it comes to obtaining a **construction permit**, approximately 14 procedures are required, including legalization of property title at a notary, approval and proof of membership from the country's Ordre National des Architectes et des Urbanistes du Benin, and obtaining a fire safety report, location map, building permit (at the municipality), and a certificate of conformity and occupancy. The corresponding charges amount to CFA 1,187,725 ($2,160).

As with all business-related formalities, the laws guarantee **equal treatment** to all investors irrespective of their origins. **Visa rules** are very accommodative to foreign business needs, as investors and employees can enjoy a duration of stay that matches their activities in the country.

The **labour force** is estimated at 4,925,300 individuals, representing 40.6% of the total population. The quality and depth of workers' **skills** are ranked 21st in Africa and 5th in the region according to the World Bank's Human Capital Index, which is a measure of a typical worker's productivity level. The monthly **wage** distribution ranges between CFA 86,000 ($157 – lowest average) to CFA 1,520,000 ($946 – highest average), the average being CFA 340,000 ($619). Since April 2014, the minimum wage is CFA 40,000 ($73).

Electricity is charged at $0.21 per kWh, the 9th lowest in West Africa. Obtaining a connection from the national provider (Société Beninoise d'Energie Electrique – SBEE) involves five procedures and takes an average of 90 days, at a cost of CFA 57,388,775 ($104,344). Electricity is available to 40.6% of the total population and 65.3% of those living in cities.

The **water** tariff is structured at $0.78 per cubic metre for monthly consumption of less than 15 cubic metres, $0.88 for up to 50 cubic metres and $1.11 for more. People using at least basic drinking water services represent 66.4% of the total population. In urban areas, it is 75.7%.

The **infrastructure system** includes the Cardinal Bernardin Gantin International Airport of Cotonou, the largest in the country, mostly serving Africa and Europe. It handles more than 700,000 passengers per year and has an estimated cargo capacity of more than 25,000 tons of goods.

Roads in Benin are estimated at 20,000km, of which 6,787km are highways. Approximately 20% are paved. The network expands to the country's borders and provides connections with Togo, Burkina Faso, the Niger and Nigeria, allowing cross-border movement of goods and persons.

The railway system has an estimated 578km of single track. At least three links are planned with neighbouring countries as part of the West Africa Regional Rail Integration project, which aims to link the railway systems of Cote d'Ivoire, Burkina Faso, the Niger, Benin and Togo at an initial stage. While freight operates regularly, passenger services remain sporadic.

The Port of Cotonou handles more than 90% of traded goods with the outside. With an estimated cargo capacity of 10 million tons, it is the 3rd largest in the region after Lagos and Abidjan. It also serves landlocked countries such as Mali, Burkina Faso and the Republic of Chad.

The **tax system** comprises various business taxes and mandatory contributions, such as corporate income tax (25%), payroll tax (4%), social security contribution (19.4%), single property tax (6%) and value-added tax (VAT) (18%). A total of 54 payments is made yearly, and they add up to 48.9% of corporate profit.

As a member of ECOWAS, the regional common external tariff (CET) applies to imported goods. They are categorized into five tariff bands, ranging from 0% (essential social goods) to a maximum of 35% (specific goods for economic development). Safeguard measures, anti-dumping measures, anti-subsidy and countervailing measures and supplementary protection measures are also applied to protect vulnerable industries and promote fair competition.

The **banking and financial system** is part of the West African Economic and Monetary Union (WAEMU) integration framework. Overall, it is very sound, as suggested by indicators such as the regulatory capital to risk-weighted assets of 7.6% and the share of non-performing loans of 18.9% of total loans (prior to the COVID-19 pandemic). The 15 banks operating throughout the country contribute to providing credit to the private sector of approximately 17.6% of GDP, the 7th highest in the region. The system's openness allows anyone (including expatriates) to hold a foreign currency denominated bank account, and free movement of capital (including remittances) is guaranteed. The exchange rate is fixed against the euro at CFA 656.

There are a host of **government incentives** to attract foreign investment. They include a one-stop shop for business information and support, modernization and professionalization of the public procurement system, a revision of the prices for transferring assets out of state ownership, the implementation of a simplified and more advantageous fiscal framework that is more adapted for SMEs (via a synthetic business tax), and measures to improve the energy infrastructure. An SEZ was established in January 2020, located approximately 45km from Cotonou. When fully operational, it will add to the wide range of advantages that foreign and domestic businesses can enjoy.

Overall, the country has robust arguments when it comes to attracting foreign businesses, ranging from a stable and dynamic economy to high-quality productive inputs such as a skilled workforce, and rationalized business-related administrative processes that contribute to significantly reducing the costs of doing business in Benin.

5.4. CASSAVA IN BENIN: AN OVERVIEW

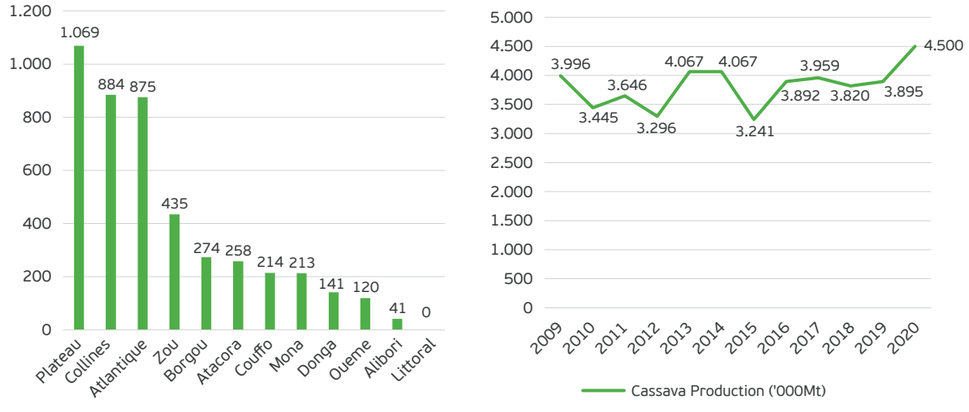
Benin is ranked 3rd among producers of fresh cassava roots in West Africa (FAOSTAT, 2019). In 2020, Benin cassava production amounted to 4.5 million tons harvested on 319,298ha, with an average yield of 14t/ha (Ministère de l'Agriculture, de l'Elevage et du Développement Rural/Direction de la Statistique Agricole du Ministère de l'Agriculture, 2021). Cassava ranks first in the cultivation of roots and tubers, with 54% of the cultivated area and 59% of total crop production in Benin. Cassava is one of the main staple foods in Benin and contributes highly to food security (Figure 18). Gari and other cassava-based products are of great socioeconomic importance and contribute to food self-sufficiency. Indeed, the production, processing and marketing of cassava and its products involve a large number of people, mainly consisting of out-of-school youth and women who work individually or in groups. In Benin, more than 500,000 producers practice cassava cultivation. More than 700,000 women are engaged in processing and marketing activities throughout the country. If we add all the ancillary occupations that are related to this activity, more than 1,500,000 permanent and seasonal jobs, of which more than 70% are performed by women, are derived from the different cassava value chains.

In Benin, cassava is produced under several cropping systems. In the southern part, cassava cuttings are planted on flat land, while in the central part they are planted on ridges and small mounds. In the northern part, cassava is planted on medium to large mounds. It is adapted to all ecosystems in Benin and is grown in all regions of the country, either as a sole crop or in association with cereals or legumes. The commonest associations are: cassava–maize (south and centre); cassava–sorghum or millet (north); cassava–peanut or cowpea; and cassava–vegetables. When grown as a sole crop, cassava cultivation is usually found at the end of the rotation and is almost always followed by a fallow.

The diversity in cropping systems ensures a year-round production of cassava (Figure 19) and it has contributed to the increase in yield over the years, with an annual average yield growth of 6.8% since 1981 (Ministère de l'Agriculture, de l'Elevage et du Développement Rural/ Direction de la Statistique Agricole du Ministère de l'Agriculture, 2021). In the northern part of the country, a semi-arid zone with one rainy season per year, farmers mainly cultivate early maturing varieties. There is also a bitter variety of cassava that serves as hedge to protect cereal fields against pests. Compared to other regions, the quantities cultivated in the north remain relatively low.

Cassava is often planted at the end of the rotation due to its cycle length and is grown without mineral manure. There are many cassava varieties, but the most popular are varieties with white flesh. Among the varieties, BEN 86052, RB 89509 and TMS 30572 have been adopted by growers for many decades (Table 9). The cassava stem nursery multipliers are often unable to meet the growing demand of certified cuttings.

Figure 18: Cassava production (thousand tons) in Benin across regions



Source: Ministry of Agriculture, Livestock and Fisheries/Direction de la Statistique Agricole du Ministère de l'Agriculture (2019) and FAOSTAT (2021).

Figure 19: Season calendar of cassava planting and harvesting in Benin

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Northern Benin												
Planting												
Harvest												
Southern Benin												
Planting												
Harvest												

Source: Field survey (2021).

Table 9: Cassava varieties produced in Benin

Range	Cassava varieties	Production zone	Observation	Potential yield	Average farmer yield
1	RB 89059	All areas of Benin	Popularized by ATDA, PDRT and PDFM (cycle: 8–12 months)	45 tons/ha	13 tons/ha
2	BEN 86052	All areas of Benin	Popularized by ATDA, PDRT and PDFM (cycle: 8–12 months)	45 tons/ha	13 tons/ha
3	TMS 30572	All areas of Benin	Popularized by ATDA, IITA, PDRT and PDFM (cycle: 8–12 months)	45 tons/ha	13 tons/ha
4	GBEZEKOUTE	Western Benin	Local variety (cycle: 8–12 months)	-	-
5	TCHOUTE	Centre of Benin	Local variety (cycle: 8–12 months)	-	-
6	Idilerou	Centre of Benin	Local variety (cycle: 6 months)	-	-
7	HUIDJINNANVO	Centre of Benin	Local variety (cycle: 8–12 months)	-	-

Note: Territorial Agricultural Development Agency (ATDA); International Institute of Tropical Agriculture (IITA); Cassava Value Chains Development Project (PDFM); Roots and Tubers Development Programme (PDRT).

Source: Field survey (2021).

Table 10: Forms of use and consumption of cassava in Benin

Form	Description
Fresh cassava	Marketed fresh or in boiled form. Only the sweet varieties are consumed in fresh form.
Gari	Precooked, easy-to-eat granular product. Consumers only have to add cool or hot water, which makes preparation in an urban environment easier. Also eaten directly soaked in a sauce or mixed with oil, chilli, onion and tomato. Finally, gari accompanies dishes such as beans, voandzou, rice or even pasta, often as a way of improving the edibility or increasing the food, especially for low-income consumers.
Cassava chips/lafun	A lightly fermented product that can come in either a solid (chips) or flour form when crushed (lafun). A specialty of the Ouémé/Plateau region (south-east), lafun is eaten in southern Benin and exported to southern Nigeria in Ogun State.
Starch	Considered the highest-value-added product of cassava due to its very high demand. Its production is still marginal in Benin, despite strong demand in Nigeria.
Tapioca	Made from the starch extracted from the pulp of grated cassava; diluted in water (cold or hot) and consumed in the form of a porridge that can be improved by adding sugar, milk, coconut milk or soy milk. It is mainly consumed in urban areas.
Alcohol	Cassava 95°/60° alcohol has been manufactured since 2003 by the Chinese factory (YUEN alcohol factory) in Logozohè in the Commune of Savalou. This alcohol is intended for human consumption and medical use.

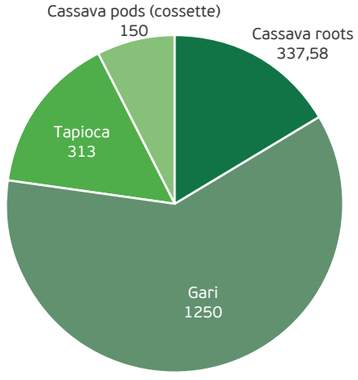
Source: Field survey (2021).

CASSAVA TRADE IN BENIN

DOMESTIC TRADE

Apart from home consumption, cassava and its derived products are produced mainly for the market. Figure 20 shows the dominance of various cassava by-products traded in Benin. The market for cassava exists at the local, national, regional and international levels (Table 20). The main products derived from cassava processing in Benin are agbéli, improved gari, ordinary gari, tapioca, starch, lafun, attièkè and cassava chips. There are other derived products such as bread flour. The demand for cassava and its derived products is very important in Benin. Private institutions and actors are also interested in processed cassava products in Benin. This is the case for supermarkets, non-governmental organization (NGOs), bakeries and orphanages.

Figure 20: Estimated volume (thousand tons/ year) of cassava products traded in Benin



Source: Field survey (2021).

Table 11: Cassava products market in Benin

Product	Existing market
Gari	Local, Bohicon, Houègbo, Parakou, Glazoué, Malanville, Porto-Novo, Cotonou and cross-border market
Tapioca	Local, Bohicon, Houègbo, Parakou, Glazoué, Malanville, Porto-Novo, Cotonou and cross-border market
Lafun	Local
Atchèkè	Local
Bread flour	Local
Cassava	Local

Source: Field survey (2021).

Traditionally, cassava is marketed mainly in the form of gari and tapioca and secondarily in the fresh form. Gari is present in the market throughout the year and its marketing is controlled by a chain of private operators made up of wholesalers, traders and retailers. In terms of the most prominent stakeholders, a distinction is made between collection, bundling or distribution. The relationships between these actors are based on mutual agreement and trust. Wholesalers provide funds to other actors and operate by pre-financing collectors who are responsible for collecting the product from processors or their groups in the villages. The sector is not organized; wholesalers supply the market and can deal directly with farmers or women's groups. The volume bought is defined in advance. As soon as this volume is exceeded, the surplus is sold on the local market.

Given its high perishability, fresh cassava is processed into various products, which are sold on the market. Approximately 90% of the cassava harvested each year in Benin is processed. Most of the processing units use artisanal methods. Specialized middle-sized factories process cassava into high-quality products such as improved gari and high-quality cassava flour (HQCF) for export. Significant variations in the frequency of consumption of cassava products were observed between the surveyed areas. Analysis of the functioning of the supply system for cassava-derived products revealed an organization that involves a number of actors in different trading networks. At the centre of the system are wholesalers and consumers. The national marketing circuits show two main poles involving the two most important food commodity trading markets in the country: Cotonou and Malanville.

The gross margins generated by the various players vary according to the products and zones. Tapioca appears to be the most profitable product per unit. The increase in cassava cultivation has made it possible to diversify its derived products (e.g. starch and bread flour). However, the quality of starch and bread flour is often influenced by the low adoption of mechanical processing equipment, and the lack of quality control and precise product manufacturing standards. Processing technologies used in Benin remain essentially traditional. However, the regional demand for cassava products remains high, thus intensifying the need to invest in modern cassava processing technologies in the country.

INTERNATIONAL TRADE

The main local cassava-based products, particularly gari and tapioca, are traded and sold to regional markets (Nigeria, Burkina Faso, the Niger and Mali) and exported outside West Africa (the Republic of Equatorial Guinea, Gabon, Democratic Republic of the Congo and the Central African Republic), and even Europe (France and the United Kingdom of Great Britain and Northern Ireland). According to experts from the National Institute of Agricultural Research of Benin (INRAB), this situation offers Benin an opportunity to position itself advantageously in regional and international markets, with quality products in order to create a new dynamic for local cassava farmers, processors and traders.

External trade in cassava products is organized around three poles: Nigeria, Sahelian countries and Central African countries. The most traded products are gari and cassava chips. Most of these exchanges are based on clientelist relationships without the requirement to comply with legal standards. Thus, populations collaborate in defiance of inter-state legal provisions for their own advantages. No reliable data on Benin's imports and exports of cassava-based products have been found. Subregional trade in West Africa is poorly documented by the statistics of international and national institutions, often due to the informality of cross-border trade.

CASSAVA VALUE CHAINS AND STAKEHOLDERS IN BENIN

The two main by-products of the cassava value chain in Benin are gari and tapioca. The other by-products such as husks, starch, alcohol and flour, etc. are less commercialized at the moment. A functional analysis revealed the family and artisanal character that predominates throughout the cassava value chain. Previously considered as an emergency crop and essentially intended for self-consumption, the growing demand for cassava products (gari and tapioca) for urban centres and export channels is now creating interesting income opportunities, particularly for men who are at the centre of production and women who are at the centre of processing and marketing operations.

The actors in the cassava value chain are categorized as direct and indirect actors. Direct actors include input suppliers and service producers, collectors, processors, traders and consumers. Indirect actors include support institutions as well as projects, programmes and financial institutions.

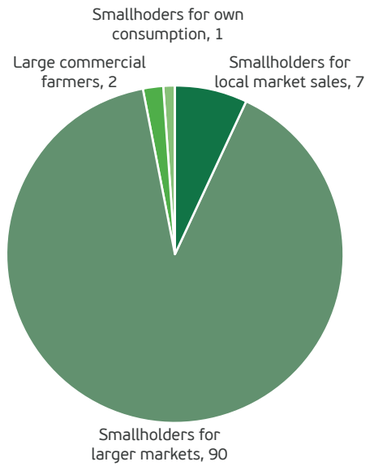
PRODUCTION

Despite the sector's growing dynamism, it is clear that cultivation practices, processing methods and marketing systems are still a matter for small-scale producers, who work in an artisanal manner. Cassava is grown on small plots (typically 0.5ha) as well as on large farms (average of 10ha), with little investment and very little use of external inputs: no fertilization and little use of herbicides and pesticides. Fresh cassava root producers are divided into three categories, namely small, medium and large producers. Small producers are the majority and exploit small areas (0.5ha and less). Medium-sized producers cultivate 0.5–1ha and the large producers in minority plant on at least 2ha (Figure 21). Cassava producers are structured into village groups of 20–30 members per group. The average yields among farmers using locally available varieties and technologies vary between 13 tons/ha and 18 tons/ha. The improved varieties can give a yield of 25–30 tons/ha. The producers sell the cassava stem in the field, sizing per kanti. The kanti is the local unit of land measurement that equals to approximately 400m². The profitability analysis revealed that the net profit per ha is approximately $160/ha. Where farmers have grown the higher-yielding cassava varieties and adopted GAP, profitability could be as high as $420/ha. Farmers produce cassava tubers, which, after harvest, go either directly to processors or through collectors to then undergo processing. These tubers can also be sold to traders or directly to consumers.

AGGREGATION

There are two types of collectors in the cassava value chain aggregating fresh cassava roots or gari for larger markets. They provide transport to link farmers or gari processors to other traders, who often buy in larger quantities than any of the smallholders can provide.

Figure 21: Market share (%) of cassava producer segments in Benin



Source: Field survey (2021).

PROCESSING

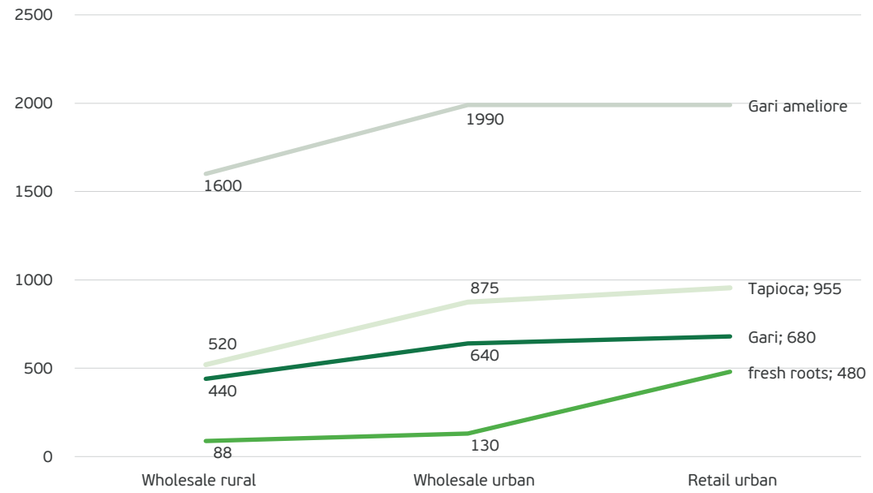
Processing is mainly done in village artisanal units and in semi-industrial units. The latter are based on the outskirts of urban consumption centres. There are also a few industrial units recently established in the centre (Savè) and south (Abomey-Calavi and Kétou) of Benin.

Cassava processing is done by three main actors in Benin. These are the industrial processor (YUEN alcohol factory in Logozohè in the Commune of Savalou for edible and pharmaceutical alcohol), groups of women processors and individual processors. An individual processor buys approximately 35 tons/year of fresh cassava. Women processor groups typically process approximately 6,100 tons/year of fresh cassava to gari, tapioca and lafun. These three cassava-derived products are heavily consumed by the local population. The processing link for gari is the most structured in the cassava value chain due to the support provided by the Roots and Tubers Development Programme (PDRT) to all actors in the sector. At the village level, there are cooperatives of cassava processors (coopératives villageoises de transformateurs de manioc), which are structured into unions of cooperatives (unions communale des coopératives des transformateurs de manioc) at the municipal and even regional levels.

MARKETING

The trade of cassava products is carried out mainly in the south and centre of Benin. Several categories of traders, including wholesalers, semi-wholesalers, collectors and retailers, are involved in the marketing of cassava fresh and derived products. This categorization is based primarily on working capital capacity. The wholesalers active in the markets are nationals of Nigeria, the Niger, Togo, the Democratic Republic of Congo and Gabon). The annual turnover (2020) of the largest wholesalers is $8,000–$50,000. Semi-wholesalers have lower working capital ($240–$640), but, thanks to the relatively faster stock rotation speed of this category of actors, they achieve significant cash flow ($6,000–$12,000/year). Collectors have very modest working capital and sometimes agents, on behalf of wholesalers, provide them with advances. Retailers (individuals and processors) are the actors with the lowest working capital. Traders usually deal in processed cassava and obtain these products directly from processors, through collectors or at the market to resell them to consumers. There are wholesalers, semi-wholesalers and retailers of cassava products in the surveyed areas. They operate individually or in groups.

Figure 22: Artisanal cassava product prices (USD/ton) in Benin



Source: Field survey (2021).

TRANSPORTATION

Fresh cassava is transported via bicycle, motorbike, small trucks, tricycles called kloboto and medium trucks called bachées. The quantity of fresh cassava that can be transported by bicycle and motorbike depends on the driver and the distance. The tricycle can contain up to 1.3 tons of fresh cassava and medium trucks can contain up to 2.5 tons of fresh cassava. The transportation cost depends on the distance, but is roughly $36 for medium trucks to transport cassava from field to processing unit.

INSTITUTIONAL SUPPORT SERVICES

Several institutions provide support to cassava value chain actors, mainly in terms of capacity building. The territorial agricultural development agencies (ATDAs) are decentralized structures of the State, more precisely of the Ministry of Agriculture, Livestock and Fisheries. They take the lead of the technical and organizational supervision of cassava producers through training on good farming practices and the supply of cassava cuttings for the establishment of cassava fields. The IITA and some NGOs have trained farmers and processors on good practices to enhance their capacities. Farmers in Benin have been trained on good agronomic practices to ensure maximum produce yield and given the dos and don'ts of planting IITA's improved varieties and other related training on production. Also, the IITA's Postharvest Unit, under technology transfer, has conducted a series of training at all levels of processing. There has been training of trainers in NGOs, community-based organizations, women's groups and others (even faith-based organizations), who later train end users, especially at the grassroots.

5.5. INVESTING IN CASSAVA: KEY FIGURES

The key indicators for investment in Benin's agricultural sector are presented in Table 12. There are many potential markets for processed cassava products. According to the Enabling the Business of Agriculture indicator score, Benin is 88th out of 101 countries, with the worst performance in registering fertilizer (0) and registering machinery (0), followed by a very low performance in supplying seed. This indicator highlights the main areas that deserve much more attention and, therefore, enough investment to accompany agricultural growth in Benin.

Benin's agricultural sector has undergone several reforms each aimed at increasing performance. Since 2016, the sector has undergone new changes, which have taken the form of the liquidation of certain former State structures and the establishment of a new organization. These include the establishment of structures such as:

- The territorial agricultural development agencies (ATDA);
- The Departmental Directorate of Agriculture, Livestock and Fisheries (DDAEP);
- The National Agricultural Development Fund (FNDA).

These various institutional reforms have been supported by the development of various strategic plans, including:

- Strategic Plan for the Development of the Agricultural Sector (PSDSA);
- National Plan for Agricultural Investments and Food and Nutritional Security (PNIASAN);
- Sectoral development plans, including for the cassava sector;

The regulatory framework is also enriched with other tools that are being adopted, such as: i) the Agricultural Orientation and Food and Nutritional Security Law (LOASAN); ii) the agricultural entrepreneurship strategy document; and iii) the law on inter-professions.

The Investment and Export Promotion Agency (APIEX), in partnership with UNCTAD, has had an online information platform for investors called iGuide since 2017 to further improve the legal and regulatory framework for economic activities.

INVESTMENT RISKS

Several factors still hinder the country's attractiveness:

- A high risk of corruption;
- An unfavourable business environment (Benin is ranked 149th out of 190 countries in the World Bank's Doing Business 2020 report);
- Poor quality of infrastructure and problems related to electricity supply;
- The impact of Nigeria's economic policy decisions on activity and tax revenues;
- The terrorist threat from neighbouring Nigeria (Boko Haram);
- Dependence on the cotton sector's high gross public debt (41.8% in 2020, IMF).

Table 12: Investment indicators in Benin's agricultural sector

Indicator	Unit	Cost	Average cost
Cost of farmland	USD/ha	354–6 195	3 549.5
Cost of land in rural areas	USD/ha	354–1 170	762
Cost of land in urban areas	USD/ha	3 540–53 097	28 318.5
Cost of electricity	USD/kWh	250	250
Cost of unskilled labour	USD/day	4–8	6
Cost of skilled labour	USD/day	5–10	7.5
Cost of transportation, Bohicon to port (153.3km)	USD one way	11	11
Cost of transportation, Abomey-Calavi to port (419.2km)		4	4
Cost of transportation, Parakou to port (153.3km)		18	18
Cost of transportation, Porto-Novo to port (36.8km)		5	5
Cost of transportation, Lokossa to port (118.2km)		13	13
Cost of transportation, Dassa to port (208km)		15	15
Enabling Business in Agriculture score (2019)		88	88
Doing Business (2020) score and rank: 52,4 (rank 149/190)			

Source: https://eba.worldbank.org/en/data/exploretopics/all-topics.

5.6. INVESTMENT OPPORTUNITIES IN CASSAVA IN BENIN

PRODUCTION OF FRESH CASSAVA STEMS AND ROOTS

Even though high-yielding improved cassava stems developed through research are available in Benin, their widespread adoption by farmers is low. This situation is mostly attributable to ease of access of these new varieties. There is an investment opportunity for the production of certified and high-quality cuttings and the operation of a trading system that allows local farmers to buy the improved cuttings. The adoption of these varieties, along with the recommended GAP, could increase local farm yield by an additional 10 tons/ha in Benin. The adoption of GAP means that farmers will have access to required farm inputs (fertilizers, phytosanitary products and herbicides, etc.) and agricultural machinery for more efficient land preparation, planting and harvesting of cassava.

PROCESSING OF CASSAVA-BASED PRODUCTS

Cassava-based products such as bread flour, starch, gari and tapioca are already popular in Benin. The quality, packaging and safety of these products is of concern, particularly among urban buyers and local elites desirous of a safe and convenient form of traditional cassava products. Investments in equipment, machinery and processes that meet the demand requirement are worthy of exploitation. In addition, cassava leaf is used in local diets. Therefore, cassava leaf processing for diet enrichment could provide additional opportunities.

MANUFACTURING OF NEW CASSAVA-BASED PRODUCTS

The use of cassava for the production of alcohol for pharmaceutical use and bioethanol has already been demonstrated in Benin by the YUEN alcohol factory. The demand for alcohol and bioethanol in Benin and in the ECOWAS region is beyond the capacity of this single factory. Additional investments producing ethanol from cassava or production of novel products such as starch plastic and starch-based textile fibres will open new markets and create new demand for fresh cassava roots in the country.

The development of the processing of these products will mainly be the result of private sector initiatives, but the public sector can encourage investment in these sectors through incentive-based regulations.

5.7. PROJECTS/PROGRAMMES RELEVANT TO BENIN'S CASSAVA SECTOR

Several projects support the different actors in the cassava value chains (Table 13). The Communal Approach for the Agricultural Market in Benin (ACMA) project is currently intervening in the cassava sector through technical and financial support. ACMA has provided processors with warehouses to store cassava-derived products. It has organized trainings and fairs in different regional markets (Nigeria and Burkina Faso). BeniBiz is a project implemented by TechnoServe that provides entrepreneurs in the cassava sector with financial management and business strategy.

Table 13: Institutions, projects and programmes relevant to Benin's cassava sector

Name of institution	Field of activities	Contact details
Territorial agricultural development agencies (ATDA)	ATDAs are responsible for promotion of the sectors (cassava in this case) in their agricultural development poles.	ATDA Pole 5: Tel.: +22997310849; +22995139605/61720812 E-mail: osogbossi@gmail.com
Communal Approach for the Agricultural Market in Benin (ACMA) implemented by the International Fertilizer Development Center (IFDC)	A combination of innovative research, market systems development and strategic partnerships to spread sustainable agricultural solutions for improved soil health, food security and livelihoods around the world.	E-mail: CDangbegnon@ifdc.org Website: https://ifdc.org/by-country/benin/
BeniBiz project implemented by TechnoServe	Training and consulting in business strategies and management skills and financial management.	Website: https://www.technoserve.org/news/technoserve-launches-new-initiative-to-improve-nutrition-through-entreprene/

Table 14: Institutions providing financial services for agriculture in Benin

Name of institution	Field of activities	Contact details
BETHESDA	Microfinance	Tel.: +229 21 32 15 49 E-mail: bethesda@bethesdabenin.org Website: https://bethesdabenin.org/
Faitiere Des Caisses D'epargne Et De Credit Agricole Mutuel (CLCAM)	Microfinance	Website: https://www.fececam.org/category/clcam/
UNACREP	Microfinance cooperative	Tel.: +229 69 06 12 27 – 97 66 50 77 E-mail: contact@unacrep.bj Website: https://unacrep.bj/
ALIDE	Microfinance	Tel.: +229 97 21 98 38 Website: https://www.alide-bj.org/#
PADME	Microfinance	Website: https://www.padmebenin.org/

LARGE DONOR- OR NGO-DRIVEN DEVELOPMENT PROGRAMMES ACTIVE IN BENIN

- United States African Development Foundation: Provided technical support through equipment and processing materials to women involved in cassava processing in Benin in 2017. It is estimated that these women can produce up to 450 tons of gari and tapioca with this support, with a turnover of CFA 175,500,000 ($31,000) per year.
- NGO Afrique Espérance, with the support of the Francophone Institute for Sustainable Development (IFDD), a subsidiary body of the Organisation internationale de la Francophonie (OIF): The organization supports women cassava processors at Zè to valorize cassava waste through the use a biodigester. The biogas is used as source of energy to prepare gari and other cassava-based products.
- Centre d'Intervention pour Le Développement (CIDEV): Supports women's groups in the marketing of their cassava-based products.
- NGO Group for the Promotion and Exploitation of Environmental Resources (GROPERE) and the Louvain Coopération: Provides support to women cassava processors in Mono on improved cassava processing techniques.

RESEARCH INSTITUTES THAT WORK ON CASSAVA IN BENIN

Table 15: Research institutes relevant to Benin's cassava sector

Institute	Role
National Institute of Agricultural Research of Benin (INRAB)	Implement participatory variety selection and develop crop management technologies. Several high-yielding and mosaic-resistant varieties have been selected and used by growers. INRAB also supports seed producers to make certified cuttings available to growers.
International Institute of Tropical Agriculture (IITA)	Developing improved varieties that are disease- and pest-resistant, have a low cyanide content, and are drought-resistant, early maturing and high yielding. Development of efficient and simple machines, equipment and tools that reduce processing time and labour, as well as production losses.
International Center for Tropical Agriculture (CIAT)	To increase yields by at least an additional 30% through continuous genetic improvement and improved agronomy as well as pest and disease management.

5.8. SWOT ANALYSIS OF BENIN'S CASSAVA SECTOR

Cassava has the dual advantage of being both a food and a cash crop. This has led to the implementation of a number of projects and programmes to promote root and tuber crops, including cassava. Research on cuttings, processing equipment and cassava conservation technologies has made significant progress. Despite these achievements, it is clear that the use of improved production and processing technologies and market access are still limited. Moreover, despite its proven socioeconomic importance, the cassava sector is one of the least structured commodity chains in Benin. Stakeholders involved in cassava value chains are only organized in four departments (Mono, Couffo, Zou and Collines), with two regional unions of cassava producers and 23 communal unions of cassava producers, which are not operational. Generally, these organizations need to be revitalized (Table 16).

Table 16: SWOT analysis of Benin's cassava value chain

	Inputs and services	Production	Artisanal processing
Strengths	▪ Existence of a national cassava sector development plan ▪ State decision to identify training needs and strengthen the capacities of multipliers in all agricultural development poles ▪ Support and advice to cassava seed multipliers by the ATDA ▪ Existence of INRAB regional research centre in Niaouli ▪ Development of two flagship sweet varieties popularized (BEN ▪ 86052 and RB 89509) ▪ Development of yellow-fleshed varieties ▪ Rich in beta carotene) ▪ Existence of seed producers ▪ Training of seed producers on in vitro plants ▪ Existence of companies distributing phytosanitary products and agricultural fertilizers ▪ Existence of collaboration (support and advice) between producers and ATDAs through communal units	▪ Existence of a national cassava sector development plan ▪ The existence of a growing market and demand ▪ Benin has land suitable for cassava production ▪ The climate is favourable to cassava cultivation, especially in pole development plans (PDAs) 4–7 ▪ Cultivation techniques are somewhat mastered by the producers following the various training courses they have received and the experience they have acquired ▪ Several improved varieties, adapted and resistant/tolerant to major diseases and pests, developed by INRAB are available ▪ The availability of potassium-based fertilizers (potassium chloride and potassium sulphate) currently subsidized by the government ▪ The existence of INRAB for the further development of new cassava varieties and the production of pre-basic cuttings ▪ The existence of a quality control directorate ▪ The availability of the territorial agricultural development agencies for the implementation of the cassava sector revival programme in Benin	▪ Existence of a national cassava sector development plan ▪ The existence of numerous semi-artisanal processing units in all the agricultural development poles ▪ The experience acquired by many groups of processors in the production of different qualities of gari and tapioca and hygienic lafun ▪ The existence of women processors of cassava into bread flour ▪ The existence of local workshops for the manufacture of cassava processing equipment in each pole development plan (PDA); ▪ The use of customized packaging by cassava processing workshops ▪ The willingness of the Grand Moulins du Bénin (GMB) to incorporate HQCF into wheat flour for bakery and pastry products; an agreement is being finalized between the GMB and the National University of Agriculture ▪ The possibility of using HQCF in brewing; this is already done in Togo, Nigeria and Ghana ▪ The possibility of making pasta from cassava and its consumption already in Benin, Nigeria and Togo

	Inputs and services	Production	Artisanal processing
Weaknesses	▪ Number of companies distributing plant protection products is insufficient ▪ Low number of cassava seed multipliers ▪ Low demand for cassava cuttings by producers ▪ No organization at national level for cassava seed growers ▪ Low valorization of research results	▪ Decline in soil fertility, coupled with the lack of mastery of improved cultivation techniques and the low use of improved clones ▪ The level of structuring of professionals in the sector is very low ▪ Rudimentary tools (hoes, cutters and knives, etc.) for cassava production ▪ Cassava harvesting is still done manually ▪ Poor access to credit for production, processing and marketing activities ▪ Difficulty in making large quantities of fresh roots available to factories and large processing centres per day ▪ The seed system is only functioning with the help of projects and programmes; it is practically at a standstill at the moment ▪ Proliferation of diseases in cassava fields due to the use of non-conforming cuttings of poor sanitary quality ▪ Very low use of mineral and organic fertilizers on cassava ▪ Difficulty in controlling pests such as francolins and rats, etc., which burrow into cassava in search of food and water, especially in the dry season ▪ Problems inherent in transhumance ▪ Bush fires	▪ Difficult access to inputs, equipment and credit for cassava processing (varieties adapted to each type of processing, semi-artisanal and modern processing equipment, and credit, etc.) ▪ Poor access to credit for production, processing and marketing activities ▪ High cost of electrical energy ▪ The low quality of cassava-based products produced in small quantities and their high production costs, which make them uncompetitive in the subregion's markets ▪ Very little diversification of cassava derivatives, limiting Benin's supply to as gari, tapioca, cassava chips and lafun, whose market expansion does not bring much to the Beninese economy and to the actors in the sector ▪ The capacity to process cassava, which is still based on small-scale systems using little appropriate equipment and characterized by the very variable quality of the cassava-based products obtained and low yields ▪ The import of certain cassava-based products due to the insufficiency of local production, which is carried out at costs that are not accessible to the majority of consumers
Opportunities	▪ The establishment by the government of a new coordination and monitoring mechanism of activities in the agricultural development poles	▪ Enhancement/strengthening of research findings to express the agronomic potential of innovations and greater articulation between research and the needs of producers and processors ▪ Growing demand for starch by the textile industry ▪ Existence of support projects such as the Programme d'Amélioration de la Productivité Agricole des Petits Exploitants (PAPAPE)	▪ Existence of a market not yet exploited ▪ Enhancement/strengthening of research findings to express the agronomic potential of innovations and greater articulation between research and the processors' needs ▪ Growing demand for starch by the textile industry ▪ Existence of support projects (PAPAPE and PADAM, etc.)
Threats	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic ▪ Risks of pollution of surface water due to the use of chemicals (fertilizers and pesticides)	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic ▪ Environmental pollution by waste, odours, washing water and infiltration of this water into the soil

	Industrial processing	Logistics	Trade
Strengths	▪ Existence of a national cassava sector development plan ▪ Existence of national, regional and international markets ▪ Growing demand for processed products	▪ Existence of a national cassava development plan	▪ Existence of a national cassava sector development plan ▪ Existence of a growing market and demand ▪ Existence of a marketing organization in the Plateau region
Weaknesses	▪ The low quality of the derivatives produced in small quantities and their high production costs, which make them uncompetitive on the subregional markets ▪ Difficult access to inputs, equipment and credit for cassava processing (varieties adapted to each type of processing, semi-artisanal and modern processing equipment, and credit, etc.) ▪ Poor access to credit for production, processing and marketing activities ▪ High cost of electrical energy ▪ Low compliance with quality standards (physical, nutritional and microbiological) ▪ Difficulty of physical and financial access to appropriate packaging of the various cassava-based products to be promoted ▪ Very little diversification of cassava-based products, limiting Benin's supply to gari, tapioca, cassava chips and lafun, whose market extension does not bring much to the Beninese economy and to the actors of the sector	▪ No existence of an inter-profession organization ▪ No structuring of other links in the value chains ▪ No producers' umbrella organization at national level	▪ Several clusters exist, but are not functional ▪ Degradation of access routes to markets ▪ Poor command of traceability and quality techniques ▪ Difficulty in controlling and marketing processed products ▪ Inadequate marketing based on the quality of the packaged product ▪ Development of marketing actions to promote local processing of cassava-based products ▪ The marketing of cassava and its products remains the least organized link in the chain; there are associations, but many actors do not belong to these organizations ▪ Weak interactions between actors in the different production links
Opportunities	▪ Growing demand for starch by textile industries ▪ Proximity of the Greater Nigeria market ▪ Existence of support projects (PAPAPE and PADAM, etc.) ▪ Intervention of many NGOs	▪ Growing demand for starch by textile industries ▪ Proximity of the Greater Nigeria market ▪ Existence of support projects (PAPAPE and PADAM, etc.)	▪ Growing demand for starch by textile industries ▪ Proximity of the Greater Nigeria market ▪ Existence of support projects (PAPAPE and PADAM, etc.)
Threats	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic	▪ Climate change ▪ Economic crisis triggered by the COVID-19 pandemic

6. CÔTE D'IVOIRE COUNTRY PROFILE

6.1. COUNTRY OVERVIEW

Cote d'Ivoire, formerly known as the Ivory Coast, is a tropical country located in the southern, coastal West African subregion, on the Gulf of Guinea, and bordered by Mali, Burkina Faso, Liberia, Guinea and Ghana. It is a transition zone between the humid and rainy equatorial climate that characterizes the southern part of the country and the dry tropical climate of the north, with average annual temperatures of 24°C–28°C.

A single-party rule, which was accompanied by political and social stability, existed until 1990. After the ensuing two decades of multiple political parties that were marred by violence, the country has become an increasingly stable presidential democracy. The population is scattered across 31 regions or provinces, with important metropolitan areas such as Abidjan, the capital, Yamoussoukro, Man, San Pédro or Korhogo dubbed by the World Bank as global, subregional and domestic connectors.[44] The cultural setting is diverse, with more than 60 different ethnic and tribal groups, the most dominant being the Baoulé (23% of the population). The country's openness and hospitality, combined with a prosperous economy, have contributed to attracting a large number of African immigrant workers, mostly from neighbouring Guinea, Ghana and Burkina Faso, as well as a strong community of Lebanese expatriates. Together, these workers are estimated to represent nearly 20% of the country's population, contributing to the vibrancy of the economy and the social life.

Cote d'Ivoire – key facts	
Capital city	Abidjan
Area	322,463km²
Population, total	25.7 million
0–14 years	*41.7%*
15–65 years	*55.4%*
Youth literacy (15–24 years)	58.4%
Male (%)	*63.8%*
Female (%)	*53%*
GDP (nominal, USD billion, 2019)	$58.8 billion
GDP growth (real, 2014–19)	7.4%
FDI, inflows	$1 billion
Gross domestic private investment	$10.9 billion
Employment to population ratio (+15years)	55.1%
Employment to population ratio (15–24 years)	32.8%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	23.5% of GDP (13.9)
Main exported products	*Cocoa; mineral fuels and oils; edible fruit and nuts*
Imports of G&S, 2014–19 (USD billion, 2019)	22.1% of GDP (13.2)
Main imported products	*Mineral fuels and oils; cereals; vehicles*
Inflation, 2014–19 (2019)	0.38% (-1.11%)
Bank credit to private sector	19.6% of GDP
Gov. expenditure	$10.2 billion
Gov. revenue	$8.3 billion
Total public debt	$22.2 billion
Currency	CFA franc (XOF)
Language	French (official), Agni, Baoule, Mande and Senofu

Note: Data for most recent years is shown.

Sources: World Bank; International Monetary Fund (IMF); UNCTAD and Comtrade.

44 Throughout the text, 'subregion' refers to West Africa (ECOWAS), while 'region' refers to the whole continent.

6.2. BROAD ECONOMIC OVERVIEW

A COMPETITIVE AND INNOVATIVE ECONOMY

The economy is the 118th most competitive economy in the world, 14th in Africa and 5th in West Africa according to the 2019 World Economic Forum's Global Competitiveness Index. This relatively strong position is explained by macroeconomic stability (1st in the subregion), as suggested by the low inflation and low public debt (see key facts table), in addition to the quality of its infrastructure network, the extent of information and communications technology (ICT) adoption, the large market size and the strong business dynamism, in which the country comes 3rd in the subregion.

The country ranks 112th globally, 15th in Africa and 4th in the subregion according to the Global Innovation Index (co-published by Cornell University, the Institut Européen d'Administration des Affaires (INSEAD) and the World Intellectual Property Organization). The overall index is 21.2/100. The contributing factors to this relatively strong innovative drive are the extent of market sophistication (ranked 1st in the subregion), high-quality institutions (2nd) and the quality of knowledge and technology outputs (3rd).

STRONG INSTITUTIONS

When it comes to political institutions, the World Bank ranks the country 139th globally, 19th in Africa and 8th in West Africa. Regulatory quality and government effectiveness are the country's most advanced component elements, with 4th and 5th positions respectively in the subregion.

HIGH-QUALITY INFRASTRUCTURE

The African Development Bank's Africa Infrastructure Development Index positions the country 21st in Africa and 5th in the subregion for the level of development of its infrastructure, with an overall score of 24.2/100. This position is mostly driven by the highly developed information and communications technology (ICT) and energy infrastructure. Furthermore, the World Bank rates the country's logistics system 50th globally, with a score of 3.08/5. It is the 2nd most performant in Africa, behind the Republic of South Africa. It even tops Africa's ranking when it comes to the competence and quality of logistics services.

STRONG INVESTMENT POTENTIAL

When it comes to the ranking of the Market Potentials Index developed by the Michigan State University's International Business Center, Cote d'Ivoire tops the list in West Africa. It comes 3rd in Africa (with the Republic of Tunisia), and 69th worldwide. This is mainly due to its relatively large market size, strong market growth and market intensity, and its relatively low country risk.

6.3. INVESTING AND DOING BUSINESS IN COTE D'IVOIRE

FASTEST-GROWING ECONOMY IN WEST AFRICA, 2ND IN AFRICA

Cote d'Ivoire grew at an average of 7.4% in 2014–19. It is the largest economy, GDP-wise, in French-speaking West Africa, 3rd in the whole subregion, behind Nigeria and Ghana, and 8th in Africa. Growth has been mainly driven by the dynamism of the manufacturing and services sectors, as well as the strong performance of the agricultural and international trade sectors. The COVID-19 pandemic slowed growth to 1.8% in 2020, down from an initially projected rate of 6.7%, according to the IMF, as a result of 'a temporary drop in consumption, stagnating investment, and slower growth in net exports', as well as some disruption in the supply chains and labour market.

RELATIVELY LOW COST OF DOING BUSINESS AND FRIENDLY ENVIRONMENT

The economy's dynamism has been a key driver of FDI inflows, which topped $1 billion in 2019, the third-largest in West Africa. An additional driving factor is the conduciveness of its business environment.

Starting a business in Cote d'Ivoire (outside the SEZ) requires only four procedures (the second-lowest in Africa):

(1) Open a bank account and deposit the minimum capital at the bank (at least XOF 25,000, or $62, which corresponds to the minimum for a Société à Responsabilité Limitée – SARL, or limited liability company); alternatively, the start-up capital can be deposited with a notary against a statement certifying the deposit;

(2) Register at the one-stop shop (Centre de Promotion des Investissements en Cote d'Ivoire – CEPICI), which also involves formalities with the commercial registrar (Régistre du Commerce et du Crédit Immobilier), the tax authority (Direction énérale des Impots) and the social security institute (Caisse Nationale de Prévoyane Sociale); afterwards, the company can request the publication of the legal notice of incorporation, which is done on the CPICI website (http://www.cepici.gouv.ci/);

(3) Obtain a company seal at any seal maker;

(4) Notify the local tax authority (Centre des Impôts) of the company's address.

All of these procedures can take up to six days, with corresponding fees amounting to XOF 25,000 ($45.5).

Additionally, **registering property**, either for commercial or residential use, takes up to 39 days, at a cost averaging 7.1% of the property value. Investors considering a construction project typically obtain a **permit** within 163 days, with 22 procedures and fees amounting to 5.9% of the total costs.

Equality of treatment is guaranteed to all investors, foreign and national alike, when it comes to all business-related formalities.

The **labour force** is relatively large, with 8.5 million participants, representing 33.2% of the total population. Of this active population, employment is 55.1%. Human capital, the productivity level of a typical worker allowed by their actual education and health, is estimated at 0.37 by the World Bank. Minimum wage is approximately XOF 60,000 ($109.1) per month, mostly paid to low-skilled workers. A typical worker earns between XOF 85,300 ($155.1) per month (lowest average) and XOF 1,500,000 ($2,727.3) (highest average; actual maximum salary is higher), depending on the skills and industries.

Furthermore, when it comes to foreign labour, visa rules are very accommodating, as expatriates outside ECOWAS obtain a duration of stay corresponding to the business or employment duration, with no ceiling or limits, while those from the subregion receive national treatment.

Energy is among the cheapest in the subregion, at XOF 69.3 ($0.12) per kWh of electricity. It can be obtained within 53 days (approximately half the African average). Two-thirds of the population has access to electricity, the supply of which is considered among the most reliable in Africa, and its tariff index is among the most predictable on the continent.

As part of the construction permit procedure, a **water** connection request is submitted free of charge to the Société de Distribution d'Eau de Cote d'Ivoire (SODECI), which undertakes an inspection within a week of receipt of the request. Obtaining water usually occurs seven days after the payment of XOF 130,000 ($2,363.6) is made. On average, the variable tariff escalates from $0.53 to $0.73 and $0.86 per cubic metre for total monthly consumption thresholds of 15, 50 and 150 cubic metres respectively.

When it comes to **physical infrastructure**, the country possesses a well-developed road network, the second-largest port in West Africa, a modern airport with a national airline carrier (Air Cote d'Ivoire) that serves all of the major capital cities in the subregion, and a transnational railway network with more than 1,260km of metre-gauge track between Abidjan and Ouagadougou. As part of a modernization project agreed to between Cote d'Ivoire and Burkina Faso in July 2019 (postponed due to the COVID-19 pandemic), the railway will add significant capacity, going from 800,000 to 5 million tons of freight per year, and 200,000 to 800,000 passengers per year.

The **tax system** is also relatively attractive. The number of payments per year is the lowest in the subregion (just 25 per year). Overall, businesses are expected to pay total taxes and contributions that represent 50.1% of profits. Profits are taxed at a rate of 8.8%, the 6th lowest in Sub-Saharan Africa. Payroll taxes are levied at 2.8% for local employees and 12% for expatriate employees on the total taxable remuneration, which includes salaries and benefits, both monetary and in kind, irrespective of the level and skills. Social security contributions are 2%–5% (work injury) to 7.7% (retirement pension). A real estate tax is imposed at 1.5% for undeveloped land, 4% on land revenue and 11% on developed land, or 15% when the built property is used by the company itself, while the rate is reduced to 4% for unoccupied buildings. All individual income is pooled and subject to a general income tax that ranges from 2% (less than XOF 2.2 million or $4,000 per year) to a maximum of 36% (XOF 50 million or $90,909.1).

Value-added taxes are 18% for most sales, and reduced rates apply to specific products such as milk, infant food and equipment for solar energy, all being taxed at 9%.

Customs duties are governed by the ECOWAS CET, in place since 1 January 2015. Imported commodities fall into one of the five tariff bands: essential social goods such as medicines (0%); goods of primary necessity, raw goods and capital goods (5%); intermediate goods and inputs (10%); final consumption goods or finished goods (20%); and specific goods for economic development (35%). The CET is accompanied by various measures aimed at protecting some industries and guaranteeing fair competition throughout the liberalized subregional markets. They include safeguard measures, anti-dumping measures, anti-subsidy and countervailing measures, and supplementary protection measures.

The **banking and financial system** is very accommodating. It comprises 27 banks of national, continental and international reach (in 2018), a large number of microfinance institutions (some 211 in 2016) and a **subregional stock market** (Bourse Régionale des Valeurs Mobilières). With a regulatory capital-to-risk weighted asset of 10.9% and an interest rate on loans averaging 7.7%, the banking system is relatively sound and stable, and is accommodating to investors, domestic and foreign alike.

The credit availability coverage ratio is the largest in West Africa, with 22% of adults benefitting from loans. In addition, the depth of credit information is greater in Cote d'Ivoire than anywhere else in Africa.

The system is also open to **foreign capital and transactions**, to the extent that international money and capital transfers are relatively free, and FDI companies (and any other private companies and individuals) can hold foreign currency bank accounts.

The **fixed exchange rate** of the common currency (common to eight countries that make up the WAEMU) against the euro is €1 = XOF 655.96. Its fluctuation against the USD reflects that of the euro against the USD and, in 2014–19, it ranged between XOF 520 (26 January 2018) and XOF 627.6 per USD (16 February 2016).

The Centre de Promotion des Investissements en Cote d'Ivoire (CEPICI) is the body in charge of promoting investment and the business environment in the country. Investors, both national and foreign, can also benefit from a host of services and fiscal incentives provided by the country's only SEZ, located in the city of Grand-Bassam. The Technology Park of Grand Bassam hosts companies engaged in biotechnology or information and communications technology (ICT), and approval must be obtained from CEPICI. Incentives include 0% customs duty, 0% value-added tax (VAT) and 0% tax on commercial and industrial profits for the first five years of operations, followed by a 1% rate with the possibility of a tax credit.

A new cross-border SEZ is under development, located in Sikasso (Mali), Korhogo (Côte d'Ivoire) and Bobo-Dioulasso (Burkina Faso) – the SKBo triangle. It is part of the ECOWAS Cross-Border Initiatives Programme launched in 2005, aimed to increase cooperation frameworks along intra-community borders. If operationalized with a clear legal framework, this uniquely exclusive SEZ will provide additional fiscal advantages for domestic and foreign companies that decide to invest in prioritized sectors such as agribusiness and mining.

Overall, Cote d'Ivoire's business environment matured substantially in 2010–19. The economy's strong dynamism, the increasingly stable political and social environment, the friendliness of the legal and regulatory framework, and the readily available high-quality, low-cost inputs are among the key factors that make Cote d'Ivoire a favourable destination for foreign investment.

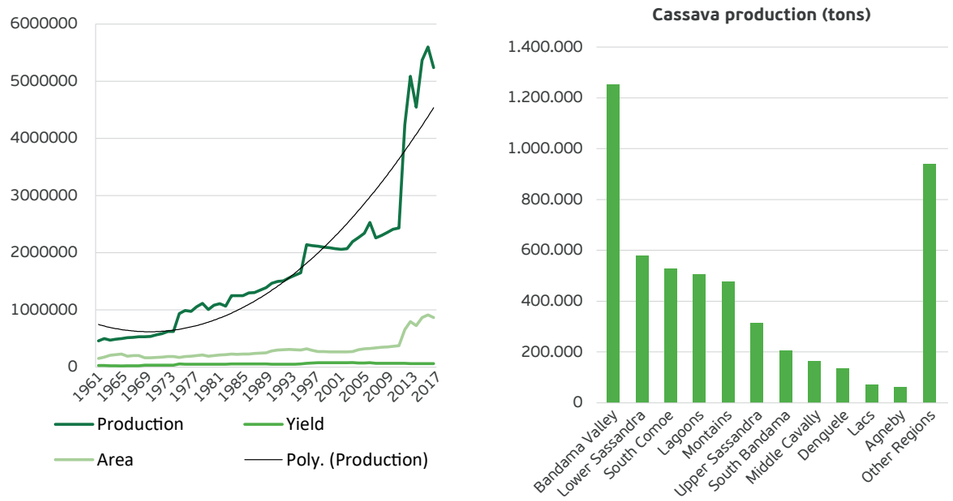
6.4. CASSAVA IN CÔTE D'IVOIRE: AN OVERVIEW

Côte d'Ivoire is one of the leading cassava producers and consumers of cassava in Sub-Saharan Africa. Since 2017, the production of cassava in Côte d'Ivoire has surpassed 5 million tons (Figure 23), placing the country in the 3rd position in West Africa behind Nigeria and Ghana (FAOSTAT, 2021). Cassava is the second most consumed product after rice and before yam in Côte d'Ivoire. It is the third-richest food in calories after rice and corn. Cassava is one of the two priority food crops in Côte d'Ivoire's food security policy in the National Agricultural Investment Plan (PNIA). Many farmers depend on cassava growing in Côte d'Ivoire and cassava is grown in almost the whole country. The largest production zone used to be the lagoon region (40%). However, the central and central-western regions, strongly supported by several production improvement projects, are becoming the leading cassava-producing regions in Côte d'Ivoire.

The cassava production system remains an extensive, rain-fed system with small-scale producers largely using low-yielding traditional varieties with little or no fertilizer on small (0.5–2ha) plots (Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles – FIRCA, 2018). Apart from community fields and a few industrial fields, cassava is associated with food/vegetable crop and cash/perennial crop. No form of mechanization or irrigation is practiced, and cassava is produced and harvested manually. A,de range of local and improved varieties are used by producers. New improved high-yielding varieties have a production potential of 32–34 tons per hectare (N'zué, et al., 2014) with on-farm yields of 20–30 tons per hectare. They highly contributed to a change in production logic that is increasingly oriented towards commercial agriculture. Local varieties such as yacé, bonoua, zoglo, agba-blé and kaman are still grown for the quality of their fufu (local dish).

Cassava is planted as soon as the first rains become stable and the previous harvest takes place, depending on the region, the production objectives, the needs and the speed of maturation of the varieties (Figure 24). The rainy season lasts for 6–12 months in the forest and humid transition zones and 6–18 months in the transition and savannah zones. Harvesting in the dry season is usually avoided due to labour costs and the impossibility of replanting the removed cuttings in new fields.

Figure 23: Cassava production in Côte d'Ivoire (tons) (1961–2019)



Source: Adapted from: FAOSTAT (2021); Rongead (2015); FIRCA (2019) (Pro2M).

Figure 24: Season calendar of cassava planting and harvesting in Côte d'Ivoire per region

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Forest zone and humid transition												
Planting												
Harvest (1st year)												
Harvest (2nd year)												
Transition zones and dry savannah												
Planting												
Harvest (1st year)												
Harvest (2nd year)												

Source: FIRCA (2019).

CASSAVA TRADE IN CÔTE D'IVOIRE

DOMESTIC MARKET

In Côte d'Ivoire, cassava is traded in various forms/products (Table 17). In addition to fresh bitter and sweet cassava trading, attiéké, placali and starch are the most traded products in the country. Due to high transportation costs, especially for fresh cassava, production areas close to major urban consumption areas are encouraged. Currently, the largest attiéké processing units are in the major consumption centres such as Abidjan, Bouaké, San Pedro and Yamoussoukro. These units are generally supplied locally and mainly sell their products locally to limit transport costs and to supply in time.

Table 17: Preferences for cassava products and dishes by region in Côte d'Ivoire

Region	First preference	Second preference	Third preference
Central (Bouaké)	Cossette/chips	Placali	Attiéké
South	Attiéké	Placali	Plantain fufu mixed cassava
West	Cassava fufu	Cossette/chips	Attiéké/placali
North-east	Cossette/chips	Cassava fufu, mixed plantain/yam	Attiéké, gari, cassava fufu

Source: Discussion with producers and traders; field work (2021).

Cassava is largely consumed in Côte d'Ivoire as:

- Human food (fresh sweet cassava roots, cassava leaves and processed products such as attiéké, attoukpou, placali, gari, foufou, chips, tapioca, bread flour, pastry products, cassava cakes, beer, liquor, food starch and starch for soups);
- Animal feed (cassava leaves, bark of the stems, dried skin of the roots (peelings) and the dried flesh (chips);
- Industrial uses and other transformation (alcohol for pharmaceutical use and bioethanol, starch plastic and starch-based textile fibres and toothpaste) (Table 18).

Cassava's multiple uses depend on the type of variety, but also on the eating habits of the different ethnic groups in the country (Table 17). Sweet cassava is mainly used for the preparation of fufu (foutou) and akpessi (boiled cassava pieces) or braised, while bitter cassava is commonly used in processed products (placali, attiéké, attoukpou, bread flour, starch, chips and gari, etc.).

Two types of cassava starch are produced and sold in domestic markets: fresh starch and dry powdered starch. The semi-wholesale prices are $748–$1,126/ton. In the non-food sector, laundries are the main end users of starch for stiffening cotton fabrics after washing prior to ironing. In the industrial food sector, Nestlé and Unilever are the main users of starch. Today, the two companies cannot satisfy their increasing demand by local supply. Hence, they import the starch used by these multinational companies (mainly corn starch) from the EU.

Table 18: Products from diverse cassava processing types in Côte d'Ivoire

Products	Product description	Products	Product description
 Fresh cassava tubers	Type of processing: Unprocessed	 Dehydrated attiéké	Type of processing: Artisanal and semi-industrial
 Akpessi	Type of processing: Unprocessed Description: Boiled pieces of sweet varieties of cassava eaten directly with a pumpkin sauce.	 Attoupkou	Type of processing: Artisanal Description: A slightly acidic white cake from fermented and pressed paste placed in a layer in a perforated dish over a pot of boiling water.
 Foutou/Fufu	Type of processing: Unprocessed Description: Soft or solid paste of sweet varieties of cassava obtained after a prolonged crushing of manioc cooked in water.	 Gari	Type of processing: Artisanal Description: Like attiéké, gari is obtained from a fermented and pressed puree. The crushed and sieved pressed semolina is roasted, unlike attiéké.
 Placali (fermented and pressed paste	Type of processing: Artisanal and semi-industrial Description: Prepared for export to neighbouring countries such as Mali and Burkina Faso, where it is used as an intermediate product to produce attiéké	 Starch	Type of processing: Semi-industrial and industrial Description: Starch is used in the food and non-food industries. Cassava starch is usually a by-product of the valorization of processing waste.
 Placali (traditional dish)	Type of processing: Unprocessed Description: Made from fermented cassava paste of sweet or bitter varieties, pressed and cooked in the bottom of a pot.	 Dried cassava chips (cossette/ konkode)	Type of processing: Artisanal and semi-industrial Description: Dried cassava chips from cutting fresh cassava roots into pieces. Used as livestock feed or pounded into flour to produce a cooked paste like placali, but prepared from the flour obtained after milling the pods.
 Fresh attiéké	Type of processing: Artisanal and semi-industrial Description: Fermented cassava semolina steamed. Typical traditional product of Côte d'Ivoire (garba is considered a low-end attiéké, while abodjama is a high-quality attiéké).	 Tapioca	Type of processing: Artisanal and semi-industrial Description: A soft or solid paste of cassava made from a powder obtained from peeled cassava pieces dried in the sun. Widely consumed in western Côte d'Ivoire.
 Cassava flour for bread	Type of processing: Artisanal and semi-industrial Description: Cassava is grated and dried to form flour for bread (HQCF). Thanks to the joint initiatives of the West Africa Agricultural Productivity Program (WAAPP)/National Union of Bakers of Cote d'Ivoire and the government initiative to introduce up to 15% cassava bread flour in bread production.		

Source: Field survey (2021).

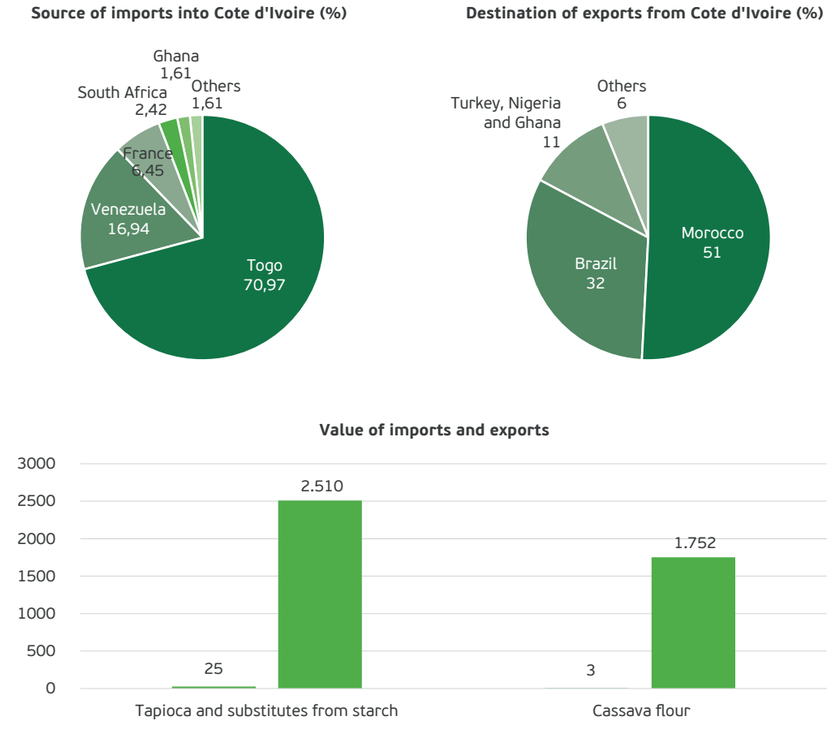
Approximately 45%–50% of cassava produced in Côte d'Ivoire is sold on urban markets in the country. The main physical markets are in the four main regions (central, south, west and north-east). The wholesale market of Bouaké in central Côte d'Ivoire is mainly a transitional market for exporting (70% export, 20% to Abidjan and 10% for the local market in Bouaké) cassava-based products out of Côte d'Ivoire. The West Center Market (Daloa and Gagnoa) is an important production area for cassava, but far from the major consumption centres (Bouaké and Abidjan). It primarily supplies the centres of Man and San Pedro, but also delivers to the Abidjan markets. The lagoon region (Abidjan) is a natural production and consumption area for cassava and derived products. The south-east region (Aboisso and Bonoua) is also one of the main traditional production areas. However, cassava cultivation tends to decline in this region due to strong competition from perennial export crops. In Abidjan and its suburbs, individual retailers usually obtain their supplies from collector–wholesalers, wholesalers and producers. Retailers are supplied by producers in urban markets as part of the sale of urban and peri-urban food crops. Inland, they are mostly supplied at the farm gate and the local rural markets; hence, they are called collector–retailer. Supermarket (mass) distribution is recent. To date, more than 342 stores or sales outlets have been opened in Abidjan under a wide variety of brands.

INTERNATIONAL TRADE

The wholesale market of Bouaké in central Côte d'Ivoire supplies more cassava products to external markets (Burkina Faso and Mali) than to national and regional markets (70% export, 20% to Abidjan and 10% for the local market in Bouaké). In addition to the domestic trade trend, cassava and its derivatives are increasingly demanded internationally. Four main product groups are involved: fresh cassava tubers, pressed and fermented paste, semolina (gari and attiéké) and tapioca. The last two products represent more than 85% of annual exports in 2014–19. Although not well documented by official statistics, Côte d'Ivoire is the third-largest exporter of cassava in the West African subregion behind Ghana and Nigeria. Côte d'Ivoire exports placali and attiéké to Mali and, to Burkina Faso, more than 4,000 tons of cassava and derivatives in 2014, mainly placali for attiéké.[45]

The main cassava products imported by Côte d'Ivoire are cassava flour, starch and tapioca. Since 2017, Côte d'Ivoire imports those cassava products mainly from Togo (71%) and the Bolivarian Republic of Venezuela (17%), followed by France (6.45%), South Africa (2.42%) and Ghana (1.61%). The products imported from Togo are mainly composed of tapioca.

Figure 25: International trading partners and value of import and export (USD thousands) of cassava products in Côte d'Ivoire



Source: https://comtrade.un.org/..

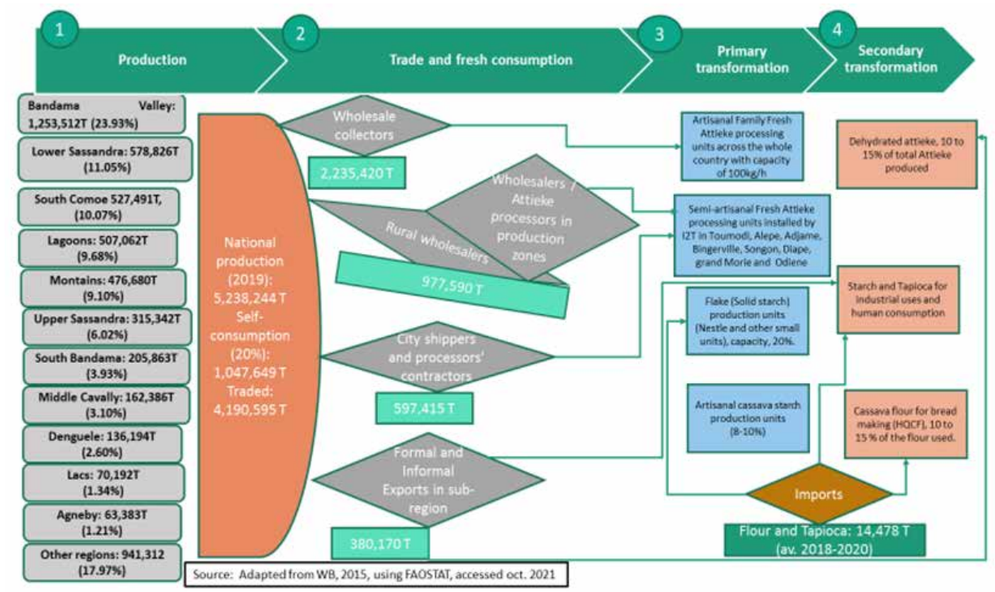
45 *Source*: https://www.trademap.org/Country_SelProductCcountry_TS/.

6.5. THE CASSAVA VALUE CHAIN AND STAKEHOLDERS IN CÔTE D'IVOIRE

Cassava value chain actors comprise input suppliers (producers of improved cuttings and distributors of chemical inputs), cassava traders in the country, sample collectors, wholesale collectors, wholesalers, retailers, small-scale processors, industrial processors, and logistics and transport (Figure 26).

Input dealers mainly supply pesticides (89%) and fertilizers (11%) in addition to modern and local agricultural tools. They generally do not have formal contractual relationships with their customers. Nevertheless, they cover 75% of their clients' demand. Only 33% of distributors comply with the standard norms of the Ministère de l'Agriculture et du Développement Rural (MINADER). Cassava stem cutting suppliers are made of only 100 nurserymen (including 12 women) belonging to the national association (AFEMC-CI, Association des Femmes Chercheurs de Cote d'Ivoire) and installed in 10 agricultural zones across the country. In 2021, they produced cuttings to cover approximately 1,500ha of cassava field. This shortfall in the use of improved cassava plant in the country is an opportunity for potential investors in the sector.

Figure 26: Structure, flows and actors in the cassava value chain in Côte d'Ivoire



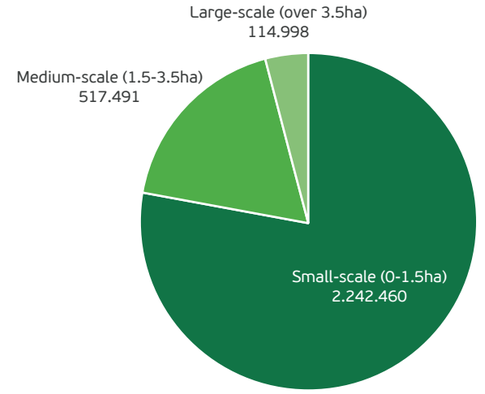
Source: Adapted from the World Bank (2015) using FAOSTAT. Accessed October 2021.

Cassava producers (farmers) are mostly women (>60%) smallholder farmers on individual or collective small plots (0.5–2ha). There are also a few entrepreneurial units (Figure 27). Cassava traders are dominated by women (90%), mainly (67%) retailers, followed by fresh cassava wholesalers (20%), attiéké wholesalers (11%) and placali wholesalers (2%). The majority of traders are retail traders of attiéké (27%), followed by retail traders of fresh cassava (25%), then retail traders of placali (15%). The marketing activity with the fewest traders is the wholesale marketing of placali (2% of traders). Small-scale cassava processors transform approximately 95% of total cassava produced in the country through this channel (Figure 28). Only the remaining 5% of the total cassava produced is transformed using the industrialized processing (poorly developed) channel by a few enterprises. The wholesale and retail prices for the different cassava products fluctuate according to several parameters, the most important of which are the nature of the product, the unit of measurement and the seasonality. Transport and logistics are major constraints to supplying cassava markets in Côte d'Ivoire, with poor logistics and transport infrastructure and means, which translates into high and increasing transport costs.

Cassava is marketed in Côte d'Ivoire by cassava producers, processors, wholesalers and mainly by retailers. The wholesale traders of fresh cassava transport the products to the cities, where they sell them to retailers or urban cassava processors. Wholesalers send cassava on the urban market using pick-ups or small trucks. Abidjan's demand for bitter cassava, mainly for processing into attiéké, is enormous and the supply areas of the lagoon and Sud-Comoé can no longer meet this demand. Hence, Abidjan is complementarily supplied by the centre (Yamoussoukro and Toumodi) and centre-west (Zuénoula, Daloa and Divo) for attiéké and placali and the east (Indénié–Djuablin) for fresh bitter cassava.

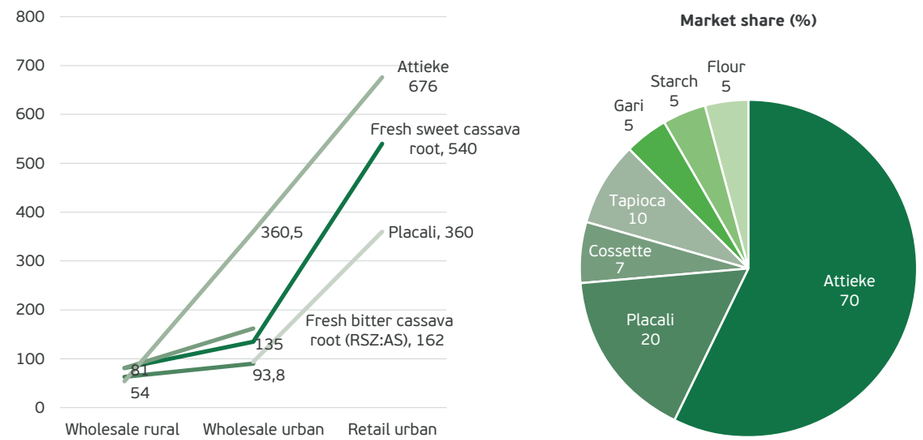
The sale of cassava starch on local markets is carried out by cooperatives of processors and independent retailers who buy from wholesalers. The wholesalers sell an average of 30 tons/year of cassava starch.

Figure 27: Cassava farmers' segmentation by land size occupied (ha) in Côte d'Ivoire



Source: Calculated from FIRCA (2019) and FAOSTAT (2021).

Figure 28: Market share (%) and prices (USD/ton) of cassava and cassava products in Côte d'Ivoire



Source: Calculated from FIRCA (2019); Mendez et al. (2017); field trip (2021) and Rongead (2015) using FAOSTAT (2021) and Office d'aide à la Commercialisation des Produits Vivriers OCPV (2021) (9 to 15 August 2021).

6.6. INVESTING IN CASSAVA: KEY FIGURES

In Côte d'Ivoire, the government's political commitment to support the transformation of the agricultural products value chain is translated by the adoption of a new code of investment. This new code is more incentive than the previous one and offers a reduction of 40%–50% of customs duties on equipment against 5% in the previous code. It also offers value-added tax (VAT) exemption on equipment, regardless of the amount of investment, and eligibility of SMEs and encouragement to create industrial units in marginal areas (Zone C). The investment thresholds, excluding taxes and working capital, for large companies have been set at CFA 200 million for the minimum threshold and CFA 1 billion for the maximum threshold, compared with CFA 500 million and CFA 2 billion in the previous code. For SMEs, the minimum threshold was set at CFA 70 million and the maximum threshold at CFA 200 million. The main investment indicators for Cote d'Ivoire's agricultural sector are presented in Table 19.

Table 19: Investment indicators for Côte d'Ivoire's agricultural sector

Indicator	Unit	Cost
Cost of farmland[46]	CFA/ha/year	20 000–35 000*
Cost of land in rural areas[47]	CFA/m2	2 000–2 500
Cost of land in urban areas	CFA/m2	5 000**
Cost of electricity[48]	CFA/kWh	10 184
Cost of unskilled labour (production)	CFA/day	1 500–3 000
Cost of unskilled labour (processing)	CFA/day	4 500–5 000
Cost of skilled labour (production)	CFA/day	3 500–6 000
Cost of skilled labour (processing)	CFA/day	8 000–10 000
Cost of transportation: Capital to port (km)[49]	CFA one-way	30 000–40 000
Enabling Business in Agriculture score (2019)		45.87
Ease of doing Business, rank (2019) over 190	Rank	110

Notes: *Rural areas rent of land varies largely across region. The lowest costs are observed in the central region, where lands are still available, while it is more costly in the south and south-east regions.
**According to our investigations, the cost of land in urban areas is FCFA 5,000 per m2. The average conversion rate of $554.79 for CFA 1 (2021 based) is used.
Sources: Field trip (2021); Mendez et al. (2017); World Bank (2020), Doing Business.

To support the development of agricultural value chains and product processing, the Government of Côte d'Ivoire has put in place various strategies and programmes that have identified yam, cassava and plantain as strategic products for agricultural growth. Hence, several programmes and projects in production, transformation and marketing of food products have been engaged by the Ministry of Agriculture (MINADER) to support the sector's development.

Access to land for cassava production is mostly by inheritance throughout the whole country. Purchase of land is more common in the Abidjan district, while land rent is more prevalent in the Indénié–Djuablin and Abidjan districts. In Côte d'Ivoire, the legal and regulatory framework for accessing land, organizing actors in professional associations and trade in products, particularly food products, includes several legal texts.

46 This is the price for renting land for one year on average. This varies from region to region.

47 This is the unit (m^2) cost for buying land in rural areas where it is feasible.

48 This is the maximum charged. The detailed cost per payment mode and billing can be consulted directly on the CIE website at https://www.cie.ci/particuliers/vos-consommations/tarifs-electricite.

49 Transport costs vary largely across the country according to transport means used and mainly due to the state of the roads. The transportation cost increases further from the main tarred roads. These figures are for a fully charged pick-up of fresh cassava (2–2.2 tons) on 25–30km around Bouaké.

6.7. INVESTMENT OPPORTUNITIES IN CASSAVA IN CÔTE D'IVOIRE

The cassava value chain in Côte d'Ivoire presents many opportunities for developing profitable and inclusive businesses for an efficient and competitive cassava value chain that creates more jobs and more wealth.

AT PRODUCTION LEVEL, FOR IMPROVING PRODUCTIVITY AND PRODUCTION

There is a strong potential impact of improving on-field yield building on the work already done by the West African Agricultural Productivity Programme (WAAPP), intensifying the introduction of new varieties and improved technologies. This can be achieved through the creation of enterprise fields employing young women and men farmers or through contract farming where industrial/private enterprises sign production-oriented contracts with farmers ensuring purchase of all their output at harvest. There is a high potential impact for creating *wood and seedlings parks* (for cassava cuttings) to upscale the use of new improved cassava varieties.

AT THE BASIC PROCESSING LEVEL

There is an opportunity to *set up village mini units* near the production areas for the primary processing of fresh cassava. This will help to reduce transportation costs and post-harvest losses. For a better realization of this investment opportunity, in addition to the question of financing and management of the facilities, it would be necessary to provide training of technicians for the mastery of extraction techniques, and also for the maintenance of the machinery. This will create employment opportunities for young people.

Placali and attiéké processing can be particularly profitable for all operators (producers, wholesale collectors, processors and retailers), especially in large cities where demand and prices are high (Abidjan and San Pedro), or for export to the subregion. The income earned by processors also depends on whether they share profits equally or according to a boss/employee model. Placali processing in the village should also be profitable if it can be well integrated into existing marketing channels, which is not currently the case for most groups (essentially women), with the exception of Gouro women and some attiéké processors in the outskirts of Abidjan or Yamoussoukro.

The micro and small units of agricultural products transformation are enterprises with a high potential for job creation. The jobs in these small cassava processing units are mainly for young women and men. This will contribute to women's empowerment through the distribution of important income. On average, micro and small enterprises create 54 jobs (6 permanent jobs, 9 family jobs and 39 temporary jobs). This is a solution to reduce unemployment among young girls and boys in rural and urban areas.

AT THE LEVEL OF INDUSTRIAL PROCESSING OF CASSAVA

There is great potential to develop alternative industrial markets. The major targets should be: (i) The food industry; (ii) The brewery sector; and (iii) The bakery sector.

There are import substitution opportunities for cassava flour as a partial replacement for wheat in bakery, cookie and pasta products. Investing in the processing of cassava into HQCF for the bakery industry in Côte d'Ivoire is a great opportunity. There is currently a poor industrial capacity for producing HQCF and starch. Most processing is done by low-yield artisanal units (Programme d'Appui à la Compétitivité Industrielle et à l'Innovation en Côte d'Ivoire, 2015). The installation of modern, high-yield fresh cassava processing units to produce starch and HQCF represents a major investment opportunity with a strong potential impact on the development of the cassava value chain in Côte d'Ivoire. However, this investment will only be viable and profitable if the demand for HQCF continues to grow. This is not the case today. To this end, the use of HQCF for the bakery industry in Côte d'Ivoire could be promoted by a public sector incentive regulation for the gradual implementation of the decision to use 15% local flour (especially cassava) in bread making. This will certainly increase the demand for HQCF. Tapping into the cassava flour market optimally should start with producing a good-quality flour that meets the criteria of fine and uniform granulation, like that of wheat flour, with a white colour, low fibre content (less than 1%) and low water content (approximately 6%).

The domestic market potential for starch is estimated at 3,200 tons/year, equivalent to 15,000 tons of fresh cassava. To date, only a relatively small portion of the needs are produced locally. In addition to Nestlé, Unilever might be interested in locally produced cassava starch if it can provide competitive prices. Since most starches for industrial use are imported (corn and wheat), increasing the production of local cassava starch to replace part of the imports can help balance the trade balance. The Ivorian market offers a more limited quantity of starch and most of the starch produced does not meet the sanitary criteria for the food market; hence, it is sold for textile uses. At the current production costs of cassava starch, the bulk selling price is approximately $721/ton

without packaging costs, making export difficult. To be competitive on the subregional markets (Senegal in particular), a selling price of $541/ton is necessary (Rongead, 2017). With a field price for fresh cassava of approximately $36/ton, it would be possible to produce cassava starch at a cost of $451–$541/ton if the appropriate equipment was available. Hence, to realize a profitable business in the cassava starch industry, there is a need to reduce starch's marginal production cost using the appropriate process and technologies.

The main alternative for cassava starch production in Côte d'Ivoire is cassava flour due to its lower production cost compared to that of starch. Moreover, this can help Nestlé and Unilever to substitute their increasing imports with locally produced cassava flour. There is also opportunity to explore niche markets in Europe where gluten-free flour has a high potential demand. The supply of fresh cassava to processing facilities is a major constraint. Hence, processing units should be installed close to fresh cassava production areas, such as alongside the Abidjan/Yamoussoukro axis, the west of Abidjan (Dabou, Jacqueville and Grand-Lahou), and in the vicinity of Yamoussoukro and Bouake. Proximity to artisanal processors can also be useful, because they can provide cassava starch (even of lesser quality), which can be used to meet the demand.

There are various alternatives for production technology for the transformation of cassava into flour or starch. The installation of a pilot unit by the Ivory Coast Society of Tropical Technology (I2T), in association with the private sector, will make it possible to better study the technical, economic and financial feasibility of the dissemination of such technology to produce cassava starch and bread flour in Côte d'Ivoire. However, it would be necessary to take into account the quantitative and qualitative subregional needs to determine the feasibility of such an investment in order to get a correct definition of the plant's capacity and the product range to be manufactured.

FOR CASSAVA TRADING

Cassava and its by-products can be sold locally and abroad (export). Increasing demand for cassava products in the subregion (Burkina Faso, Mali and Senegal, etc.) can be maintained through promoting cassava and its by-products through commercial actions. The steady growth of urban markets, propelled by strong growth in the urban population, especially in large coastal cities, is a great opportunity to tap as the demand for cassava and cassava products will increase. Boosting demand for such products should remain the focus of attention, as it will be the driving force behind the sector's evolution in the next few years. Any investment in this specific business area is welcome. In this business, exporters/traders can work with industrial or semi-industrial units based in major cities. Currently, artisanal processing units located in the northern, western and south-eastern border areas sometimes sell placali or attiéké directly to neighbouring countries in informal cross-border trading. An investment opportunity exists to organize these artisanal processors to produce better-quality products and engage in more formal exports of the product.

6.8. PROGRAMMES AND PROJECTS SUPPORTING CÔTE D'IVOIRE'S CASSAVA SECTOR

Table 20: Programmes and projects supporting Côte d'Ivoire's cassava sector

Project/programme	Duration	Description	Location (region)	Organization body	Funding source
Smallholder and Women's Livelihood Strengthening Project (PREMOPEF)	2021–25	Improving food and nutritional security of small-scale farmers, women and youth in the Nzi region	Nzi	Ministère de l'Agriculture et du Développement (MINADER)	FAO/Global Agriculture and Food Security Program (GASFP)
Project to support the development of the cassava and vegetable sectors in Côte d'Ivoire (PRO2M)	2018–21	Contribute to food security and job creation through the promotion of quality food production	21 regions	FIRCA	EU
Belier Region Agro-Industrial Pole Project (2PAI Belier)	2017–21	Increasing food and nutritional security through emergence of an agro-industrial pole in the Belier region (involvement of the private sector, youth and women)	Belier	Ministère de l'Agriculture et du Développement (MINADER)	African Development Bank (AfDB)
West Africa Agricultural Productivity Program (WAAPP)/ Programme de Productivité Agricole de l'Afrique de l'Ouest (PPAAO)		Research on production techniques, production and dissemination of improved planting material through 15 projects, including cassava	National (all)	FIRCA	
Nestlé	Since 1991	Responsible procurement strategy to guarantee the sustainability of its cassava supply for its industry	East, north and central	Nestlé	IITA; Catholic Relief Services CRS; Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
Agence de Developpement de la Filiere Manioc (ADFMA)	Since 2002	Ensuring the organization, the development and promotion of the cassava sector in Côte d'Ivoire and worldwide	National (all)	Agricultural development NGO	NGO
FIRCA	Since 2002	Financing the agricultural sector's development programmes in Côte d'Ivoire	National (all)	FIRCA	FIRCA

RESEARCH AND DEVELOPMENT BODIES

Many national, regional and international institutions support the development of the cassava sector through research, financing, technical support to production, processing and marketing of cassava in Côte d'Ivoire. The most important ones are listed in Table 21.

Table 20: Programmes and projects supporting Côte d'Ivoire's cassava sector

Institution	Type	Description	Location	Contact
Centre National de Recherche Agronomique de Côte d'Ivoire (CNRA)	Research institution	National centre for agricultural research. Conducting research programmes for the creation and introduction of new improved varieties.	National (all)	Website: https://cnra.ci/
Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS)	Research institution	CSRS works on cassava processing, cassava fermentation and the introduction of varieties from international cassava research centres.	Abidjan	Website: https://www.csrs.ch/fr
Ivory Coast Society of Tropical Technology (I2T)	Research and technology	Designs equipment for the valorization of agricultural products such as cassava processing technologies and modern equipment to produce attiéké.	Abidjan	Website: https://i2t.ci/
Ivoire Ingénierie (2I)	Research and technology	Ivoire Ingénierie imports equipment for the manufacture of machines in their workshops.	Abidjan	Website: https://www.ivoireii.com/pages/index/2/fr
Societe Abidjanaise de Constructions Mecaniques (SACM)	Research and technology	Machines fabrication and repairs	Abidjan	Tel.: (+225) 27 21 35 15 00 E-mail: sacmfab@yahoo.fr
Datong Enterprises (DTE)	Local suppliers	Directly import food processing equipment	Abidjan	Tel.: (+225) 27 21 24 26 66 Address: 18 BP 629 Abidjan 18
YITWO AGRO-INDUSTRIAL	Local suppliers	Agroprocessor	Abidjan	Website: http://www.anader.ci/
Agence Nationale d'Appui au Développement Rural (ANADER)	National extension agency	Oversees training and agricultural extension and training	National (all)	Website: https://yitwo-agro-industrial-cote.business.site/
Office d'aide à la Commercialisation des Produits Vivriers (OCPV)	Government office	OCPV helps with the improvement of the marketing of food products in Côte d'Ivoire.	National	Website: www.nouvellesdesprixagricoles.blogspot.com
Centre de Demonstration et de Promotion des Technologies (CDT)	Development and promotion of technology	Demonstrating and promoting technologies developed by the Ivory Coast Society of Tropical Technology (I2T) and other imported (from China) technologies.	National	Tel.: (+225) 27 21 35 38 04 E-mail: commercial2_cdt@yahoo.fr Website: https://cdtindustrie.com/
Association pour la Promotion des Exportations de Côte d'Ivoire (APEX CI)	Trade/export	Promoting sustainable growth of Ivorian exports.	National	Website: https://www.apex-ci.net/
LANADA	Analytical laboratories	Official laboratory supporting food quality control and seed certification.	National	Website: http://www.lanada.ci/
Ministère de l'Agriculture et du Développement Direction de la Protection des Végétaux, du Contrôle et de la Qualité (DPVCQ)	General directorate of ME-MINADER	Quality control and certification.	Abidjan	Website: https://agriculture.gouv.ci/
FIRCA	Supporting institution	FIRCA is a structure for financing agricultural sectors' development programmes in Côte d'Ivoire.	Abidjan	Website: https://firca.ci/
Apemaci	Nurserymen association	Improved planting material production.	Toumodi	Website: https://www.facebook.com/Apemaci/
Federation Nationale des Cooperatives de Vivriers de Cote D'ivoire (FENACOVICI)	Crop federations	Primary and secondary processors claiming 30,000 members in the value chain.		Website: http://www.fenascovici.com/site/
Kassio Cotedivoire (GK.CI)	Private initiative	Primary and secondary processors.	Yamoussoukro	E-mail: kassiocotedivoire@gmail.com
Societe Ivoirienne de l'industrie du Manioc et des Produits Tropicaux (SIVIM-TROPIC)	Private initiative	Sector interprofessional.		Address: BP 177 Toumodi
Federation des Cooperatives et Reseaux pour la Promotion du Manioc (FECREPMA)	Association/ cooperative	Sector interprofessional		Tel.: (+225) 24 00 21 58/ 01 02 16 15 16 E-mail: federationpourlapromotiondumanioc@gmail.com
Agence de Developpement de la Filiere Manioc (ADFMA)	Association/ cooperative	Sector interprofessional.		Tel.: (+225) 0505704410 Address: 01 BP 10029 Abidjan 01;
Nestlé-CI	Food industry	Industrial processors	Abidjan	Website: https://www.nestle.fr/
AFRIFOOD	Food industry	Industrial processors	Abidjan	
Unilever CI	Food industry	Industrial processors	Abidjan	Tel.: (+225) 27 21 7 5 44 00 Website: https://www.unilever.com/ Address: 7XMR+4P2, Abidjan
Gonfreville, Abidjan	Textile industry	Industrial processors	Abidjan/ Bouaké	Tel.: (+225) 2721354461/ 27 31 63 37 54
Union industrielle textile de Cote d'Ivoire (UTEXI-CI)	Textile industry	Industrial processors	Abidjan	Tel.: (+225) 01 03 94 66 12 Address: M737+X45, A4, Dimbokro
Cotonnière Ivoirienne (COTIVO)	Textile industry	Industrial processors	Abidjan	Tel.: (+225) 23 51 70 01 Address: BP 244, Agboville

6.9. SWOT ANALYSIS OF CÔTE D'IVOIRE'S CASSAVA SECTOR

The cassava sector's strengths from input providers to domestic and international trade were reviewed in the SWOT analysis (Table 22). The risk environment in general and the threats out of the control of the actors were highlighted, accounting for any viable solution to improve the sector's and value chain's business profitability and the global welfare of all actors.

Table 22: SWOT analysis of Côte d'Ivoire's cassava sector

	Inputs and services	Production	Artisanal processing
Strengths	▪ Improved high-yielding varieties released by research	▪ Existence of improved varieties with high potential yield and adapted to all production systems ▪ Available all year round and can be produced anywhere in the country	▪ Organization of actors in processors' associations/cooperatives ▪ Availability of supply (by producers themselves)
Weaknesses	▪ Difficulty in obtaining products on the official market ▪ Difficulty in obtaining credit to finance activities ▪ Lack of/low storage capacity/ facilities ▪ Insufficient number of nurserymen	▪ Use of poor planting material and equipment, leading to low productivity ▪ Overproduction in the same period, leading to low price of cassava ▪ Difficulty in accessing land for cassava cultivation around big consumption zones ▪ Poor organization of producers	▪ Low yields of artisanal processing units ▪ Use of archaic means for processing ▪ Difficulty in acquiring modern equipment ▪ Use of traditional fireplaces; source of energy loss
Opportunities	▪ Existence of research programmes in varietal improvement and production techniques ▪ Strong demand from producers for certain inputs	▪ Possibility to cultivate cassava everywhere in the country ▪ Industrial use of cassava for bread flour, starch for food or textiles, increasing domestic demand ▪ Existence of development projects for disseminating efficient agricultural practices ▪ Private project for the installation of large-capacity industrial processing units in all regions ▪ Intensification of the introduction of new varieties and technical itineraries to improve yields from the West African Agricultural Productivity Programme (WAAPP)	▪ Existence of improved energy efficient stoves (fuel savings of 50%–80%) that can reduce processing costs (by 15%–40%) ▪ High urban demand for attiéké and placali (for export)
Threats	▪ Knowledge gap between researchers and farmers, reducing the use of improved varieties ▪ Unfair competition from cheaper off-the-shelf products (uncertain origin) on the market ▪ High cost of transport, increasing inputs costs	▪ Few or lack of cassava cutting nurserymen, leading to difficult access to cuttings from improved varieties that meet users' needs ▪ Soil depletion by cassava and scarcity of suitable soils for cassava cultivation ▪ Competition for cultivated land by export crops (rubber, cocoa and cashew) ▪ Distance of the large production zones from the large consumption zones ▪ Climate change	▪ Possible competition from small and large industrial processing units being installed

	Industrial processing	Logistics	Trade
Strengths	▪ Government's decision to introduce 15% cassava flour in bread ▪ Mastering of cassava industrial processing technology	▪ Organization of actors in associations/cooperatives ▪ Improved national road network quality	▪ Connection between exporters and importers of cassava and derived products through organization of meetings by the Chamber of Commerce and Industry of Côte d'Ivoire (CCI-CI)
Weaknesses	▪ Low industrial capacities to produce HQCF and starch ▪ Difficulties in supplying processing units with required quantity and quality ▪ Lack/weak private and public investment in large processing plants	▪ Poor feeder roads for collecting and transporting harvested cassava from rural to urban areas ▪ Inadequacy of the means of transport used ▪ Lack of technology for storing and preserving fresh cassava for a long period (e.g. three months) ▪ Lack of storage facilities	▪ Lack of awareness of derivative products on the international market ▪ Very low export capacity of fresh cassava for its limited shelf life
Opportunities	▪ Possibility of substitution of 15% of wheat by cassava flour for bread ▪ Possibility of developing alternative industrial outlets (HQCF, starch, alcohol, textile fibres and plastic) ▪ Untapped capacity of cassava in animal feed ▪ Installation of numerous modern processing units ▪ Research programme for improving processing technology by the Ivory Coast Society of Tropical Technology(I2T) ▪ Possibility of contracting with landowners for cassava production	▪ Possibility of improving storage techniques (through projects of the Ministry of Agriculture and Rural Development, which plans to increase cassava production) ▪ Organization of actors in cooperatives for group selling to better organize transport of cassava	▪ Success of Ivorian cassava-based dishes in the subregion ▪ Possibility of industrializing all derivative products ▪ Cassava and derivatives can be sold both locally and abroad (export) ▪ Increasing demand for cassava products in the subregion ▪ Continued rapid growth of urban markets ▪ Increasing demand for industry and animal feed
Threats	▪ Weakness of the regional and national production	▪ Increased transaction costs due to the distance of the large production areas from the large consumption areas ▪ High transportation costs ▪ Poor condition of roads and service roads	▪ Competition from neighbouring countries to produce by-products ▪ Inadequate enforcement of competition laws ▪ Inability of ECOWAS rules to reduce road harassments across national borders

Sources: Field trip (2021); Ministère de l'Agriculture et du Développement Rural (MINAGRI); Direction Générale des Productions et de la Sécurité Alimentaire (DGPSA); Transtec International Cote d'Ivoire; SHER Ingénieurs-Conseils (2013); 44 design office (2021); Mendez et al. (2017).

7. GHANA COUNTRY PROFILE

7.1. COUNTRY OVERVIEW

Ghana, whose motto is 'freedom and justice', is located between Cote d'Ivoire in the west, Burkina Faso in the north, Togo in the east and the Gulf of Guinea in the south. Ghana's documented history dates back to the eleventh century. Since then, various kingdoms and empires have emerged, the most powerful and well-known being the Kingdom of Dagbon and the Ashanti Empire. The colonial period started in the fifteenth century, first with the Portuguese, then other European powers, and finally with the British. The latter divided Ghana into four separate British colonial territories: Gold Coast, Ashanti, the Northern Territories and British Togoland. These territories were unified when the country gained independence in 1957 (initially as an independent dominion within the Commonwealth of Nations). Since April 1992 when the country adopted a new constitution, an increasingly democratic, peaceful and stable subregional power has emerged within the political framework of a presidential constitutional democracy with a parliamentary multiparty system.

The country's location only a few degrees north of the equator is synonymous with a warm climate. Temperatures culminate at 30°C–31oC between December and March, corresponding to the Harmattan (dry desert wind) blowing in the north-east of the country. The south enjoys a tropical climate with a longer rainy season (March to November).

Most of the 31 million Ghanaians (57%) live in urban areas, mostly in Accra (a population of 5.1 million), Kumasi (3.3 million) and Tamale (0.5 million). The richness of the culture and traditions rests partly on the warmth, friendliness and a strong sense of community of the people, as well as approximately 50 local languages, of which the 11 most widely spoken are taught in school (e.g. Akan, Ewe, Ga, Dagaare and Dagbani). This is in addition to English, Ghana's official language.

Ghana – key facts	
Capital city	Accra
Area	227 540
Population, total	30.4 million
0–14 years	*37.4%*
15–65 years	*59.5%*
Youth literacy (15–24 years)	92.5%
Male (%)	*92.8%*
Female (%)	*92.2%*
GDP (nominal, USD billion, 2019)	$67 billion
GDP growth (real, 2014–19)	6.1%
FDI, inflows	$2.3 billion
Gross domestic private investment	$9.6 billion
Employment to population ratio (+15years)	64.9%
Employment to population ratio (15–24 years)	37.5%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	36% of GDP (24.1)
Main exported products	*Pearls, precious stones and metals; mineral fuels and oils; cocoa*
Imports of G&S, 2014–19 (USD billion, 2019)	35.4% of GDP (23.7)
Main imported products	*Vehicles; electrical machinery and equipment; cereals*
Inflation, 2014–19 (2019)	7.2%
Bank credit to private sector	12.4% of GDP
Gov. expenditure	$14.6 billion
Gov. revenue	$9.6 billion
Total public debt	$42.3 billion
Currency	Cedi (GHC)
Language	English (official), Akan, Ewe, Dagbani and Dangme

Note: Data is for the most recent years, since 2017.

Sources: World Bank; IMF; UNCTAD; Comtrade.

7.2. BROAD ECONOMIC OVERVIEW

MOST COMPETITIVE ECONOMY IN WEST AFRICA

Globally, Ghana comes 111th in the 2019 Global Competitiveness Index, 8th on the continent and 1st in West Africa, with an overall score of 51.2/100. This performance owes to its strong institutions and the largest extent of information and communications technology (ICT) adoption in West Africa, in addition to the depth of skills and innovation capacity, where the country ranks 2nd in the subregion.

AMONG THE MOST INNOVATIVE AFRICAN ECONOMIES

Ghana is the 108th most innovative economy in the world, the 13th in Africa and the 3rd in West Africa, according to the 2020 Global Innovation Index (co-published by Cornell University, the Institut Européen d'Administration des Affaires (INSEAD) and the World Intellectual Property Organization), with an overall score of 22.3/100. The contributing factors are a supportive infrastructure network and the extent of creative outputs, in which the country ranks 2nd in the subregion.

STRONG INSTITUTIONS

The strength of the political institutions is indicated by the World Bank's Governance Indicators, which rank Ghana 100th in the world, 11th in Africa and 3rd in West Africa. The country comes 1st in West Africa for regulatory quality, 2nd for rule of law, control of corruption and voice and accountability, and 3rd for political stability and no violence, and government effectiveness.

HIGH-QUALITY INFRASTRUCTURE

The African Development Bank's survey on infrastructure ranks the country 11th in Africa and 2nd in West Africa, with an overall score of 30.1/100. Water supply and sanitation, as well as transport appear to be the most developed segments of the country's overall infrastructure. Furthermore, the World Bank's Logistics Index puts the country at the 106th position worldwide, 16th in Africa and 5th in the subregion. The overall score is 2.57/5. The country comes 2nd in West Africa when it comes to the competence and quality of logistics services, and 3rd for the efficiency of customs clearance process.

STRONG MARKET POTENTIALS AND LOWEST COUNTRY RISK IN WEST AFRICA

According to the 2020 Market Potential Index, developed by the Michigan State University's International Business Center, Ghana is ranked 76th globally, 5th in Africa (with the Federal Democratic Republic of Ethiopia, the United Republic of Tanzania, and Morocco) and 3rd in West Africa. The contributing factors are the extent of economic freedom (the highest in West Africa), market receptivity (the strongest in the subregion) and country risk (the lowest in the subregion).

THE BEST COUNTRY FOR BUSINESS IN WEST AFRICA

Ghana is considered the 94th Best Country for Business worldwide, 9th in Africa and 1st in West Africa, according to Forbes Magazine. This performance is a combined result of the country's GDP growth, GDP per capita, trade balance and population size. In addition, the World Bank ranks the country 118th globally, 17th in Africa and 3rd in the West African subregion when it comes to the ease of which business is conducted, with a score of 60/100.The dimensions that stand out relate to getting credit (the easiest in West Africa) and protection offered to minority investors (the 2nd strongest).

7.3. INVESTING AND DOING BUSINESS IN GHANA

STRONG AND RESILIENT ECONOMY

Ghana's economy is the 2nd largest in West Africa, and has enjoyed a robust growth averaging 6.1% in 2014–19 in the context of increasingly favourable macroeconomic and financing conditions. Large endowments of gold (Africa's biggest gold miner after South Africa), cocoa (world's second-largest cocoa production) and, more recently, oil form the cornerstone of Ghana's economy have contributed to the economic boom. However, the COVID-19 pandemic reduced growth to 0.41% in 2020, compared to the initial projection of 5.8%.

FRIENDLY AND LOW-COST BUSINESS ENVIRONMENT

Starting a business is among the least costly in Africa, with a paid-in minimum capital requirement of just GHC 100 ($17) and fees amounting to GHC 390 plus 0.5% of the stated capital as a commencement tax. The process involves eight procedures:

(1) Obtain a tax identification number (TIN) from the Registrar-General's Department (RGD) or Ghana Revenue Authority. Although necessary to obtain before proceeding with the registration, it can be done at the time of the business registration by submitting the forms and required documents at the RGD. Once validated, the applicant can collect the document.

(2) Check for availability of company name and submit company documents to obtain business operation permit and incorporation certificates at the RGD. Applicants can request the search to be performed at the companies' registry in the RGD to ascertain the availability of the proposed name. The RGD can then reserve the name pending registration of the company.

(3) A Commissioner of Oaths, within the RGD, authenticates forms required for the certificate to commence business.

(4) Obtain, within 28 days, the certificate to commence business, the certificate of incorporation and temporary business operating permit certificates, all from the RGD.

(5) Receive inspection of work premises by the Metropolitan Assembly, which has already automatically received information on the registered business (address and phone number). A visit is then scheduled to confirm the category of the business.

(6) Obtain final business operating permit upon payment of fees related to the permit at the Metropolitan Assembly.

(7) Deposit the GHC 100 minimum paid-in capital in a bank account and the following documents are requested: copies of company regulations, the certificate of incorporation, the certificate to commence business and signatures of the authorized company representative. Some banks might conduct a physical inspection of the company's address, and most require introductory letters from the solicitors in order to open an account, as part of the 'KYC' (know your customer) procedures.

(8) Apply for social security at the Social Security and National Insurance Trust office. To do so, the company must provide a list of its employees, their salaries and social security numbers, and the company's certificate of incorporation.

These procedures take approximately 13 days to complete, well below the 21.5 Sub-Saharan African average.

Furthermore, obtaining **construction permits** is also among the cheapest in West Africa, with an estimated cost of 3.5% of the warehouse value. For a standardized warehouse, the estimated value is GHC 495,380 ($84,215). **Registering property** involves five procedures, from obtaining a title transfer form to the issuance of title certificate at the Land Registration Division of the Lands Commission. The procedures take 33 days at a cost of 6.1% of the property value.

The rental price of a typical four-bedroom exclusive residential house is approximately GHC 26,470.6 ($4,500) per month. For non-residential properties, the price ranges from GHC 58.8 ($10) per square metre per month for industrial property to GHC 235.3 ($40) for retail space and GHC 205.9 ($35) for office space.

Equal treatment is guaranteed by law to national and foreign investors when it comes to all business-related procedures, including the acquisition, registration or rental of any property.

The **labour force**, estimated at 12.9 million, is relatively skilled and vibrant. The country tops the World Bank's Human Capital Index in West Africa, with a score 0.44/1, which is suggestive of a large variety of relatively strong skill sets. **Visa rules** applied to investors and workers, similar to those in the ECOWAS region, grant a duration of stay that matches that of the business or the employment, with no further limitations.

The minimum **wage** is $45.1 per month. Salaries typically range between GHC 1,280 ($218) and GHC 22,600 ($3,842), depending on the skills and industries, and the average worker earns GHC 5,070 ($862) per month. These payments include housing, transport and other benefits such as social security and pensions.

The country's **electricity system** is ranked 1st in the subregion by the World Bank (5th on the subcontinent), largely as a result the reliability of supply and transparency of tariffs. Obtaining a connection takes a typical business approximately 55 days, and the process involves hiring a registered electrical contractor and receiving an internal wiring inspection, submitting an application to Power Distribution Services Ghana Ltd, receiving site inspection by Power Distribution Services Ghana Ltd and awaiting an estimate, and then receiving external works, meter installation and electricity flow. Total fees are GHC 62,619.4 ($10,645.3). Once connected, businesses pay a price of GHC 1.39 ($0.24) per kWh.

Water connection can be obtained within a month from Ghana Water Company Limited, at a total cost of GHC 1,000 ($170). At an average cost of GHC 4 ($0.68) per cubic metre applied to every two months' consumption, basic drinking water services are accessible to more than 80% of the total population (93% in urban areas).

Business **tax and mandatory contributions** in Ghana include a corporate income tax (statutory rate of 25%), social security contribution (13% of employees' gross salaries), value-added tax (12.5%), tax on interest earned (8%), and contribution to the Ghana Education Trust Fund Levy (GETFL) and the National Health Insurance Levy, municipal tax, fuel tax, and property tax at variable rates. These eight business-related taxes and contributions necessitate 36 payments in a typical year, take approximately 226 hours per year and cost an average of 55.4% of corporate profit.

In addition, individual income tax is 0% (annual chargeable income of less than GHC 3,456 to GHC $587.5) to a maximum of 30% (GHC 240,001, or $40,800.2, and more).

The **infrastructure network** is relatively dense and varied. There were 72,381km of road network in Ghana in 2017, with 14,873km being trunk road (used for long-distance travel), 15,463km being urban roads and the remaining 42,045km being feeder roads (turnpikes).

With more than 3 million passengers in 2019 and more than 23 passenger and cargo airlines, the Kotoka International Airport in Accra is the biggest airport in Ghana. In 2019–20, it was rated the Best Airport in Africa by the Airports Council International (ACI), a global trade representative of the world's airport authorities. The Kumasi Airport, more domestically oriented, is the second-busiest airport, with an estimated 376,823 passengers in 2019.

The railway system comprises more than 900km of tracks and is publicly managed by the Ghana Railway Development Authority. It connects major cities, resource-producing areas, the ports, and soon neighbouring countries such as Burkina Faso, as part of the ongoing 10-year rehabilitation and construction project that seeks to expand the network to 4,500km.

Of Ghana's five major ports, the seaports and container terminals in Accra and Tema are the most important. Tema, the largest, is also home to one of the country's four SEZs, or export processing zones. The port system handles a combined transit traffic of more than 1.5 million tons, as well as a transhipment traffic of 602,778 tons. The corresponding soft infrastructure is well rated by the World Bank's Logistics Performance Index, with, for example, the customs clearance process being among the most efficient in the subregion. The regional scope of these port infrastructures (being used by landlocked countries such as Burkina Faso) contributes to making Ghana a trade and logistic hub in West Africa.

Customs duties are governed by the subregional CET, with five tariff bands: essential social goods such as medicines (0%); goods of primary necessity, raw goods and capital goods (5%); intermediate goods and inputs (10%); final consumption goods or finished goods (20%); and specific goods for economic development (35%). Additional trade-related measures aimed at protecting some industries and guaranteeing fair competition throughout the liberalized subregional markets include safeguard measures, anti-dumping measures, anti-subsidy and countervailing measures and supplementary protection measures.

Ghana's **banking and financial sector** is relatively sound, stable and open. It comprises 28 banks of national, continental and global scope, and the Bank of Ghana serves as the country's monetary authority. The system's soundness shows in the relatively low incidence of non-performing loans (NPLs) of banks, which represents 14.5% of total loans as of March 2020, down from 18.8% in 2019. While it is expected that the COVID-19 pandemic can derail the observed year-to-year slowdown in NPLs, prudent risk management policies are likely to help improve asset quality risks in the medium term. Further to

the banking industry's solvency, the capital adequacy ratio is 21.1%, well above the revised regulatory minimum of 11.5%, while bank profitability increased in 2018–20.

The openness of the banking and financial industry means that any domestic and foreign business and individual can hold a **foreign currency bank account** and international transfers (corporate revenue and remittances, etc.) are made easily. The country has opted for a **flexible exchange rate** regime and, in 2014–19, currency has been on a depreciating trend, from $0.26 in April 2016 to $0.17 in April 2021, suggesting an increased price competitiveness of the country's exports that has resulted in trade surpluses.

The active **Ghana Stock Exchange** provides facilities and framework to the general Ghanaian and non-Ghanaian public for the purchase and sales of bonds, shares and other securities. As of June 2021, 37 companies are listed. They comprise national, regional and non-African companies, which can raise capital relatively easily.

There are great **incentives for foreign investment**, especially in opportunity filled sectors such as agriculture and agroprocessing, and textiles and garments. They include: (i) Reduced corporate income tax of 0%–22%; (ii) Reduced excise duty for increasing the use of local raw material; and (iii) Exemption from customs import duties for plant, machinery, equipment and parts.

The Ghana Investment Promotion Centre (GIPC) is the country's single window for all investors, domestic and foreign. It is the government agency in charge of showcasing Ghana as an influential leader for doing business in Africa. In addition to providing comprehensive and up-to-date information on the type of investment incentives, their eligibility criteria, and relevant laws and regulations, the centre is a place to register a business and most administrative procedures can be done there.

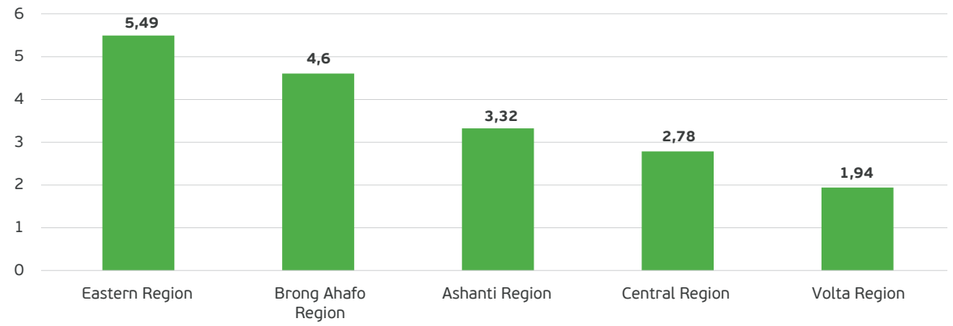
In summary, the Ghanaian economy's dynamism, resilience, vibrancy and innovative drive, along with the high quality and low cost of labour and energy and the business environment's friendliness and conduciveness (among the best in Africa), constitute key reasons why Ghana should undoubtedly be counted as one of the most favourable African destinations for foreign investors.

7.4. CASSAVA IN GHANA: AN OVERVIEW

Ghana is ranked 4th globally (2019) in terms of cassava production after Nigeria, Thailand, and the Democratic Republic of the Congo.[50] This places Ghana as the third-highest cassava producer in Africa and the second-highest in West Africa. The main cassava production regions in Ghana and their production levels are indicated in Figure 29.

Agriculture in Ghana is predominantly on a smallholder basis. The majority of farm holdings are less than 2 hectares in size, although there are some large farms and plantations, particularly for rubber, oil palm and coconut and, to a lesser extent, rice, maize and pineapples. The main farming system is traditional, which involves the hoe and cutlass as tools mostly used. There is little mechanized farming, but bullock farming is practiced in some places, especially in the north. Agricultural production varies with the amount and distribution of rainfall. Soil factors such as texture, nutrient levels and pH, etc. also play an important role in agricultural production. Most food crop farms are intercropped. Monoculture is mostly associated with large-scale or commercial farms. There is very little irrigation involved in cassava and most crop farming systems.[51] In all the major cassava growing areas in Ghana, cassava is normally planted during the months of March to May and harvested within the months of January to June.[52]

Figure 29: Main producing regions and levels of cassava production (million tons/year) in Ghana



Source: Agriculture in Ghana – Facts and Figures (2019).

Most of the cassava grown in Ghana are the low-cyanide varieties (or sweet varieties) and are normally classified into local and improved varieties (Table 23). The local varieties are the varieties that are indigenous to the country, while the improved varieties are the ones developed through breeding activities targeting high yield and other desirable attributes like high starch or high amylose content. The most popular local varieties are bosomensia and ankra; the improved varieties are as listed in Table 23.

The maturity periods for all these varieties is 9–12 months and their root yields range is 16–60 tons/ha.[53] The type of variety selected for growing is principally influenced by availability and consumer preference. Different producer segments do not necessarily grow specific varieties. In all the regions of Ghana, cassava is planted during the months of March, April and May, and harvested between January and June of the following year (Figure 30).

Figure 30: Season calendar of cassava planting and harvesting in Ghana

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Planting (1st year)												
Harvest (2nd year)												

Source: Developed with data from http://www.fao.org/giews/countrybrief/country.jsp?code=GHA&lang=en.

50 *Source*: https://www.tridge.com/intelligences/mandioca/production.

51 Ministry of Food and Agriculture, Statistical Research and Information Directorate (2020). Agriculture in Ghana – Facts and Figures (2019), p. 130.

52 *Source*: http://www.fao.org/giews/countrybrief/country.jsp?code=GHA&lang=en.

53 WACOMP (2019). A Value-Chain Analysis of the Cassava Sector in Ghana. P. 90.

Table 23: Cassava varieties cultivated in Ghana					
Local names	Original name (TMS numbers or other designation)	Achievable yields (t/ha)	On-farm yields (t/ha)	Starch content (%)	
				Fresh root	Flour
Afisiafi	TMS 30572	35	25	26	58
Abasafitaa	TMS 4(2) 1425	35	29	25	60
Tekbankye	Mutant (landrace)	40	30	24	55
Dokuduade	97/4489	45	38	24	54
Agbelifia	97/4962	40	35	25	55
Essam bankye	97/3982	49	40	24	58
Bankyehemaa	97/4414	50	40	25	54
Capevars bankye	Landrace	40	20	22	52
Bankye botan	From TMS 4 (2)1425	45	25	23	49
Eskamaye	91/02327	23	16	27	54
Filindiakong	92/0067	20	17	25	57
Nyerikogba	91/02324	29	17	28	56
Nkabom	Landrace	32	28	27	55
IFAD	Landrace	35	30	26	52
Ampong	TMS 270	45	35	30	62
Broni bankye	TMS 1	40	35	26	50
Sika bankye	TMS 498	45	35	33	65
Otuhia	TMS 396	35	30	28	60
CRI-Duade kpapka	12/0197	50	40	24	65
CRI-Amansan	12/0236	57	40	25	54
CRI-AGRA bankye	12/0245	60	35	28	67
CRI-Dudzi	AW3/10/011	45	35	26	62
CRI-Abrabopa	AW3/10/0016	50	40	23	63
CRI-Lamesese	ANKA/10/003	40	30	24	66

Source: WACOMP (2019); Joe-Manu Aduening.[54]

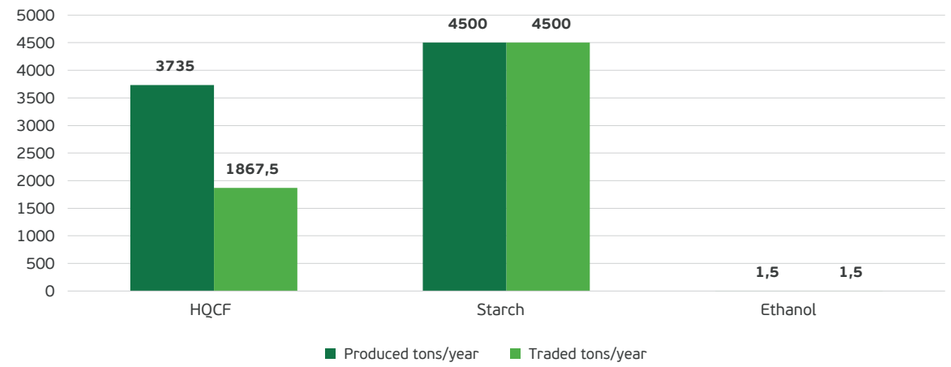
CASSAVA TRADE IN GHANA

DOMESTIC TRADE

The main forms in which cassava is traded domestically are for making traditional foods such as gari, agbelima and kokonte. Even though the quantity of cassava processed into these traditional foods is mostly undocumented, it is safe to assume that more than 80% of total cassava produced in Ghana is consumed as traditional foods. The consumption centres for these products cut across all the regions in Ghana, but with more demand from the urban areas within the industrial regions of Greater Accra, Ashanti and the western regions. The consumption centres for the industrial products like starch, ethanol, HQCF and cassava chips are mainly in Accra, Tema, Kumasi and Takoradi, where major industries are located. The volume of cassava produced and traded for industrial products is estimated at 8,236 tons/year and 6,419 tons/year respectively (Figure 31).

The domestic trade of cassava products is characterized by traditional ad hoc sales between farmers, agroprocessors, aggregators and retailers within the regions subject to acceptable trading rules where the buyer places an order and the seller supplies and receives payment with no restrictions and documentation formalities. Though some SMEs practice regularized market transactions like spot markets such as wholesale markets and coordinated market linkages, the majority of the trade systems are cash and carry, with a minimum credit allowance period of two weeks using a single currency (the cedi). Trading in domestic cassava products attracts simple sales tax. Cassava products are packaged largely in 25kg, 50kg, 100kg and 150kg sacks from processing plants for the wholesale market and are repackaged into smaller packs such as 1kg or 2kg for retailing. Aggregation in the domestic trade of cassava products is widespread, as the production of such products is on a micro or smaller scale. This system attracts high local transportation costs due to long regional distances. There is also free mobility of labour and capital with no restrictions. Domestic demand for different cassava derivatives is high, as cassava is a staple food crop.

Figure 31: Domestic trade in industrial cassava products in Ghana (tons/year)



Source: Interviews with industry actors.

INTERNATIONAL TRADE

The main cassava products traded internationally are cassava starch, ethanol and other forms such as fresh, chilled, frozen or dried cassava roots (sliced or pelleted). The total imports of cassava products into Ghana in 2020 were valued at $69,992,000, consisting mostly of ethanol ($69.14 million). The total exports of cassava products from Ghana in the same year were valued at $947,000 of starch and other forms (Figure 32).

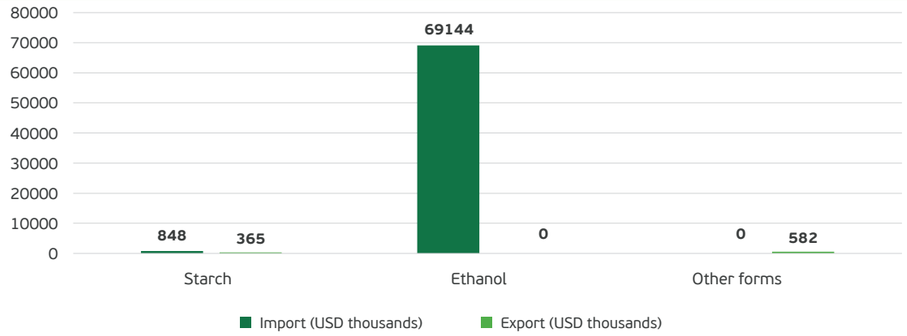
GHANA'S MAIN TRADE PARTNERS FOR CASSAVA PRODUCTS

Ghana imported 86% by value of the cassava starch originating from the United States and approximately $45,000 worth of starch from the European Union (EU) in 2020 (Figure 33). The EU countries in this group are the Kingdom of Belgium, the Republic of Italy, the Netherlands, the Kingdom of Sweden, Germany, the Republic of Finland, and France. Conversely, Thailand is Ghana's main destination for its cassava starch (78%) on the global market. Ethanol production is negligible in Ghana, so all the country's ethanol needs are met with imports, mainly from Brazil, India and the United States, in that order (Figure 34). Other sources of ethanol imports in Ghana are China, Nigeria and Canada.

In addition to starch, Ghana also sells other cassava products (fresh, chilled, frozen or dried cassava roots (sliced/pelleted)) in the global market, where the EU is its major customer (Figure 35). The EU importers of Ghana cassava products are France, the Netherlands, Italy, Germany, Sweden, Ireland and Finland. Other importers of cassava products from Ghana are the Swiss Confederation, South Africa and the Gambia.

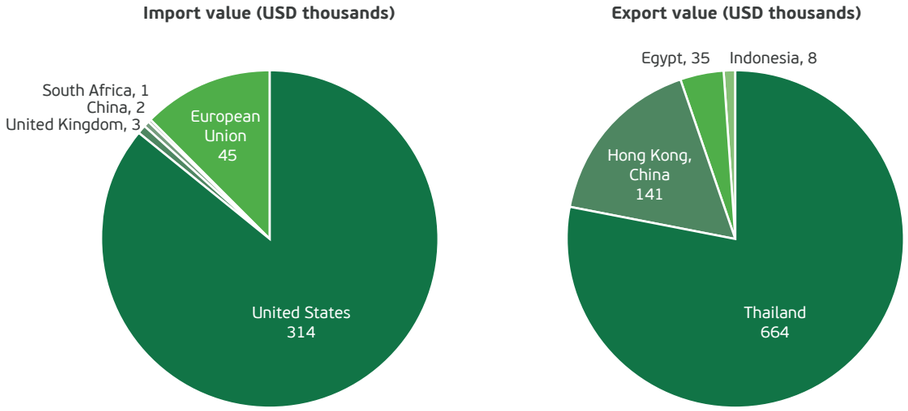
54 Retired crop breeder, Crops Research Institute (CRI), Kumasi, Ghana.

Figure 32: Ghana's imports and exports of cassava-based products (2020)



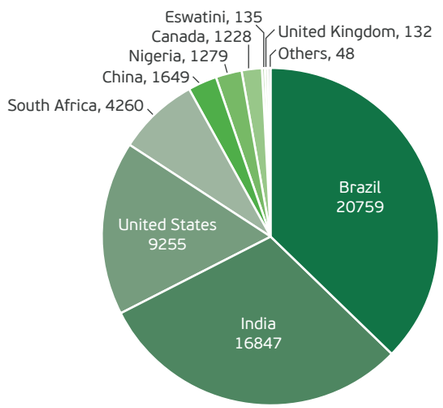
Source: ITC Trade Map.

Figure 33: Destination and sources of cassava starch exports and imports (USD thousand) to and from Ghana in 2020



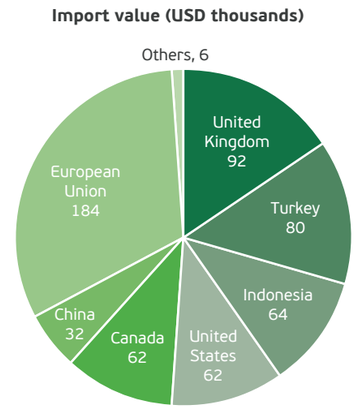
Source: ITC Trade Map.

Figure 34: Sources of ethanol imports into Ghana in 2020 (USD thousand)



Source:ITC Trade Map.

Figure 35: Destination of exports of fresh, chilled, frozen or dried cassava roots (sliced/ pelleted) from Ghana in 2020 (USD thousand)



Source:ITC Trade Map.[55]

55 *Source*: https://www.trademap.org/Index.

7.5. THE CASSAVA VALUE CHAIN AND STAKEHOLDERS IN GHANA

Cassava is used extensively in Ghana and its value chain comprises the following actors:

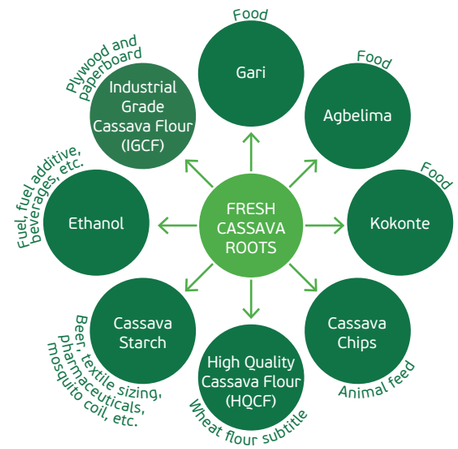
- **Producers of fresh cassava roots** (Annex VI);
- **Primary processors** of traditional processed food products (gari, kokonte and agbelima), HQCF, high-quality cassava chips (HQCC) and high-value industrial products;
- **Secondary processors** (involving the use of the primary-processed products for the production of composite flour, bakery products, adhesives, plywood, animal feed, paperboard and fufu flours, among others) (Figure 36).

These value chain actors are supported by **agro-input** suppliers, fresh cassava roots (FCR) **aggregators**, and manufacturing input suppliers (equipment manufacturers, producers of packaging materials and other operating supplies) to make the value chain functional. In addition, wheat flour mills, bakeries, beer producers, fufu flour producers, feed mills, poultry industries, paper mills and wood industries provide **final markets for cassava** and several intermediate products in the value chain. Table 24 presents an overview of these markets. Other value chain actors such as wholesalers, itinerant traders, operators of local marketing centres and shops, and exporters play key roles in trading in the various product outputs from the producers and processors. The last groups of primary value chain actors are the domestic, commercial and international patrons of the various primary and secondary cassava-based products (Figure 37).

Furthermore, **technical service providers** (research and development institutions and universities), the regulatory agencies (ministries, standards authorities and the Environmental Protection Agency, etc.), trade associations (Ghana Industrial Cassava Stakeholders Platform, the Ghana National Association of Farmers and Fishermen (GNAFF) and other farmer cooperatives, etc.) and the business delivery service providers (financial institutions and other logistical institutions) facilitate proper functioning of the value chain. They do so by ensuring availability of appropriate knowledge and skills, ensuring safety and fair play among actors and providing financial and other services required for the smooth functioning of the cassava value chain in Ghana (Figure 37).

The main players when it comes to the **transportation of cassava** and its products are principally private transport operators. The loading capacity for commercial vehicles for cassava haulage is usually 11–12 tons. There are a few vehicles with loading capacity of 17 tons. There are also six-ton vehicles and below for short distance deliveries of cassava. Some identifiable transportation corridors for cassava and their respective transportation costs are shown in Table 25. The cost of transportation from the data shown can be estimated to be $0.08–$0.15 per ton/km for long distances of more than 60km, and $0.39–$0.89 per ton/km for distances of less than 60km.

Figure 36: Main cassava products and their uses



Note: Products with a blue background and uses with a green background.

Source: Authors' conception.

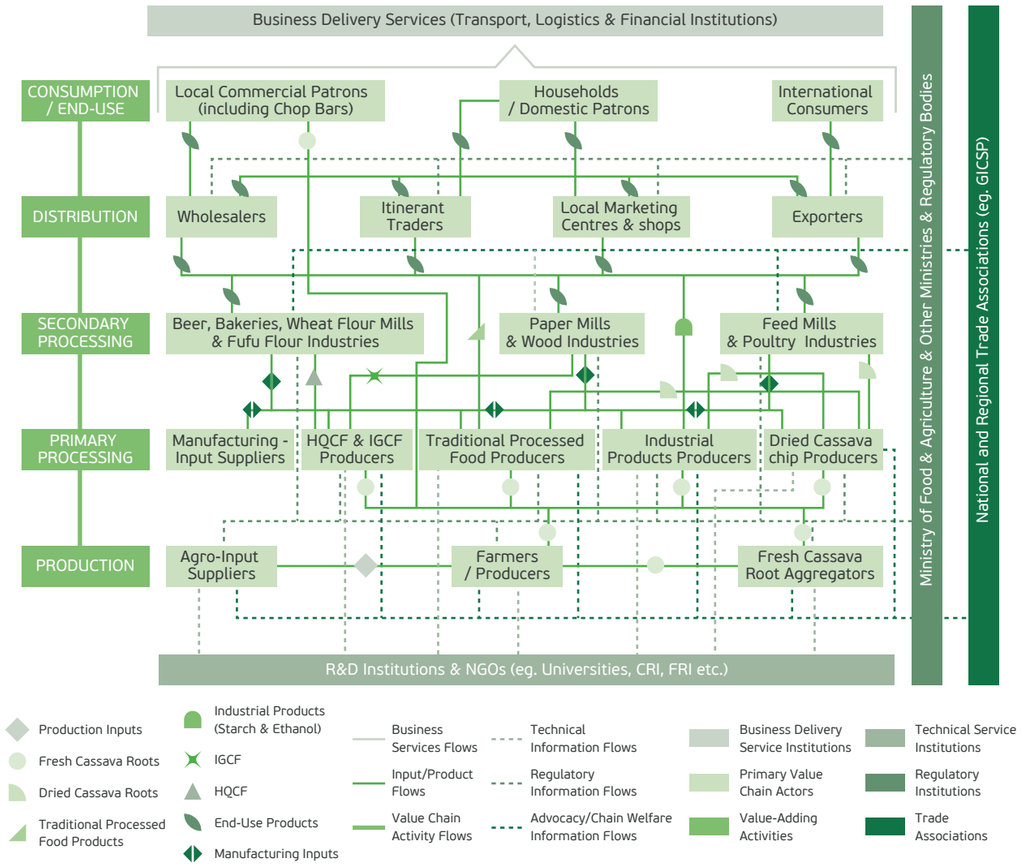
Table 24: Overview of markets for cassava products in Ghana

Product	Latent domestic demand (tons/year)	Current capacity to meet demand (tons/year)	Current actual production output (tons/year)	Current actual demand deficit (tons/year)	Potential industry/end use
HQCF	100 000	10 200	3 735	96 265	Flour mills; breweries; packaged foods; second cycle institutions; yogurt production; pharmaceutical industry; paperboard industry; plywood manufacturing industry; glue manufactures
Starch	90 000	138 000	4 500	85 500	Brewery industry; mosquito coil industry; pharmaceutical industry
Ethanol	172,500 (214.58*)	3*	1.5*	213.08*	Distilleries; transport industry (biofuel)
Cassava chips	30 000	No data	No data	No data	Animal feed (poultry feed; piggery; goat); export market
Gari	10 800	No data	No data	No data	Export market; second cycle institutions
TOTAL	403,300				

*Note: *Indicates kilolitres absolute alcohol.*

Source: Ghana Industrial Cassava Stakeholders Platform (2019); Cassava: Adding Value for Africa Phase II (2019); author's computation.

Figure 37: Cassava value chain map in Ghana



Source: Based on Ulrich Kleih, David Phillips, Marian Tandoh Wordey and Gregory Komlaga (2013). 'Cassava Market and Value Chain Analysis, Ghana Case Study, Final Report'. Cassava: Adding Value for Africa (C:AVA) project. Natural Resources Institute, University of Greenwich, United Kingdom, and the Food Research Institute, Accra, Ghana.

Table 25: Some identifiable transportation corridors for fresh cassava roots in Ghana

Producing centre	Processing/marketing centre	Distance (km)	Cost of transportation (USD/ton)
Drobenso, ER	Afram Plains	164	25
Begoro, ER	Afram Plains	315.1	25
Nkoranza, BAR	Afram Plains	263.7	25.83
Mankranso, AR	Afram Plains	292.3	25
Afram Plains, ER	Afram Plains	20–50	8.33–13.33
Dabala, VR.	Hodzo, VR	95.9	8.33
Abutia, VR.	Hodzo, VR	11.6	8.33
Sokode, VR	Hodzo, VR	9.4	8.33
Dzodze, VR	Hodzo, VR	80	8.33
Adidome, VR.	Hodzo, VR	66.1	8.33
Kintampo, BAR	Kintampo, BAR	30	11.6
Atebubu, BAR	Kintampo, BAR	114.5	11.11
Ejura, AR.	Kintampo, BAR	115.7	11.11
Damongo, NR	Kintampo, BAR	203.1	15.74

Source: Ben Bentil;[56] Chris Quarshie.[57]

7.6. INVESTING IN CASSAVA: KEY FIGURES

Transport networks: Ghana's transport sector is well developed. The Rural Access Index, which measures the percentage of rural people living within 2km of an all-season road, is 61%. Availability of motorable roads and farm tracks helps reduce transaction costs, reduce post-harvest losses, enhance market access and promote private sector investment in agriculture. Additionally, air and sea transport as well as internal water transportation are well developed and effective.

Agricultural mechanization: The potential area suitable for comprehensive mechanized agriculture in Ghana is estimated at 8 million hectares, of which approximately 2.4 million hectares are under some form of mechanized cultivation. This relatively low level of mechanization is largely due to limited access to appropriate agricultural machinery and equipment along the agricultural value chain. Currently, there are approximately 6,200 tractors in Ghana, of which 50% are more than 10 years old. Assuming that a 60–70hp tractor can plough 240ha/year, approximately 33,333 agricultural tractors are required to mechanize the area suitable for mechanized agriculture in Ghana.

Access to land and water: Ghana's total land area is 23,853,345 hectares, out of which 56.9% (13,600,000ha) is agricultural land. Approximately 49.7% (6,763,500ha) of the agricultural land area is currently under cultivation. The averaged cropped area for cassava (2017–19) is approximately 972,000ha, indicating a growth rate of 2.8% when compared to the 2014–16 cropped area. It is evident that more than 50% of total agricultural land is still available for cultivation, which should be good news to investors. Land ownership in Ghana is based on the underlying principle that land is a natural resource that originally belonged to a particular community or group, normally represented by a stool (or skin in the northern region of Ghana) as the acknowledged symbol or identity of the group. There are four categories of land ownership in Ghana, governed by both customary practices and enacted legislation. These are state land, vested land, private land and individual land. Depending on where the land is being acquired, there are specific procedures to follow. Ghana's agriculture is primarily rain-fed, with only 3.18% (223,009ha) of total cultivated land

56 Private agribusiness consultant, Accra.

57 CEO, Caltech Ventures, a cassava processing enterprise in Ho.

being under irrigation, and that does not include cassava to a large extent. Even though irrigation is not very critical when it comes to cassava farming, significant efforts are underway to bring more land under irrigation. The Ghana Irrigation Development Authority (GIDA) is the lead public sector organization set up to promote agricultural growth through the provision of irrigation infrastructure and other agricultural water management techniques.

Rules and regulations in the agricultural sector: Some of the laws, regulations and policies enacted to govern investment in the agricultural sector include: Plants and Fertilizer Act, 2010 (Act 803); GIPC Act, 2013 (Act 865); Fisheries Act, 2002 (Act 625); Environmental Protection Act, 1994 (Act 490); Biosafety Act, 2011 (Act 831); Water Resources Commission Act 1996 (Act 522); Public Health Act, (2012); and Land Commission Act, 1994 (Act 483), etc.

Table 26: Indicators for doing business in Ghana

Indicator	Rank (/190)	Score (%)
Starting a business	116	85
Dealing with construction permits	104	67.6
Getting electricity	79	77.4
Registering property	111	59.4
Getting credit	80	60
Protecting minority investors	72	60
Paying taxes	152	56
Trading across borders	158	54.8
Enforcing contracts	117	54
Resolving insolvency	161	25.4
Starting a business	116	85

Source: https://www.doingbusiness.org/content/dam/doingBusiness/country/g/ghana/GHA.pdf.

Table 27: Investment indicators for Ghana's agricultural sector

Indicator	Unit	Cost
Cost of farmland[1]	USD/ha	3 795–15 170
Cost of land in rural areas[1]	USD/ha/year	3 795–15 170
Cost of land in urban areas[5]	USD/ha	17 000–200 000
Cost of electricity[2]	USD/kWh	0.10
Cost of unskilled labour[3]	USD/day	3.89
Cost of skilled labour[4]	USD/day	7.77
Cost of transportation from Accra to Tema port (29.7km)[4]	USD one-way	1.67–3.333
Enabling Business in Agriculture score (2019)	%	50.49
Enforcing contracts	117	54
Resolving insolvency	161	25.4
Starting a business	116	85

Note: Land other than for farming in rural areas is usually higher priced than farm land is.

Sources: 1. https://ghanainsider.com/prices-of-farming-land/; 2. https://www.globalpetrolprices.com/Ghana/electricity_prices/; 3. https://dlca.logcluster.org/display/public/DLCA/3.3+Ghana+Manual+Labor+Costs; 4. Industry actors; 5. https://ghanapropertycentre.com/for-sale/land/greater-accra/showtype.

7.7. INVESTMENT OPPORTUNITIES IN CASSAVA IN GHANA

The investment opportunities, along with the associated enabling and risk factors in Ghana's cassava sector, are summarized in Table 28. Even though Ghana is one of the leading cassava producers in the world, the fact that most of the cassava currently produced is absorbed in the staple food market means that any major investment in the sector cannot rely on fresh cassava roots supply from existing producers. However, the availability of arable lands makes new investments in cassava cultivation attractive, as well as the demand of new markets created by the need to replace the importation of ethanol or production of more starch or glucose syrup or other cassava products for the export market.

Table 28: Enabling and risk factors for identified cassava investment opportunities

SN	INVESTMENT OPPORTUNITY	ENABLING FACTORS	RISK FACTORS
1	Mechanized commercial farms for the competitive production of high-starch, high-yielding varieties of cassava for industrial use	▪ Availability of a large number of good-quality cassava varieties with high starch content ▪ High demand of high-starch varieties from industrial buyers	▪ Price fluctuation in the sector caused in part by seasonal changes in the internal supply of fresh cassava roots ▪ Lack of certifications and standards at the production level, which can cause market exclusion ▪ Pests and diseases
2	Establishment of automated large-scale industries for competitive processing of ethanol, starch, glucose syrup, HQCF and chips from cassava	▪ High internal demand deficit for cassava-based products (96,000+ tons/year for HQCF, 85,000+ tons/year for starch, and 213 million+ litres/year for ethanol) ▪ Rising demand for cassava-based products, evidenced by increasing imports ▪ Potential return on investment for cassava products looks very good (58% for HQCF, 67% for starch and 37% for ethanol) [58]	▪ Slow pace of government in passing legislations (composite flour and fuel-ethanol) to promote increased use of cassava products ▪ Price competitiveness against imported alternatives
3	Commercial production and distribution of high-starch, high-yielding cassava planting materials	▪ Limited number of planting material multiplication companies compared to demand ▪ High demand for high-starch varieties	▪ The absence of planting material cleaning programmes could harm key cassava root varieties, making them vulnerable to pests and diseases
4	Waste management systems for large-scale industries to effectively handle liquid and solid waste	▪ High income potential of solid and liquid waste management for animal feed and energy generation ▪ Huge volume of unmanaged waste from anticipated increased investment in the industrial processing of cassava	▪ Arbitrary increase in the price of solid waste by processors upon observing a demand increase
5	Establishment of agricultural mechanization centres to provide services to smallholder and commercial farmers in order to improve yields and reduce production cost	▪ Low level of mechanization in the cassava industry ▪ Very few mechanization centres in cassava production areas (based on an estimated tractor demand gap of 27,133 tractors) in spite of the high Enabling the Business of Agriculture (EBA) score for machinery use in agriculture	▪ Initial unwillingness of beneficiaries to pay economic costs for services
6	Technology/industrial parks to promote new technologies and good equipment manufacturing practices as well as provide incubation services and training to cassava equipment fabricators	▪ A significant number of low technology cassava equipment manufacturers as potential beneficiaries ▪ A significant number of entrepreneurs looking for incubation opportunities to catalyse the growth of their business	▪ Initial lack of appreciation and patronage of incubation services and training opportunities

58 Ghana Industrial Cassava Stakeholders Platform (n.d.). 'Strategy for Promoting Cassava as an Industrial commodity,' A Position Paper. P. 8.

7.8. CASSAVA PROMOTION PROGRAMMES AND POLICIES IN GHANA[59]

The relevant cassava promotion programmes and policies are detailed in the Ministry of Food and Agriculture's (MOFA) Investment Guide for the Agricultural Sector in Ghana (2021). These programmes and policies are summarized in Table 29.

Table 29: Cassava promotion programmes and policies in Ghana

Programme/policy	Main features
Excise tax incentives on brewery industries	▪ Introduced in 2013 ▪ Targeting breweries that could produce beer from at least 30% locally sourced raw materials ▪ Offered a reduction in excise tax from 47.5% to 10% to the brewers
Ghana Agricultural Sector Investment Programme (GASIP)	▪ Project sponsored by the International Fund for Agricultural Development (IFAD) ▪ Supplementary financing for long-term private sector engagement and the scaling up of investment in development of the pro-poor agricultural value chain
Scaling Seeds and Technologies Partnership (SSTP)	▪ Implemented by the Alliance for a Green Revolution in Africa (AGRA) in partnership with the United States Agency for International Development (USAID) ▪ To strengthen smallholder access to certified seeds for increased productivity
FEED Africa programme	▪ Under the Technologies for African Agricultural Transformation (TAAT) project ▪ Aimed at transforming agriculture and scaling up agribusiness value chains, including cassava
Planting for Food and Jobs	▪ Flagship agricultural campaign of the Government of Ghana ▪ With five implementation modules: Planting for Food and Jobs; Planting for Export and Rural Development; Greenhouse Technology Villages; Rearing for Food and Jobs; and Agricultural Mechanization Services

RESEARCH AND DEVELOPMENT

Five out of the 13 institutes of the Council for Scientific and Industrial Research (CSIR), in addition to other notable government institutions, are actively involved in cassava-related research and development. These include: the Crop Research Institute, Kumasi; the Food Research Institute, Accra; the Soil Research Institute, Kumasi; the Institute of Industrial Research, Accra; the Savanah Agricultural Research Institute, Tamale; the Biotechnology and Nuclear Agricultural Research institute (BNARI), Ghana Atomic Energy Commission (GAEC), Accra; the Department of Biochemistry, Nutrition and Food Science, University of Ghana, Accra; and the Faculty of Agriculture in the Kwame Nkrumah University of Science and Technology (KNUST) (Kumasi), University of Ghana (Accra), the University of Cape Coast (Cape Coast) and the University for Development Studies (Tamale).

FINANCE[60]

Several types of financial institutions provide financial services to the agriculture sector. These include commercial banks, money lending companies, microfinance companies, and rural and community banks. To address the financing gap, government has put in place several interventions, with the support of development partners. These include grants, soft loans, matching grants and business advisory services to assist operators in the agriculture sector, a few of which are:

- Ghana Agricultural Sector Investment Programme (GASIP) Fund;
- Outgrower and Value Chain Fund (OVCF);
- Rural Enterprise Development Fund (REDF);
- Ghana Commercial Agriculture Project (GCAP) fund;
- Financing Ghanaian Agriculture Project (FinGAP);
- Export Development & Promotion Grant Facility;
- Ghana Export-Import Bank (EXIM Bank Ghana) facility.

INDUSTRY BODIES

The major industry bodies that could be of value to any investor include:

- Ghana Industrial Cassava Stakeholders Platform (GICSP);[61]
- Association of Ghana Industries;[62]
- Federation of Associations of Ghanaian Exporters;[63]
- Peasant Farmers Association of Ghana.[64]

59 Investment Guide for the Agricultural Sector in Ghana, MOFA (2021).
60 Investment Guide for the Agriculture Sector in Ghana, MOFA (2021).
61 https://web.facebook.com/gicsp.gh/?_rdc=1&_rdr.
62 https://www.agighana.org/home.
63 https://www.fageghana.com.
64 https://www.peasantfarmers.com.

7.9. SWOT ANALYSIS OF GHANA'S CASSAVA SECTOR

Table 30: SWOT analysis of Ghana's cassava value chain

	Inputs and services	Production	Artisanal processing
Strengths	▪ Existence of institutions and government policies dedicated to improving the cassava sector ▪ Improved stakeholder performance due the involvement of development partners	▪ Availability of quality varieties of cassava that have high starch content	▪ Existence of local equipment manufacturing firms producing small-scale processing equipment
Weaknesses	▪ Low level of mechanization in the sector, which makes harvesting and processing time-consuming, labour-intensive and costly ▪ Limited access to credit ▪ Limited access to extension services ▪ Inappropriate storage structures and warehousing facilities that affect the quality of stored products ▪ Lack of certifications and standards at the farmer level can cause market exclusion ▪ Cassava sector associations and networks are weak and poorly coordinated	▪ Low adoption of improved technologies ▪ Limited access to improved planting materials ▪ High labour requirements during harvesting ▪ Low adoption rate of improved varieties ▪ Bulky products, attracting high transportation and labour costs ▪ Lack of organized production cooperatives or groups ▪ Short shelf life of roots	▪ Inconsistent FCR supply (especially during lean season) affects production levels and processor profitability ▪ Inability to handle effluent/waste management ▪ Inefficient traditional processing equipment ▪ High cost of labour ▪ Very few cassava processors hold industry certification due to its cost, a lack of knowledge and a lack of interest ▪ High production costs due to high cost of utilities, raw materials, labour and transportation
Opportunities	▪ Existence of commercial suppliers of improved planting materials ▪ Availability of planting materials from MOFA's district agricultural development units	▪ High demand for improved varieties from new industrial processors ▪ High demand for FCR from industrial buyers ▪ Semi- or fully mechanized processing ▪ On-farm processing technologies ▪ Farmer cooperatives can produce in bulk to satisfy industrial demand	▪ Rising population and urbanization, leading to high demand ▪ Rising incomes have potential for high demand ▪ Rising demand for cassava-based products in the local and export markets ▪ A growing and innovative trend in cassava processing equipment manufacturing ▪ The development of cassava-based industrial products
Threats	▪ End of Root and Tuber Improvement and Marketing Programme (RTIMP), leading to short supply of improved planting materials ▪ High energy costs ▪ The absence of planting material cleaning programmes could harm key cassava root varieties, making them vulnerable to pests and diseases	▪ Low demand for traditional varieties, especially from industrial buyers ▪ Intermediaries have assumed more power in the face of high industrial demand ▪ Erratic rainfall pattern ▪ Poor land tenure systems that affect producers' ability to make long-term crop development plans ▪ Price fluctuation in the sector, caused in part by the occasional glut, affects producers' ability to plan and expand crop cultivation	▪ High industrial demand by large-scale processors can lead to less supply to small- and medium- scale processors, as well as domestic consumers

	Industrial processing	Logistics	Trade
Strengths	▪ The availability of quality varieties that have high starch content ▪ A growing and innovative trend in cassava processing equipment manufacturing	▪ None	▪ Significant local and international demand for industrial cassava-based products
Weaknesses	▪ Inconsistent FCR supply (especially during lean season) ▪ Inability to handle effluent/waste management ▪ Inefficient traditional processing equipment ▪ High cost of labour ▪ Very few cassava processors hold industry certification due to its cost, a lack of knowledge and a lack of interest ▪ High production costs due to high cost of utilities, raw materials, labour and transportation	▪ Poor warehousing facilities affect the quality of stored products	▪ Demand fluctuations lead to some post-harvest loses, especially for fresh tubers ▪ FCR supply situations lead to low market margins ▪ Only specialized markets (supermarkets and exporters) have grades and standards ▪ Rotting of tubers is often experienced in cases where whole farms are bought by traders ▪ Urban markets are far apart geographically, leading to reduction in profits ▪ Cassava sector associations and networks are weak and poorly coordinated
Opportunities	▪ Rising population and urbanization, leading to high demand ▪ Rising incomes have potential for high demand ▪ Rising demand for cassava-based products in the local and export markets ▪ The development of cassava-based industrial products ▪ The general investment environment for doing business is approximately 60% conducive	▪ New needs in emerging urban market in centres of rising population	▪ Rising population and urbanization, leading to high demand ▪ Rising incomes have potential for high demand ▪ Traders now practice some level of processing to diversify their products (e.g. turning unsold roots into dried chips or agbelima)
Threats	▪ High competition from Thailand and Indonesia due to highly mechanized processing ▪ Seasonal changes in the supply of fresh cassava roots, coupled with price increases, affect processor profitability	▪ Long distance to markets ▪ Poor road network ▪ High transportation cost	▪ Increase in industrial demand could gradually decrease supply to wholesalers and retailers of fresh roots ▪ Rising competition from corn and barley that benefit from lower prices ▪ High competition from Thailand and Indonesia (highly mechanized processing) ▪ Price fluctuations in the sector, caused in part by the occasional gluts, affect cassava producers' ability to plan and expand crop cultivation

Sources: Samuel Darko-Koomson, Robert Aidoo, Tahirou Abdoulaye (2019[65]); WACOMP (2019).[66]

65 Samuel Darko-Koomson, Robert Aidoo and Tahirou Abdoulaye (2019). 'Analysis of cassava value chain in Ghana: implications for upgrading smallholder supply systems'. Journal of Agribusiness in Developing and Emerging Economies. Emerald Publishing Limited 2044-0839, DOI 10.1108/JADEE-05-2019-0066.

66 WACOMP (2019). 'A Value-Chain Analysis of the Cassava Sector in Ghana'.

8. LIBERIA COUNTRY PROFILE

8.1. COUNTRY OVERVIEW

Liberia is located on the Gulf of Guinea and shares borders with Sierra Leone to its north-west, Guinea to its north and Cote d'Ivoire to its east. Its tropical climate means it is generally hot and humid all year round. Monsoons bring rain from May to October, and temperatures can get as high as 32°C during daytime, while humidity remains high, especially along the coast and in the forests of the interior. Rain is also frequent during other months, except December to February, which corresponds to the dry season. The latter is more prevalent in the north.

Liberia's history started in the early nineteenth century as a settlement of the American Colonization Society, which encouraged and supported the migration of free African Americans to Africa. On 26 July 1847, it became the first African republic to proclaim its independence, hence Africa's first and oldest modern republic. It was spared the continent's colonization from Europe (also known as the Scramble for Africa). Over the years, economic and political ties with the United States remained strong, although internally a great social and economic divide persisted, with American Liberians forming a small elite that held disproportionate political power, and indigenous Africans being excluded from birthright citizenship in their own land until 1904. Ties with the United States ended in 1980 when political tensions resulted in a military coup. This marked the start of two-decade-old political instability during which the country experienced two civil wars. The peace agreement in 2003 paved the way for democratic elections in 2005 (in which the first African female president, Ellen Johnson Sirleaf, was elected) as well as a functioning unitary constitutional republic and representative democracy.

The majority (52.1%) of the 4.9 million Liberians live in urban areas, mostly in capital cities of the 15 administrative counties. They include of Monrovia, the country's capital city in the south-west (by far the most populous, with 939,524 individuals), Gbarnga in the north-east (45,835), Kakata in the centre (33,945) and Bensonville, located between Monrovia and Kakata (33,188). Indigenous Liberians are divided into three main ethnic and linguistic groups, all belonging to the Niger-Congo language family: the Mande, mostly found in the north-west and central regions of Liberia, and also in Senegal, Mali, Guinea and Sierra Leone; the Kwa, which occupy the southern half of the country; and the Mel in the north and the coastal region of the north-west, also known as the oldest inhabitants of Liberia. Of the more than two dozen dialects spoken in Liberia, the predominant ones include Kpelle, Bassa, Grebo, Dan, Kru, Mano, Loma, and Mandingo. English remains the official language.

Ghana – key facts	
Capital city	Monrovia
Area	11 369km²
Population, total	4.94 million
0–14 years	*40.8%*
15–65 years	*56%*
Youth literacy (15–24 years)	55.4%
Male (%)	*64.9%*
Female (%)	*45.6%*
GDP (nominal, USD billion, 2019)	3.07
GDP growth (real, 2014–19)	-0.05%
FDI, inflows	137.8
Gross domestic private investment	451.3 (14.7% of GDP)
Employment to population ratio (+15years)	73.9%
Employment to population ratio (15–24 years)	54.1%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	881.1 (28.7% of GDP)
Main exported products	*Rubber; diamonds; gold; iron*
Imports of G&S, 2014–19 (USD billion, 2019)	3,030.1 (98.70% of GDP)
Main imported products	*Fuel; machinery; foodstuffs; manufactured goods*
Inflation, 2014–19 (2019)	23.6%
Bank credit to private sector	540.3 (17.6% of GDP)
Gov. expenditure	1 025.4 (33.4% of GDP)
Gov. revenue	868.8 (28.3% of GDP)
Total public debt	1,163.5 (37.9% of GDP)
Currency	Liberian dollar (LRD)
Language	English (official), Mande, Kwa, Mel, Vai and Kru

Sources: World Bank, IMF, UNCTAD, and Comtrade.

8.2. BROAD ECONOMIC OVERVIEW

A STABLE AND DYNAMIC ECONOMY

The World Economic Forum's Global Competitiveness Index ranks Liberia as the 132nd most competitive economy worldwide, 32nd in Africa and 11th in the West African region, with an overall score of 40.6/100. The dimensions that positively contribute to this relative performance are macroeconomic stability (the level of inflation and the sustainability of fiscal policy), with a score of 63.4/100 and global ranking of 124th, and business dynamism (the private sector's capacity to generate and adopt new technologies and new ways to organize work, through a culture that embraces change, risk, new business models, and administrative rules that allow firms to enter and exit the market easily), on which the country scored 55.3/100 and ranked 85th globally.

POLITICAL STABILITY AND ACCOUNTABLE GOVERNANCE

According to the World Bank's Governance Indicators, the country comes 181st worldwide, 38th in Africa and 14th in West Africa, with an overall score of 30.4/100. The country appears to perform relatively well when it comes to the institutional dimensions of voice and accountability (5th in West Africa) and political stability and the level of violence (6th).

TIMELINESS OF THE LOGISTICS SYSTEM

Liberia's logistics system is ranked 143rd worldwide, 42nd in Africa and 12th in the region, with a score of 44.6/100, according to the World Bank's Logistics Performance Index. Timeliness of shipments in reaching destinations within the scheduled or expected delivery time is the dimension in which the country performs relatively well, with a score of 65/100, the 13th highest in Africa and 3rd in the region.

In addition, in the African Development Bank's 2020 Africa Infrastructure Development Index, the country is ranked 40th on the continent and 11th in the region, with a score of 14.5/100. The favourable dimension is the water and sanitation system; its quality is ranked 34th in Africa and 9th in West Africa, with a composite score of 61.6/100.

GOOD ENVIRONMENT TO START A BUSINESS

The country is the 141st Best County for Business according to Forbes Magazine, as a result of its combined dynamism (GDP growth), level of development (GDP per capita), trade performance (ratio of trade balance to GDP) and size (population). It comes 32nd in Africa and 12th in the region.

Furthermore, according to the World Bank's 2020 Ease of Doing Business, Liberia is ranked 175th out of 190 economies, with an overall score of 43.2/100. It comes 43rd in Africa and 15th in the West African region. There are some favourable aspects of the business environment, such as the process of starting a business, which is ranked 75th worldwide (a total of five procedures – the 3rd lowest in Africa – and the lowest paid-in minimum capital requirement, at zero). The country fares relatively well when it comes to paying taxes, with a global ranking of 76th, owing to the time it takes (140 hours yearly, the lowest in the West African region) and the number of payments (33 per year, the 4th lowest in the region).

8.3. INVESTING AND DOING BUSINESS IN LIBERIA

AN IMPROVING ECONOMIC DYNAMISM

In 2014–19, the Liberian economy contracted by 0.07% yearly. The mining sector (mostly iron ore, gold and diamonds) and, to some extent, the agricultural sector, constitute the main drivers of the economy as well as the country's exports. The cumulative effect of the COVID-19 shock led to a further reduction of GDP, which declined by 2.87% in 2020. As a result of a strong government response programme, the economy is expected to go on a new growth trajectory that will help the country turn the page of fragility and its post-conflict status, weak capacity and limited physical and human capital accumulation. The launch of the government's ambitious Pro-Poor Agenda for Prosperity and Development (PAPD) will play a significant role in restructuring the economy.

A LOW-COST BUSINESS ENVIRONMENT

Liberia received an average of $516.7 million per year worth of FDI in 2010–19. The low cost of business-related administrative processes has been a key element of the country's attractiveness to foreign investors. For example, **starting a business** involves a total of five procedures (the 3rd lowest figure in Africa). They are: (i) Reserve a unique company name with the Liberia Business Registry (LBR) – the reserved names should be used in the following 120 days; (ii) Register the company at the LBR; (iii) Obtain proof of payment at the LRD, which has a central bank window; (iv) Receive the business registration certificate from the LBR; and (v) Register with the National Social Security and Welfare Corporation (NASSCORP). The entire process takes an average of 18 days to complete, and total fees amount to LFD 5,400 ($31).

Obtaining a **construction permit** requires an average of 87 days to go through some 25 procedures. Administrative fees are $6,675, which amounts to 24.1% of the standardized warehouse value of LRD 4,315,800 ($24,765). Most of the procedures involve the Ministry of Public Works.

For all business-related administrative formalities, foreign investors are guaranteed **equal treatment** compared to their national and West African counterparts, and visa rules allow for a duration of stay for expatriates that matches that of the business or the employment.

The **labour force** in Liberia comprises 2,229,000 individuals (77% of the total population aged 15 years or older). When it comes to the extent of labour productivity as a result of education and health, the country ranks 49th in Africa and 15th in West Africa, according to the World Bank's Human Capital Index (on the 0–1 scale, it scores 0.317). The country has a national minimum **wage** of LRD 15 per hour ($0.09). The average worker earns LRD 71,800 ($412) per month, and typical salaries range between LRD 18,200 ($106) and LRD 320,000 ($1,856) per month.

Getting **electricity** requires four procedures (2nd lowest number in Africa), and it involves the Liberia Electricity Corporation (LEC). They include obtaining external work and internal wiring inspection, meter installation and final connection from the LEC, at a total cost of $13,143. The tariff is $0.39 per kWh on average. The limited reliability of the supply and tariff system means frequent outages, and the access rate for the general population is 12% (20% in the Monrovia).

Water obtained through the Liberia Water and Sewer Corporation has a differentiated tariff based on total consumption: for up to 8.52 cubic metres per month (first bloc), the price is LRD 26.42 ($0.15), and above (second bloc), the charge is LRD 66.04 ($0.38). Access to at least basic drinking water services is estimated at 72% nationally (or 84% in urban areas).

The **infrastructure network** comprises the country's single international airport (Roberts International Airport), located approximately 56km from Monrovia. The capacity is estimated at 228,000 passengers annually, with direct flights offered by approximately seven airlines to and from the region, East Africa and Europe (Paris and Brussels).

The road infrastructure, mostly unpaved, links main cities. They are also used for transit with neighbouring countries, such as the two coastal road segments of the Trans-African Highway.

The railway system is made of three main lines: Mano River Railway, Bong Mine Railway and Lamco Railway. They mostly link mining sites to the ports of Monrovia and Buchanan. In addition to primarily carrying freight, they have a very limited passenger service between major cities.

There are four ports in Liberia, under the control of the National Port Authority. The main ones are the Freeport of Monrovia and the Port of Buchanan (approximately 272km south-east of Monrovia). The former is the largest, and has the capacity to accommodate large vessels. It is connected to the city by a 1.5km-long access road. Most of the country's imported cargo transits through the port, which can then be transhipped to other Liberian ports or to third countries (especially landlocked neighbours).

The country's **tax system** includes the following taxes or mandatory contributions for businesses: corporate income tax (at statutory rates of 25% of taxable income or 2% of turnover), social security (6% of gross salaries), property tax (1.5% of assessed value of building), value-added tax (10%) and tax on earned interest (15%). A total of 33 payments are made in a typical year, and they amount to 46.2% of corporate profit, the 10th smallest in the region.

As part of the ECOWAS CET, imported goods in Liberia fall into five tariff bands, ranging from 0% (essential social goods) to a maximum of 35% (specific goods for economic development). Additional measures aimed at protecting vulnerable industries while guaranteeing fair competition in the liberalized regional market include safeguard measures, anti-dumping measures, and anti-subsidy and countervailing measures.

The country's **banking and financial system** is part of the West African Monetary Zone (WAMZ) that seeks to establish monetary and financial integration among ECOWAS member countries outside WAEMU, with the ultimate goal of being a currency union in the whole region (the ECO). The level of the system's financial soundness is indicated by the capital adequacy measured by the regulatory capital to risk-weighted assets of 27.6, and asset quality captured by the ratio of non-performing loans to total loans of 13.8% (as of 2018). Overall, the banking sector, which comprises 9 banks and 11 rural community financial institutions, has contributed to financing the economy through credit averaging 17.6% of GDP. Anyone can freely hold a **foreign currency denominated account**, and the system guarantees free repatriation of capital and currency conversion. The **exchange rate** has been relatively stable since early 2021 at approximately LRD 170 per USD.

Government incentives to attract foreign investors include tax deduction on specific activities. Equipment and machinery, raw materials and capital spare parts, among other inputs, are exempted from import duty for up to 100% of their dutiable value. The National Investment Commission (NIC) is the government agency charged with promoting investment opportunities, attracting and supporting the growth of value-adding FDI, and advocating for and strengthening the domestic private sector. In 2017, it created a national special economic zone (an industrial park), administered by the Liberian Special Economic Zone Authority. Foreign investors can enjoy various fiscal and financial advantages, especially those that target the opportunity-filled sectors of food processing, mostly for cocoa and palm oil.

Overall, Liberia offers plenty of opportunities to foreign investors, through the relatively low cost of labour, free repatriation of profits and no currency exchange, supportive fiscal regime, guarantee against unfair expropriation, ease of starting a business, as well large untapped natural resources. The business environment's friendliness and the increasingly stable and dynamic economy also contribute to making the country a favourable destination for international investors.

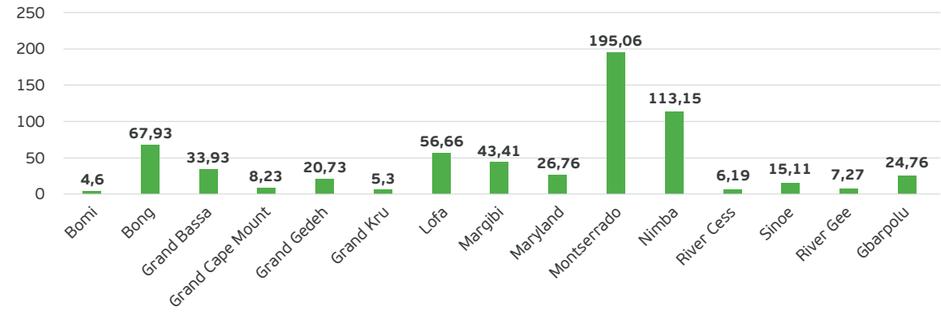
8.4. CASSAVA IN LIBERIA: AN OVERVIEW

Liberia produces more than half a million tons of cassava annually, placing it at 43rd position globally among cassava-producing nations. One and a half million Liberian people grow cassava in 264,009 households, distributed across 15 counties, as shown in Figure 38. Most parts of Liberia, with the exception of the northern savannah region, lie within the tropical rainforest belt of West Africa. Liberia has two primary seasons: a rainy season from May to October, and a dry season from November to April. Cassava is mainly produced under rain-fed systems, with rainfall between the months of March and October, while November to February constitutes a dry spell (Figure 39). However, the crop can be grown almost all the year round in monocrops and intercrops. Cassava production is by traditional technologies, with very low levels of value addition or product development. It is grown on flat land and is usually intercropped with maize and sometimes sweet potatoes and peppers. The total area available per household no matter the land holding type varies from 0.202ha to 2.5ha. At least half of this total area is allocated to cassava production for each farming year. This clearly indicates the importance of cassava as a food and a cash crop within the farming system. The types and varieties of cassava commonly grown in Liberia are listed in Table 31.

Cassava is second to rice as the most important food crop in Liberia and plays a significant role in the farming system. Freshly harvested cassava roots are used locally for making gari, fufu, starch, cassava deepa, kanyan, dumboy, cassava gaegba, chips, HQCF and other starch (Table 32). Cassava leaves are also used in preparing soup in most households and it is highly marketable, especially the leaves obtained from a local variety of cassava called Managbolu. Cassava starch has food and industrial uses. Food-grade starch is widely used in foods, feed and medicine, while industrial starch is used in textile, paper, chemicals and pharmaceuticals, etc.

It is estimated that the volume of cassava currently produced in Liberia is not enough to meet local demand. As shown in Figure 40, urban demand for cassava is very high, comprising 67% of cassava traded locally in 2014.

Figure 38: Main cassava production regions in Liberia (tons/year)



Sources: FAO/World Food Programme (2006). Crop and food security assessment for Liberia. Working paper, p. 34. Caulibaly, et al. (2014). Regional cassava value chains analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292.

Figure 39: Season calendar of cassava planting and harvesting in Liberia

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
South/south-east												
Planting												
Harvest												
North/central												
Planting												
Harvest												

Source: Field survey (2021).

Table 31: Types and varieties of improved cassava in Liberia	
TMS-91/0416	High dry matter, multiple pest resistance, high starch, high dry matter and high yielding
TMS 95/0289	Multiple pest resistance, high yielding, high dry matter and high starch
TMS-01/1663	Yellow roots, high cassava mosaic disease resistance, average dry matter and high yielding
TME-1	Local landrace that has been released as a variety
TMS-94/0239	Multiple pest resistance, high yielding, high dry matter and high starch
TMS-92/0057	High dry matter, multiple pest resistance, high starch, poundable, high yielding and stays green
TMS-95/0306	Multiple pest resistance, high dry matter, high yielding and high starch
TMS-MH95/0414	Multiple pest resistance, high yielding, poundable, high dry matter and high starch
TMS-96/0097	Multiple pest resistance, high yielding, high dry matter and high starch
TMS 98/0505	Multiple pest resistance, high yielding, high dry matter and high starch
TMS-01/1235	Yellow roots, high cassava mosaic disease resistance, average dry matter and high yielding
TMS-00/0357	Multiple pest resistance, high yielding, poundable, stay green, high dry matter and high starch
TME-7	Multiple pest resistance, poundable, high dry matter, high yielding and high starch
TMS-95/0166	Multiple pest resistance, early bulking, high yielding, average dry matter and drought tolerant
TMS-01/0040	High dry matter, pest resistance, early high yielding, pink skin, drought tolerant and high starch
TMS 01/1206	Yellow roots, high cassava mosaic disease resistance, average dry matter and high yielding

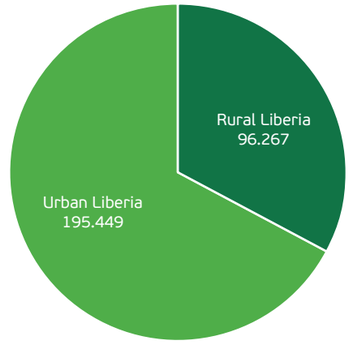
Source: Adapted from Awoyale W. (2018). 'Training Manual for the Production of Cassava Products in Liberia'. International Institute of Tropical Agriculture, Ibadan, p. 44.

Table 31: Types and varieties of improved cassava in Liberia

Product	Uses	Current buyers	Price USD/ton	Vol. demanded (tons/year)	Vol. supplied (tons/year)	Supply gap/consumers' preference
Fresh root	Food, production of other products	Large- and medium-scale processors	100–140	725 000	80 128	Demand increases due to six new cassava processing factories built and introduction of new products. There is a huge root supply gap preventing the factories from meeting up with factories' installed capacity.
Gari	Food	Local market	600	115 600	65 104	Shortage due to use of gari for school feeding programme; awareness of biofortified yellow root gari; government patronage; consumers' preference
Fufu/flour (odourless and wet)	Made into paste and eaten with soup	Local buyers and commercial buyers	720/1 600	33 000	25 040	Improved product quality; export initiative by large-scale processors; government patronage in food aid programmes; consumers' preference for odourless type
Deepa	Local fufu	Local market	600	28 500	25 040	Due to increase in cost of rice
HQCF	Confectionery, pasta and starch, etc.	Bakers, millers and industrialists	900	35 080	5 500	Introduction of new, hygienic products and a good substitute for use in bakeries
Starch	Pharmaceuticals, biscuits, chalk, paper, textiles and food	Industrialists	400	37 500	25 040	Shortage due to high demand for starch by industrialists
Leaves	Vegetable	Local market	200	86 580	71 364	Awareness of the nutritional/health benefits of leaf

Sources: Adapted from Caulibaly, et al. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292.

Figure 40: Local demand and market volume (tons/year) for cassava in Liberia



Source: Caulibaly, et al. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292.

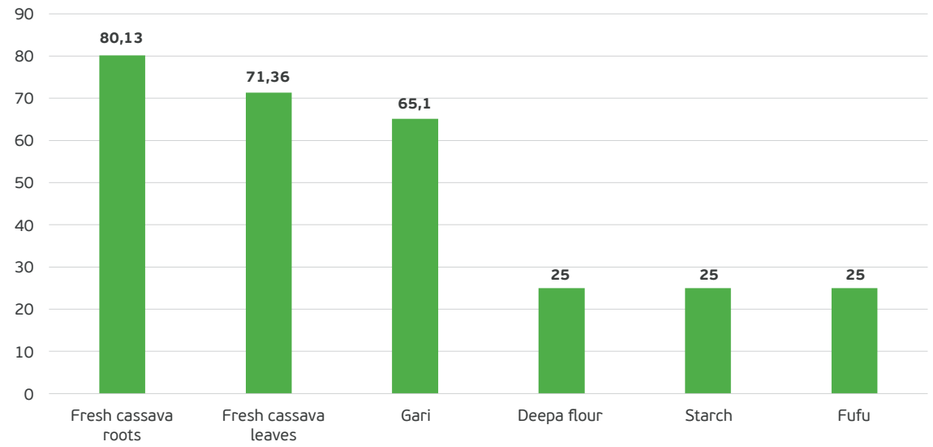
CASSAVA TRADE IN LIBERIA

DOMESTIC TRADE

The main counties of cassava production in Liberia are Bong, Margibi, Montserrado, Grand Cape Mount, Grand Bassa, Bomi, Nimba and Sinoe. Cassava products are chiefly consumed in Monrovia, Montserrado County due to its high population. Two new and dominant players on the domestic market for cassava products (gari and fufu) in Liberia are the school feeding (WFP Home-Grown School Feeding Programme) and food aid to communities' programmes. Doula and the Red Light Market in Montserrado County are the main centres of cassava trade. Other than fresh cassava roots and leaves, gari is the most traded cassava product on the domestic market in Liberia (Figure 41). The Government of Liberia and the Ministry of Agriculture have selected cassava as priority value chain. According to opinions from the industrial cassava hub managers, domestic production (especially for gari and fufu flour) would need to increase by at least 200% to satisfy local demands. This implies that the actual cassava production is not yet sufficient to satisfy local markets, and there is no surplus, which can target regional and international markets presently. The trend of increase in demand for cassava products is bound to increase further to match the rate of population growth. Analysis of traders' characteristics reveals that they are relatively young and mainly male, with 75% of them without formal education.

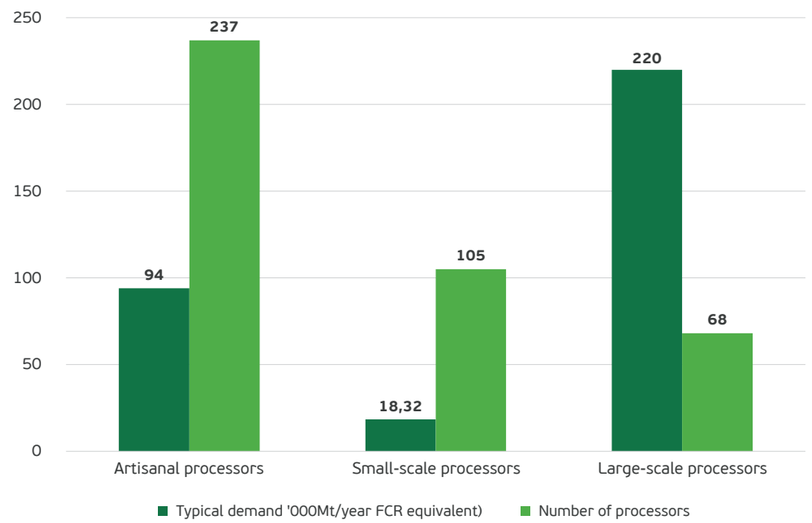
The transactions in cassava trade in Liberia is dominated by artisanal and small-scale actors (Figure 42). There are eight larger-scale processors who typically own a 5ha–10ha farm each and augment their cassava needs by buying from the domestic market. These industrial processors often process cassava roots into food and industrial raw materials for use in agro-allied industries. Industrial processing requires sophisticated equipment. Opportunities for investment exist in the production of HQCF, starch (food grade and native), ethanol, dextrose and cassava beer. Currently, large commercial processors are located at various cassava hubs, namely Bensonville, Gangama, Kakata, Louisiana, Tubmanburg, Compound #3 Grand Bassa County, CARI and Sinoe. Each hub has the capacity to process 20 tons of fresh cassava roots per day into various products. Sixty per cent of large commercial cassava enterprises are run by or belong to 'beneficiaries' nicknamed as 'champions', having been in the business for more than 10 years. Furthermore, the majority of the modern cassava processing facilities are established through donor/Government of Liberia livelihood projects and programmes. Large commercial processors and locations are presented in Table 33.

Figure 41: Volume of cassava products traded in the domestic market in Liberia (thousand tons/year)



Sources: Adapted from Caulibaly, et al. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292.

Figure 42: Cassava processor segmentation and typical demand (tons/year in FCR equivalent) in Liberia



Source: Adapted from Caulibaly, et al. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292. And FAOSTAT (2019).

Table 33: Location of industrial processors in Liberia

Processor	Location/address	Coordinates
Falama Incorporated	Gangama	N06.57011, W010.87703
Women of Destiny	Bensonville, Montserrado	-
United Agriculture Cooperative Inc.	Jeremiah Gardee Compound #3, Grand Bassa	-
Bomi Gari	Tubmanburg, banana farm (Bomi)	N06.88134, W010.79925
Central Agricultural Research Institute (CARI) hub	CARI, Suakoko	N07.00053, W009.56291
Citizen Against Poverty Farm	Sinoe	
Bravo Sister Enterprise	Bong Mines Rd, Kakata	N06.54243, W010.34056
Liberia Business Incubator	Louisiana, Montserrado	-

As shown in Table 34, the prices paid by buyers of fresh cassava roots vary from $87.5/ton to $162/ton depending on the location of the farm, the variety of cassava (local/poundable or improved industrial varieties), the volume of cassava required in one transaction and the intended end use (industrial or domestic). In the local cassava markets, the local/poundable varieties of cassava, even though lower yielding (approximately 4.5Mt/ha compared to 12Mt/ha with improved/bitter varieties under similar conditions), are preferred by local consumers and, as such, tend to be more expensive in any given location. Prices are also higher in areas close to urban markets (Montserrado and Margibi) than in the rural areas/hinterland due to transportation costs. The cost of transportation varies depending on distance, season, state of road, size of truck and quantity of produce (Table 35). The cost is the same for all cassava products – stems, fresh root and processed products. Truck sizes are usually distinguished by the number of tyres: six tyres is considered small, 10–12 tyres medium, and above these, a half trailer/full trailer. The forms in which locally processed cassava is sold and the main players involved in the trade are shown in Table 36.

Table 34: Typical farm gate prices in Liberia

County/ region	Farm gate price (USD/ton of fresh root)	
	Industrial uses – large orders	Domestic uses – small orders (local/poundable varieties)
Bong	110–112.5	125–162.5
Lofa	110–112.5	125–162.5
Nimba	110–112.5	125–162.5
Montserrado	112.5–125	150–175
Bomi	87.5–100	125–150
Sino	110–112.5	125–150
Grand Cape Mount	87.5–106.25	125–150
Grand Bassa	87.5–106.25	125–150
Margibi	112.5–125	130–150
Gbarpolu	87.5–100	125–150

Source: Field survey (2019/2020).

Table 35: Cost of transportation along main corridors in Liberia

From corridors/counties	Price (USD)
Bong, Montserrado, Margibi, Bomi and Grand Bassa to Sinoe with small/medium truck	500–700
Montserrado Margibi to Grand Bassa	250–300
Bomi to Rivercess, Grand Cape Mount	300–350
Grand Bassa, Bomi, Montserrado, Bong to Gbarpolu and Rivercess	400–500

Source: Field survey (2019/2020).

Table 36: Industrial processors: Description of segments and main players in Liberia		
Segment	**Main players**	**Description of segment and gaps**
Starch	Medium and industrial	Food-grade starch is highly required by beverage companies as fillers and main products such as seasonings, pasta, yoghurt, cassava milk and sweeteners, and by pharmaceutical companies. It is mainly sourced as imports into the country, which creates a huge opportunity for investors. Native starch is used by biscuit manufacturers, paper production companies, pharmaceutical companies and textile companies. Approximately 87,000 tons/yr of starch produced locally is grossly inadequate to meet manufacturers' needs, which is estimated at 500,000 tons/year. This presents an opportunity for investment.
Ethanol	Industrial	Raw cassava roots can be transformed into ethanol through fermentation and liquefaction. Global interest in the use of ethanol (biofuel) as an alternative source of energy is increasing. Mainly imported into Liberia for industrial purposes, although data on volume/barrels brought into the country is not available. Huge opportunities exist for investment in the production of ethanol for various industries and fuel for transportation.
HQCF	Medium and industrial	Unfermented, white, smooth, odourless flour of high economic value produced from cassava roots. It is a raw material for the production of glucose syrups, industrial alcohol and bakery products, the production of adhesives, as an extender for plywood glues and as a source of starch in textile sizing. Quantity of HQCF produced in the country (approximately 120,000 tons) is inadequate due to the low awareness level of the numerous benefits as well as new entrants into flour industries, bakeries and adhesives. Current requirement to support both country needs and export is estimated at more than 600,000 tons/year.
Glucose syrup	Industrial	Although uses for this commodity to support the beverage industries have been identified, glucose syrup is not yet produced in Liberia. Presently, the product is imported by regular users, which offers opportunities for investment. However, data for quantity imported is not available.

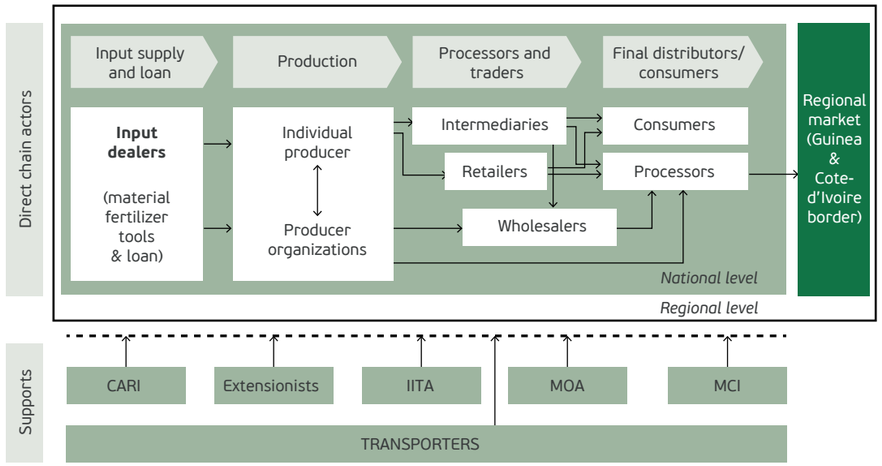
INTERNATIONAL TRADE

Liberia is an active player in the global cassava trade. It is noted that a lot of cross-border trade in cassava and cassava products takes place in the country. There is, however, no formal record of these transactions. For example, the meagre and unreliable information obtained from some traders indicates that, in 2021, the total transactions in cassava crossing the Liberian border was less than $10,000.

8.5. THE CASSAVA VALUE CHAIN AND STAKEHOLDERS IN LIBERIA

The cassava value chain is Liberia is broadly made up of a simple trading relationship where local farmers produce cassava that is processed by artisanal processors and sold to local households, where it is consumed. The marketing channels involve a set of village traders, county buyers, wholesalers, cooking vendors and retailers (Figure 43).

Figure 43: Cassava value chain map in Liberia



Note: CARI – Central Agricultural Research Institute; MOA – Ministry of Agriculture; IITA – International Institute of Tropical Agriculture; MCI – Ministry of Commerce and Industry.

Source: Caulibaly, et al. (2014). Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia. Available from https://www.researchgate.net/publication/269988292.

Input dealers and service providers (transport) are the other key players of the Liberian cassava value chain. The limited number of agri-dealers are mainly involved in selling fertilizers and agrochemicals for vegetables. In the past, the cassava value chain received the least purchased inputs among commodities, but in present times, use of fertilizers, pesticides, farm tools and planting materials have increased tremendously due to development partners' activities in the areas of **research, agricultural extension/ advisory and capacity building.** Some of the major input dealers contracted by the Ministry of Agriculture and non-governmental organizations distribute improved cassava stems to farmers. The major sources of improved cassava stems are the International Institute of Tropical Agriculture (IITA), the Central Agricultural Research Institute (CARI) and designated outgrowers of IITA improved cassava stems at various cassava hubs. Apart from the local varieties widely used by producers, CARI focuses on developing cassava varieties for high yields, disease resistance and root quality in collaboration with IITA. CARICASS 1, CARICASS II and CARICASS III are examples of varieties developed and released in CARI for multiplication.

8.6. INVESTING IN CASSAVA: KEY FIGURES

Agriculture is the foundation of Liberia's economy and **the key to food security and poverty reduction**. According to the National Investment Commission, Liberia is open and ready for investments. The processes are transparent and fair. Investment incentives are available in prioritized areas, especially agriculture. The registration process to start a business in Liberia takes 3–7 days.

Within the context of the **tax system modernization programme**, maximum annual tax on profits has been reduced to 25%. Furthermore, businesses are granted attractive tax breaks and special investment incentives to both foreign and domestic establishments. These are parts of government's contributory efforts to support business establishments. In 2017, a law to create the Liberia Special Economic Zone Authority was put in place to facilitate the attraction of domestic and foreign investment. Even though the essential elements that constitute an enabling environment for business investments are cross-cutting and non-sector specific, there are particularities in certain economic sectors that make it desirable to differentiate their nature and extent.

Access to land: Liberia has abundant **arable land and a hospitable climate** for agriculture. Agro-logistic services are presently developing, thereby boosting agricultural productivity and farm incomes. Land rights issues remain critical for investment in the cassava sector. Promulgated in 2018, the **Land Rights Act clarified land tenure**. The comprehensive implementation of the law has begun to resolve uncertainty around land ownership. Presently, with the new land policy in Liberia and the establishment of the Liberia Land Authority (LLA), access to agricultural land is made easy and secure, especially for investors. The National Investment Commission is a stakeholder and liaises with the LLA and local authorities to secure land for investors with valid agreements.

Access to finance: Sources of capital include commercial banks, microfinance banks and financial service providers. Pre-finance from buyers is not commonly practiced in Liberia due to the lack of strong/organized outgrower schemes. Less than 25% of the processors and producers have access to credit from the above-mentioned sources. The others rely more on informal sources such as NGOs, money lenders, susu/cooperatives, relatives and neighbours to cover their needs due to lack of collateral. Lending rates in financial institutions and financial service providers are high, with interest rates of 10%–16%. Asset finance, including land and houses with valid documents, **attract interest rates of 10%–16%**. Peer-to-peer lending is only feasible within the artisanal processors and small-scale producers in the communities. Lending is generally based on trust/long-term relationships, but, according to most of the actors interviewed, trust is lacking and many are not ready to lend.

Access to water: **Agriculture in Liberia is rain-fed**, and upland irrigation has not been seriously considered an issue in Liberia, probably due to water surpluses in all the agroecological zones and the availability of large areas of swamps (Wollor and UNDP. 2011). Access to water for cassava production and processing is feasible considering the precipitation pattern in Liberia. Rainfall spans approximately 6–8 months, supplying sufficient moisture for all-year-round production of the crop. Entire agricultural lands surrounded by inter-logging water bodies such as streams, rivers and tributaries ensures a constant moisture supply to growing crops.

Rules and regulations: As the country is aware that the promotion of sustainable agriculture leading to food security and improved living standards for the population requires the safe use of approved agrochemicals, a law providing for the establishment of the **Liberia plant pesticide regulatory services bureau** within the Ministry of Agriculture was put in place. This law could contribute immensely to the development and expansion of cassava production in the country, because weed management by manual labour has greatly limited most farmers in developing large/commercial cassava farms.

Table 34: Typical farm gate prices in Liberia

Indicator	Unit	Cost
Cost of farmland[1]	USD/ha	250– 300
Cost of land in rural areas[2]	USD/ha	600–850
Cost of land in urban areas	USD/ha	7 500–18 000
Cost of electricity[3]	USD/kWh	0.35
Cost of unskilled labour[4]	USD/day	3.5–5.5
Cost of skilled labour[5]	USD/day	15–35
Cost of transportation to Freeport (km)[6]	USD one-way	1–1.25
Enabling Business in Agriculture score (2019)	USD	16.42
Doing Business (2020) score: 49 (rank out of 180)	Rank	49
Gbarpolu	87.5–100	125–150

*Note:*1. Represents cost of farmland (far from village) in Montserrado, Bong, Nimba, Lofa, Gbapolu, Bomi, Grand Bassa and Sinoe Counties, 2. Represents cost of land around the villages of above-mentioned counties. Urban areas include outskirts of Montserrado and Roberts International Airport (RIA) highway, 3. Represents general cost of electricity in all the counties using electric current, including rural electricity supply, 4. Represents those who might not be able to read or write pure English, 5. Represents cost of skill labour for artisans, 6. Represents cost of transport to Freeport: From Bong (310km), Nimba (403km), Lofa (467km) and Montserrado (20km).

Sources: Smart News Liberia (2020); World Bank Ease of Doing Business in Agriculture report (2019); author's survey report (2021).

8.7. INVESTMENT OPPORTUNITIES IN LIBERIA'S CASSAVA SECTOR

The investment opportunities in Liberia's cassava sector must be built on the premise that there are no cassava roots to feed any new demands created by tapping into the opportunities. Fertile, arable land is, however, available in all the 15 counties where commercial cassava cultivation can be done to tap into the investment opportunities mentioned below.

FRESH CASSAVA ROOTS

This can include waxed, root peeled, dried, instant boiled and vacuum-packed cassava. The development driver priority would be to promote food security and food import substitution. The destination markets include village markets, city markets, supermarkets, millers and processors. Waxed and vacuum-packed cassava are meant for export.

PROCESSED CASSAVA

This segment includes basic processed products such as gari, fufu, baby food, cassava bread, snacks and biscuits, etc. Targeting this segment will promote increased employment, food import substitution and food security in both rural and urban areas. Markets identified include village and city markets, but also regional and international markets (the EU, United States and Asia).

ANIMAL FEED

The second most important use of cassava worldwide is animal feed. Approximately one-quarter of the global production of cassava is used as a feed ingredient for pork, poultry, cattle and fish farming, directly or indirectly through its incorporation into compound feeds. Within the EU, the largest markets for cassava in terms of feed are the Netherlands, Belgium, the Kingdom of Spain, Germany and the Portuguese Republic.

HIGH QUALITY CASSAVA FLOUR (HQCF)

Mixed cassava and wheat flour (composite) for bakeries in Liberia and the subregion is another market opportunity for sector stakeholders and for an effective substitution of imported wheat flour. HQCF is also a major component in the production of glucose syrup.

BIOFUEL MARKET

The biofuel industry could also be a viable market segment, because biofuel is presently imported into Liberia. Biofuel is also required by industrialists and for transportation. In the Nigerian State of Ekiti, Chinese investors recently constructed a $23.4 million integrated cassava-based biofuel ethanol refinery. The refinery, which is scheduled to be completed within 22 months, will produce 30,000 litres of ethanol per day and create more than 1,000 jobs.

FOOD-GRADE STARCH

Food-grade starch factories are needed to produce quality starch required by the food and beverage industries for the production of hydrolyzed sodium glutamate, pasta and replacers for most dairy products.

GLUCOSE SYRUP FROM CASSAVA

Several industries in Liberia use glucose syrup (mainly imported) in their products. In an attempt to expand existing markets for cassava, technologies were developed to provide a local supply of glucose syrup to substitute for the imported product. This technology could yield economic and social benefits to the farmers who produce the cassava, entrepreneurs who produce the syrup, as well as the end users of the glucose syrup. Some of these benefits would include foreign exchange savings, improvement in income levels, employment creation, efficient use of natural resources and easy access to an industrial raw material.

CASSAVA STEM PRODUCTION

Cassava planting materials (stems) are not readily available to farmers when needed. The improved varieties have not been distributed to all the counties or locations that did not benefit from the just-concluded Smallholder Agriculture Production Enhancement and Commercialization (SAPEC) Project implemented by IITA. This presents a huge opportunity for commercial stem production in collaboration with Liberia's seed system and CARI.

CASSAVA CHIPS

Cassava chips are currently traded locally, but export of cassava chips has not taken off. According to one of the cassava business organizations, Chinese companies have placed orders for large quantities of cassava chips from Liberia. The existing artisanal processors are unable to meet this Chinese order with their current scale of operation, available technologies, operational logistics and product quality. The real opportunity would be in the deployment of appropriate technologies, ensuring consistency of quality as well as managing the procurement and aggregation of large volumes of cassava roots from smallholder farmers who currently dominate its production.

8.8. CASSAVA PROMOTION PROGRAMMES AND POLICIES IN LIBERIA

The relevant cassava promotion programmes and policies in Liberia and the main features are outlined in Table 38.

Table 38: Relevant cassava promotion programmes and policies in Liberia

Programme/policy	Main features
Lift Liberia Poverty Reduction Strategy (PRS)	Government's overall vision and major strategy for moving toward rapid, inclusive and sustainable growth and development
Liberia National Cassava Sector Strategy	Guide the development of a viable cassava sector as a major agricultural and economic driver in achieving the objectives of Liberia's economic agenda and poverty reduction
Liberia Agricultural Sector Investment Plan (LASIP 11): 2018–22	A plan toward implementing the Pro-Poor Agenda based on its pillars: economy and jobs. Focusing on five pillars: food and nutrition security; development of global value chains and market linkages; strengthening of agricultural extension and research and development; support of sustainable production and natural resource management; and governance and institutional strengthening
Republic of Liberia Country Strategic Opportunities Programme (COSOP): 2020–24	To ensure that the International Fund for Agricultural Development (IFAD) country operations produce a positive impact on poverty
Smallholder Agriculture Development for Food and Nutrition Security (SADFONS)	Focuses on the production and value addition of cassava, rice and vegetables

INDUSTRY BODIES

The industry bodies relevant to Liberia's cassava sector comprise local NGOs and cooperative organizations involved in cassava production, value addition and marketing (Table 39).

Table 39: Industry bodies relevant to Liberia's cassava sector

Organization	Role
Margibi Women in Action for Development	Cassava production and processing group – 89 members
National Cassava Producers and Marketers Association	Cassava production and value addition group – 320 members
National Association of Cassava Processors	Value-addition group – 210 members
United Farmers Network	Commercial cassava farming group – 65 members
Liberia Integrated Professional Agriculture Services (LIPAS)	Cassava production and value-addition group – 30 members
Progressive Farmer Organization (FBO)	Cassava production and value-addition group – 30 members
Kukatonon Women Agriculture Cooperative	Cassava production and value-addition group – 30 members
United People Agricultural Cooperative (UPAC)	Cassava production and value-addition group – 210 members
Gbomkuma Women Group	Cassava production and value-addition group – 32 members

8.9. SWOT ANALYSIS OF LIBERIA'S CASSAVA SECTOR

Table 40: SWOT analysis of Liberia's cassava sector

Inputs and services	Production	Artisanal processing
Strengths		
Available customers	Availability of improved varieties	Availability of market
Weaknesses		
Limited funds for loans	Lack of farm machines	Poor financing
Opportunities		
Availability of inputs/services	Good environmental factors	Capacity building
Threats		
Inadequate information	Lack of functional plant quarantine unit	Long distance to market
Industrial processing	**Logistics**	**Trade**
Strengths		
Availability of market	Goods available	Availability of products
Weaknesses		
Inadequate raw material	Unexpected rise in fuel prices	Low purchasing power
Opportunities		
Capacity building	Service in demand	Good agroecology
Threats		
Lack of spare parts	Bad roads and bridges	Bad roads

9. NIGERIA COUNTRY PROFILE

9.1. COUNTRY OVERVIEW

Nigeria is the largest African economy and the 26th worldwide. As such, it represents a major economic and political player in the region and in Africa. It is a federation of 36 states, in addition to the Federal Capital Territory of Abuja. It shares land borders with the Republic of Benin to the west, Cameroon to the east, the Niger to the north and Chad to the north-east. It has maritime borders with Equatorial Guinea, Ghana and the Democratic Republic of Sao Tomé and Príncipe on the Gulf of Guinea. Nigeria has a tropical climate with variable rainy and dry seasons, depending on the location. The south is hot and wet most of the year, the inland tends to be dry and the far north is dominated by a semi-arid climate with little precipitation. The length and precipitation of the rainy season follow this climatic pattern, with short-period rainfall averaging 500mm per year in the north and longer-period rainfall of 3,000mm on average in the south-east.

Nigeria's rich history is marked by many ancient African civilizations, such as the Kingdom of Nri, the Benin Empire and the Oyo Empire. The Songhai Empire that dominated the Western Sahel in the fifteenth and sixteenth centuries also occupied part of the region known today as Nigeria. British colonization started in 1851 with an invasion and later formal annexation of Lagos, and lasted until 1960 when the country gained independence. In 1999, the advent of the Fourth Republic and a new constitution marked a democratic renewal of the political system. The latter occurs within the framework of a federal, presidential, representative democratic republic, in which executive power is exercised by the government, and legislative power by the federal government and the two chambers of the legislature: the House of Representatives and the Senate.

The Nigerian population is estimated at 210.1 million, representing close to half of the total West African population, and the largest in Africa. More than half of Nigerians live in urban areas, mostly in the States' capital cities such as Kano, Lagos, Abuja, Kaduna, Katsina, Oyo and Rivers. The rich multicultural setting consists of an estimated 250 ethnic groups in Nigeria, each one corresponding to a specific language. The major ethnic groups are the Hausa-Fulani, the Yoruba and the Igbo. English remains the official language.

Nigeria – key facts	
Capital city	Abuja
Area	910 770km²
Population, total	201 million
0–14 years	*43.7%*
15–65 years	*53.6%*
Youth literacy (15–24 years)	75%
Male (%)	*81.6%*
Female (%)	*68.3%*
GDP (nominal, USD billion, 2019)	448.1
GDP growth (real, 2014–19)	1.18%
FDI, inflows	3 299 (73.6% of GDP)
Gross domestic private investment	110 233 (24.6% of GDP)
Employment to population ratio (+15years)	48.6
Employment to population ratio (15–24 years)	25.3
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	63 630 (14.2% of GDP)
Main exported products	*Crude petroleum; petroleum gas; refined petroleum; cocoa beans; gold*
Imports of G&S, 2014–19 (USD billion, 2019)	88 723.8 (19.8% of GDP)
Main imported products	*Refined petroleum; wheat; non-fillet frozen fish; rubber tyres; raw sugar*
Inflation, 2014–19 (2019)	11.4%
Bank credit to private sector	46 602 (10.4% of GDP)
Gov. expenditure	57 805 (12.9% of GDP)
Gov. revenue	35 400 (7.9% of GDP)
Total public debt	130 397 (29.1% of GDP)
Currency	Nigerian naira (NGN)
Language	English (official), Hausa, Yoruba, Igbo, Fulfulde, Ibibio, Kanuri and Tiv

Sources: World Bank, IMF, UNCTAD and Comtrade.

9.2. BROAD ECONOMIC OVERVIEW

AMONG THE MOST COMPETITIVE AND INNOVATIVE AFRICAN ECONOMIES

The World Economic Forum's 2019 Global Competitiveness Index ranks Nigeria 116th worldwide, 12th in Africa and 4th in West Africa. This performance owes to the sheer size of its economy and population (1st in Africa), the strength of its business dynamism (1st in West Africa; 6th in Africa) and the functioning and outcomes of its labour market (2nd in the region). Additionally, the country comes 117th in the world, 18th in Africa and 5th in West Africa according to the Global Innovation Index, jointly published by Cornell University, the Institut Européen d'Administration des Affaires (INSEAD) and the World Intellectual Property Organization (WIPO). This is largely due to the level of business and market sophistication, respectively ranked 2nd and 3rd in the region.

FAIRLY GOOD INSTITUTIONAL QUALITY

When it comes to the strength of the political institutions, the country is ranked 182nd globally, 37th in Africa and 15th in the West African region, according to the World Bank's Governance Indicators. The dimension in which the country is ranked the highest is voice and accountability, at the 10th position in the region.

RELATIVELY GOOD INFRASTRUCTURE NETWORK

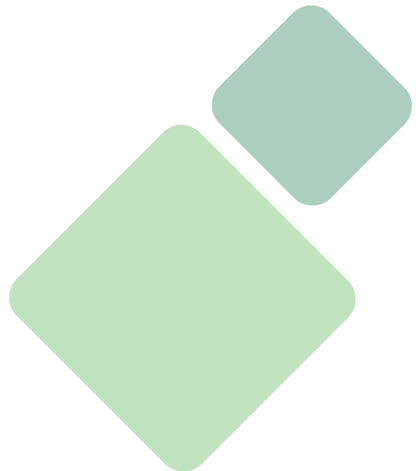
The development level of the country's overall infrastructure comes 23rd in Africa and 6th in the region, with a score of 23.3/100, according to the African Development Bank's 2020 Africa Infrastructure Development Index. Moreover, the quality of the country's logistics system is ranked 110th globally, 19th in Africa and 6th in the West African region, with a score of 2.53/5, according to the World Bank's Logistics Performance Index. For the dimension related to trade and transport-related infrastructure, the country comes 2nd in the region.

AMONG THE GREATEST MARKET POTENTIALS AND BEST COUNTRIES FOR BUSINESS IN AFRICA

From the perspective of the Market Potential Index, developed by the Michigan State University's International Business Center, the Nigerian economy is ranked 72nd worldwide, 5th in Africa and 2nd in West Africa. The driving factors are its market size and intensity, and consumption capacity.

In addition, Forbes Magazine considers Nigeria as the 110th best country for business globally, the 15th in Africa and the 4th in West Africa, as a result of its GDP growth, GDP per capita level, trade balance and population size.

As far as the World Bank's Ease of Doing Business is concerned, Nigeria is ranked 131st globally, 22nd in Africa and 6th in West Africa, with a score of 56.5/100. The country ranks among the top regional countries, with the cheapest paid-in minimum capital to start a business ($0), in addition to being top ranked when it comes to getting credit and protecting minority investors.



9.3. INVESTING AND DOING BUSINESS IN NIGERIA

THE LARGEST ECONOMY IN AFRICA

The Nigerian economy, which accounts for more than two-thirds of the regional GDP, grew at an annual average rate of 1.18% in 2014–19, the 13th highest in West Africa. In 2019, growth settled at 2.21%. The economy relies heavily on its abundant natural resources: it is Africa's biggest oil exporter and has the largest natural gas reserves on the continent. The COVID-19 pandemic, which led to a significant decline in oil prices, and the containment measures that affected aviation, tourism, hospitality, restaurants, manufacturing and trade reduced growth to -1.79% in 2020.

A COMPETITIVE BUSINESS ENVIRONMENT

In 2019, Nigeria attracted $3.3 billion worth of **FDI**, by far the largest in the region, representing one-third of total regional inward FDI. The quality of business-related administrative procedures has been one of the key contributors to the country's attractiveness to foreign investors.

Starting a business in Nigeria requires a total of seven procedures, the 5th lowest number on the continent. They include:

(1) Reserve a unique company name with the Corporate Affairs Commission (CAC);

(2) Prepare the requisite incorporation documents and pay the stamp duty using the Federal Inland Revenue Service (FIRS) e-stamping portal;

(3) Sign the declaration of compliance before a commissioner of oaths or a public notary;

(4) Register the company at CAC, pay registration fees and receive the income tax and value-added tax (VAT) registration numbers;

(5) Make a company seal;

(6) Register for personal income tax at the state tax office;

(7) Register business premises with the government and pay the business premises levy.

These procedures take an average of seven days to complete, and the corresponding fees are at least NGN 15,900 ($30).

When it comes to **construction**, obtaining a permit involves 16 procedures, mostly with agencies such as the Lagos State Building Control Agency (LASBCA) or the State Physical Planning Permit Authority (LASPPPA), or similar agencies in other states. The whole process takes 111 days, and it costs approximately NGN 1,420,374 ($3,696), representing 4.8% of a standardized warehouse value of NGN 31,365,220.7 ($88.24).

Nigerian laws guarantee **equal rights and treatment** to all investors, national and foreign alike, and **visa rules** allow foreign investors and workers to operate in the country for the duration of their activities.

The Nigerian **labour force** is estimated at more than 62 million individuals, representing 30.2% of the total population. The country scores 0.35 on the 0–1 scale of the World Bank's Human Capital Index (45th in Africa), and 40.1 out of 100 according to the Global Competitiveness Index (47th in Africa). Workers are typically paid **salaries** ranging from NGN 85,700 ($209) to NGN 1,510,000 ($3,670) per month, and the average is NGN 339,000 ($824). The monthly minimum wage has recently been raised to NGN 30,000 ($73).

Electricity consumption is tariffed at different rates across states. For example, it is $0.11 per kWh in Lagos (the cheapest in West Africa) or $0.14 in Kano (4th). Approximately seven procedures are required to obtain a connection from the state company (Eko Electricity Distribution Company in Lagos or Kano Electricity Distribution Company in Kano), and the corresponding fees are approximately $4,500. The access rate is 55.4% nation-wide and 83.9% in urban areas.

The **water** tariff varies across states. For example, the cubic metre is priced at $0.55 in Lagos and $0.30 in Oyo. It is estimated that 77.6% of the population uses at least basic drinking water services, and 92.4% in urban areas.

The country's **infrastructure network** consists of 32 airports. Eight of them are international, mainly located in the largest cities (Abuja, Lagos, Kano, Kaduna, Port Harcourt, Enugu, Ilorin and Sokoto), and 10 are major domestic airports. The Murtala Muhammed International Airport in Lagos is the country's biggest airport, with 60% of international flights in Nigeria, operated by major African, European, Asian and American carriers. The average capacity is estimated at more than 5.5 million passengers annually.

The country has approximately 108,000km of surfaced roads, of which 32,000km are called federal highways. Approximately 35% of the road network is considered to be in excellent condition. Some of the roads reach the national borders and allow movement of goods and persons with neighbouring countries (such as Benin).

The railway network, operated by the Nigerian Railway Corporation, consists of an estimated 4,174km of tracks. The dense web of branches links the major states and cities. Long distance, express passenger services are offered, including between Lagos and Ibadan, Abuja and Kaduna, and Warri and Itakpe. Freight services are also available, with linkages to the ports.

The major ports in the country are operated by the Nigerian Ports Authority (NPA). They are located in the states of Lagos, Cross River, Delta and Rivers. Referred to as premiere port (Apapa Quays) and located in Apapa, the Lagos Port Complex is the largest. It has a capacity to handle up to 22,000 TEUs of containerized cargo and is responsible for a large share of the country's international trade.

The **tax system** in Nigeria comprises several taxes and mandatory contributions for businesses. They include corporate tax (30%), social security contribution (10%), capital gains tax (10%), value-added tax (5%) and contribution to the National Housing Fund (2.5% of gross salaries). In total, 48 payments are made annually, and their cumulative value represents 34.8% of corporate profit.

As a member of ECOWAS, Nigeria applies the regional CET. Imported goods from third-party countries are categorized into five tariff bands, going from 'essential social goods' (0% tariff) to 'specific goods for economic development' (charged at the maximum of 35%). Safeguard, anti-dumping, anti-subsidy and countervailing measures as well as supplementary protection measures are applied with the aim to protect vulnerable industries and promote fair competition in the liberalized regional market.

The soundness and the low risk level of the **banking and financial system** in Nigeria are shown in the regulatory capital to risk-weighted assets at 15.4%, and the non-performing loans ratio to total gross loans at 6%. The Nigerian Stock Exchange (NGX) offers investors possibilities to levy funds as well as to seek returns. A total of 106 banks operate in Nigeria, including some Nigerian Pan African banks such as the United Bank for Africa (UBA). Their credit offering to the private sector reached 10.4% of GDP in 2019. The system's openness allows anyone to hold a **foreign currency account**, and international transfers are unrestricted. The **exchange rate** was on a downward trend in 2016–20 against the US dollar. However, since May 2021, it has settled at approximately 411.

The Nigerian Investment Promotion Commission (NIPC) is charged with the promotion of the country as an international investment and business destination. The wide range of **government incentives** include: (i) Free transferability of capital, profits and dividends; (ii) Protection against nationalization and expropriation; (iii) Recourse to international arbitration; (iv) Exemption of interest on loans granted by banks for any agricultural trade or business and the fabrication of any local plant and machinery; (v) Tax exemption on gains arising from takeovers, and absorption or merger; and (vi) Tax exemption on proceeds reinvested. These are in addition to bilateral investment treaties that include many European countries and pertain, for example, to double taxation agreements and investment promotion and protection agreements.

The incentive scheme also includes a large number of SEZs of various types: 29 free zones, three industrial parks, three economic cities, two export processing zones, and one oil- and gas-free zone located in Onne, Port Harcourt. Businesses operating within those zones can benefit from a host of advantages, including a full tax holiday from federal, state and local governments, duty-free and tax-free import of raw materials for goods destined for re-export, and waiver on all import and export licences and all expatriate quotas.

Nigeria definitely has a lot to offer to foreign investors. The sheer size of its economy, the friendliness of its business climate and the wide range of government incentives are key reasons for investors to do business in the country.

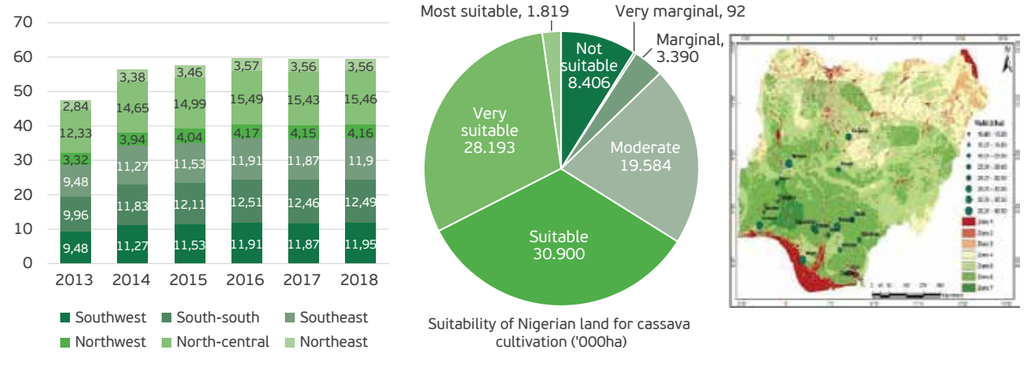
9.4. NIGERIA'S CASSAVA SECTOR

Nigeria is the leading global producer of cassava, with an estimated annual production of 59.47 million tons (FAOSTAT, 2020[67]). Most of the cassava is cultivated on the suitable lands in the southern and north central agroecologies of the country, spanning more than 60 million hectares of land (Figure 44). Nigerian production of cassava accounts for 21% of global production, but Nigeria does not participate significantly in the global industrial processed cassava market/export. This is due to two main reasons. First, most of the cassava produced is consumed locally in several traditional forms (Table 41). Secondly, there has been steady growth of local cassava-based industries since 1990. Cassava production in Nigeria is principally in the hands of smallholder farmers who produce cassava for the traditional food market, but is currently transitioning to industrial markets. According to the Nigeria Cassava Growers Association, there are 40 million members on their roll call.

Cassava production in Nigeria is mainly rain-fed. Monocropping and intercropping of cassava are commonly practiced. Almost all farmers in the main cassava belts of the south-eastern, south-western and north-central zones of Nigeria grow cassava, which is typically intercropped as a main or minor crop (Annex X). Farmers are generally aware of the benefit of inorganic fertilizer, but the commodity is not easily accessible and is a major constraint in cultivating improved varieties. Harvesting of the roots varies from nine months to three years after planting. As a food crop, cassava fits well into the farming systems of Nigeria's smallholder farmers, because it is available all year round, thus providing household food security. Cassava cultivation in Nigeria is still largely by small-scale farmers using rudimentary implements and the landholding is 0.5ha–2.5ha per individual farmer.

There are more than 40 cassava varieties under cultivation in Nigeria (Annex XI). The main characteristics of the varieties include high dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha) and high vitamin A content. The Cassava Seed Tracker™ developed by the International Institute of Tropical Agriculture (IITA), Ibadan is a fully featured programme for real-time tracking of cassava seed production, including pre-planting planning, registration of seed fields, crop management, harvesting, quality assessment and quality assertion in Nigeria.[68] The Cassava Seed Tracker is also a digital platform for communication and networking of cassava seed producers and service providers for common good.

Figure 44: Nigeria's cassava production (million tons) by agroecological region and suitability map



Note: Zone 1: Not suitable; Zone 2: Very marginally suitable; Zone 3: Marginally suitable; Zone 4: Moderately suitable; Zone 5: Suitable; Zone 6: Very suitable; Zone 7: Most suitable. Map was generated using ArcGIS 10.5 software.

Sources: Field survey (2021); Akinwunmiju et al. (2020). See https://www.nature.com/articles/s41598-020-58280-4.

67 Food and Agriculture Organization of the United Nations (FAO) (2020). Rome, Italy: FAOSTAT 2020.

68 https://seedtracker.org/cassava/index.php/released-cassava-varieties-in-nigeria/.

Table 41: Main cassava products and uses in Nigeria

Product	Processing and use	Main users
Fresh roots	Processed into local staples like gari, lafun, fufu, abacha and akpu, while the fresh tubers from sweet varieties are frequently cooked and pounded into dough and eaten with vegetable soup.	All
Gari	Granular, roasted, free-flowing finished product obtained by traditional or industrial processing of fresh cassava roots. Gari is mostly consumed as a paste made with hot water and eaten with soup or by soaking in cold water with sugar, coconut, roasted peanut, fish or boiled cowpea as complements.	Food companies, retail outlets and general consumers
Fufu	Wet fermented cassava product. Processed by peeling of cassava roots, washing, retting and fermenting for 3–5 days and sieved to obtain a starch slurry. The slurry is then cooked to form a stiff dough that is eaten with meat or vegetable stews.	Food companies, retail outlets and general consumers
Pupuru	Fermented dried cassava food commonly consumed by the people of Nigeria's riverine areas of the southern, eastern and north-central regions.	Local consumers
Abacha	Dry or wet product, obtained by shredding or slicing boiled cassava tubers, soaking the shreds for 8–24 hours in cold water, washing and drying. Consumed as a snack food or main meal mainly in south-east Nigeria.	Local consumers
Lafun	Fermented, dried, milled and cooked dough common in south-west Nigeria.	Local consumers
Instant odourless Fufu	A fermented and dried flour that can be mixed with hot water and steamed to form a stiff dough. It is shelf-stable and quick and easy to prepare when compared to traditional fufu.	Food companies, retail outlets and general consumers
HQCF[69]	Prepared from peeled and grated freshly harvested cassava that has been de-watered, dried to 10%–12% moisture content, milled and screened to give a fine flour capable of passing through a 0.25mm sieve. The largest potential market for HQCF is as a partial substitute for wheat flour in bakery and confectionary products.	Food, bakery and confectionery industries
Dried cassava chips	Used in the industries mostly as a partial substitute for the regular raw materials in animal feed production and starch extraction. Cassava is processed into chips by peeling, cutting into chunks and drying in the sun or a mechanical dryer.	Food and animal industries, retail outlets and general consumers
Cassava pellets	Dried and hardened cylindrical particulate materials approximately 2–3cm long, 0.4–0.8cm in diameter and uniform in appearance and texture, having an estimated 9% moisture content wet basis, which makes for good storability. The pellets are used in formulating poultry and aquaculture feed as substitutes for maize.	Food and animal industries, retail outlets and general consumers
Starch	Crushed cassava roots are wet-sieved to extract starch, which is then dried and used in a wide range of food and industrial applications.	Industries
Ethanol	Fermented cassava starch used in ethanol production.	Industries
Tapioca grits	Roasted granular product made from partly gelatinized cassava starch through application of heat treatment.	Food companies, retail outlets and general consumers

Source: Field survey (2021).

Cassava is usually planted in Nigeria between April and October depending on the agroecological zone and its rainfall pattern (Figure 45). The southern parts of Nigeria enjoy more rainfall than the northern parts. There are no irrigated cassava farms in Nigeria. There are two seasons in the year when farmers cultivate cassava. The first season is called early planting and the second is called late planting. The roots' maturity period is from 9–12 months after planting.

The cultivation of cassava in Nigeria is a labour-intensive enterprise involving land clearing, land tillage, weeding, planting of cassava stems and harvesting. Most farmers use family labour or paid labour, usually employed on a daily/yearly basis. Most cassava farmers sell most of their crop directly to processors. There are, however, some wholesalers and retailers who own cassava farms.

69 *Source*: https://guardian.ng/features/using-high-quality-cassava-flour-for-inclusive-economic-growth/.

Figure 45: Calendar of planting and harvesting for cassava in Nigeria's different agroecologies

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
South west												
Planting												
Harvest												
South-east												
Planting												
Harvest												
South-south												
Planting												
Harvest												
North central												
Planting												
Harvest												
North-west												
Planting												
Harvest												
North-east												
Planting												
Harvest												

Source: Personal communication with farmers.

CASSAVA TRADE IN NIGERIA

DOMESTIC TRADE

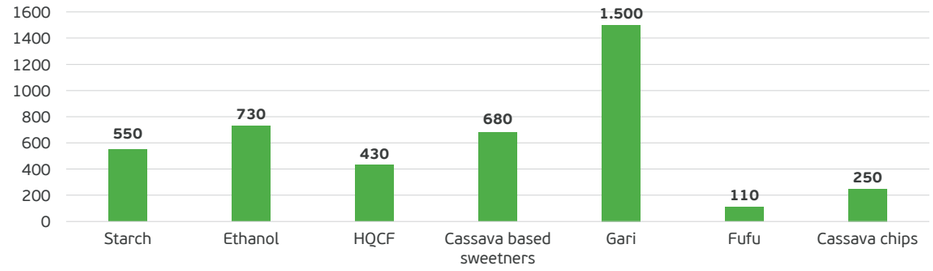
The value of trade in cassava products traded in Nigeria is presented in Figure 46. There is a huge market in traditional foods produced from cassava in Nigeria. Improved versions of gari, odourless fufu, cassava flour and HQCF premix, etc. have also found their way into modern retail outlets, malls and supermarkets. New urban eateries and outdoor catering service providers also depend on cassava products like eba, amala and fufu, etc. to meet the demand for African cuisines.

There is significant local industrial demand for the derivatives and by-products of cassava in Nigeria. Figure 47 shows the potential demand for fresh cassava roots (28,323,570 tons) and some selected cassava products in Nigeria. The current supply of fresh cassava roots in the country is unable to meet this potential demand. Cassava products are often used as intermediate raw materials for food and industrial applications. They form some of the raw materials for their processes. Products such as food-grade starch, HQCF, sorbitol or glucose syrup, and ethanol are used by breweries (e.g. Nigerian Breweries, Guinness), flour mills (HQCF), bottling companies (CO2 is a by-product from ethanol production) and distilleries (ethanol), etc. Food- and pharmaceutical-grade products such as glucose syrup, sorbitol, ethanol and starch have found a wide range of use in most of the Nigerian manufacturing sector. The chemical and allied industries produce mosquito coils, varnishes, spirits for hospitals and other usage from cassava products. The textile, pulp and paper industries in Nigeria patronize the starch factories for industrial-grade starch for their day-to-day operations. Dried cassava chips, peels and pellets are used in the livestock industries for carbohydrate and fibre content, especially when maize becomes expensive or unavailable.

Currently, a fast-growing middle class and increasing urbanization is fostering innovations and new trade in the processing and packaging of cassava products. For example, in order to meet the needs of the growing urban population that is increasingly shopping in formal outlets such as supermarkets, traditional cassava products such as fufu and gari are now witnessing some innovative trends in packaging and trade. Such products, especially high-quality packaged gari, are being sold at premium prices. New variants of packaged products are also being introduced, which provide increased convenience (e.g. gari/sugar/peanut all-in-one package), and offer new tastes (e.g. fruited gari). New cassava varieties have also been introduced, which reduce waste during peeling, are biofortified with vitamin A or generate higher yields than traditional varieties. There have also been innovations around using cassava peels for animal feed as a substitute for maize, which is becoming more promising due to the high cost of importing maize grains.

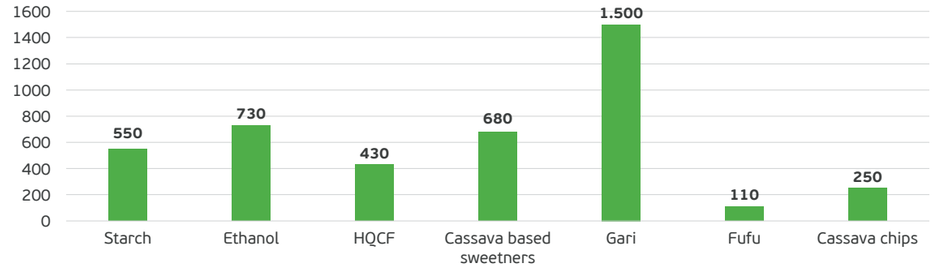
As shown in Figure 48, the prices offered for traditional foods (small orders are usually less than 0.5 tons/transaction for gari and fufu) are so attractive in Nigeria that the local market is always a first point of offer, particularly for subsistent, small- and medium-scale famers. This is compared to prices offered to industrial buyers (larger orders, from 3 tons/transaction for starch and HQCF).

Figure 46: Overview of domestic markets demand (USD million) for cassava products in Nigeria



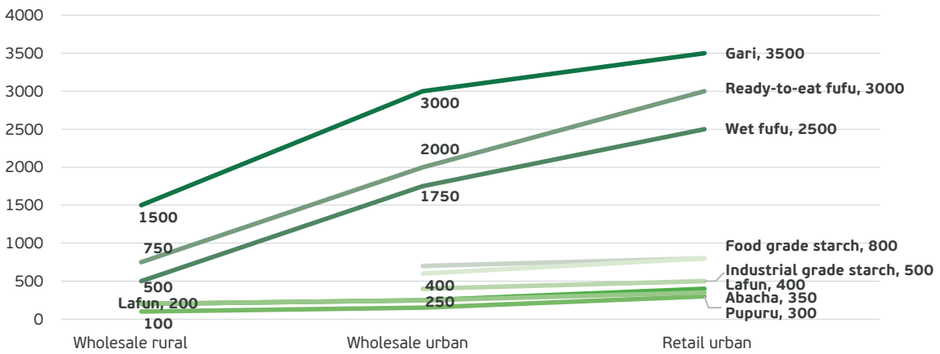
Source: PwC (2020); field data based on interpersonal communication with actors.

Figure 47: Potential demand for fresh cassava roots and land size required to meet it if average yield becomes 25 tons/ha in Nigeria



Source: PwC (2020).

Figure 48: Cassava product prices in Nigeria



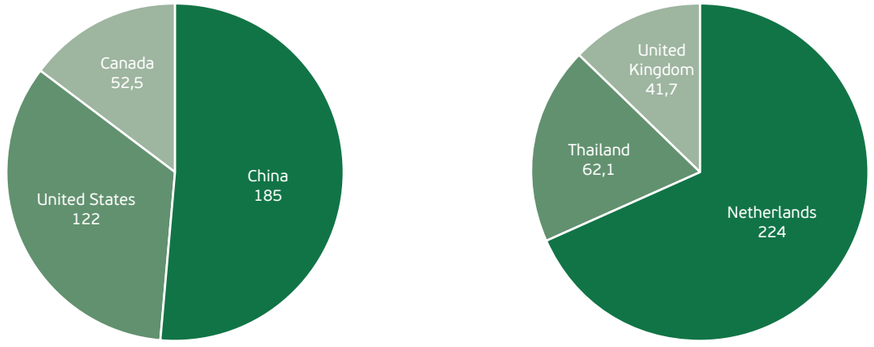
Source: Field study (2021).

INTERNATIONAL TRADE

Nigeria is not significantly involved in the global processed cassava market. Some of the challenges that affect Nigerian cassava exports include high domestic consumption (as staple foods), high production costs, lack of uniform standards and grades, irregularity of supply, low processing capacity for export, low international prices for cassava products, government policy and high producer prices. Infrastructural inadequacies that result in high production costs also limit cassava exports' competitiveness in the global export market. It is noteworthy that packaged foods such as gari (white and yellow), odourless fufu and lafun are fast gaining a foothold in the international market, particularly among West Africans in the diaspora. These packaged foods are exported to Belgium, Canada, the United States, India and other countries. In 2020, Nigeria exported $922,000 worth of cassava products, making it the 56th largest exporter of cassava globally. As shown in Figure 48, the fastest-growing export markets for cassava products from Nigeria in 2019–20 were China ($185,000), the United States ($122,000) and Canada ($52,500). There are undocumented instances where processed cassava-based products are moved across the borders to neighbouring countries like the Niger and, in the northern zone and Benin, through Lagos and Ogun States.

Nigeria imported $860,000 worth of cassava products (mainly starch) in 2020 and ranked the 65th largest importer of cassava products in the world. The largest import markets for cassava products into Nigeria in 2019–20 were the Netherlands ($224,000), Thailand ($62,100) and the United Kingdom ($41,700).

Figure 49: Sources and destination of cassava products from global trade with Nigeria in 2019–2020

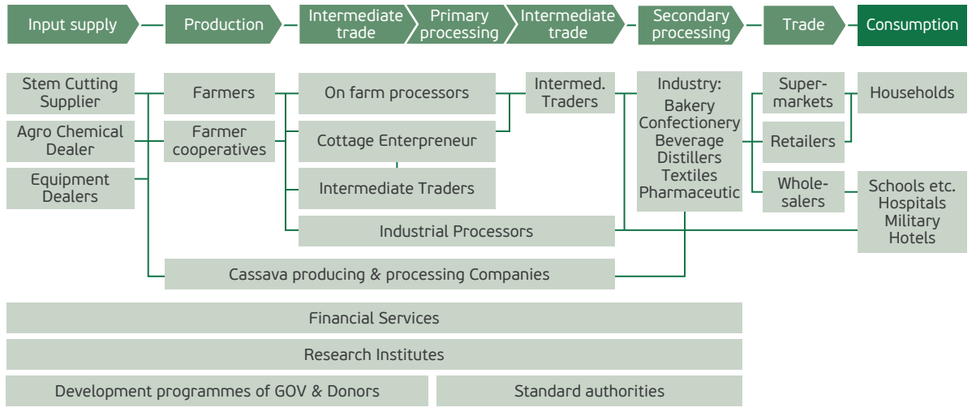


Source: Drawn from data obtained at https://www.tridge.com/intelligences/mandioca/NG..

9.5. VALUE CHAIN AND STAKEHOLDERS IN NIGERIA'S CASSAVA SECTOR

The cassava value chain in Nigeria is well developed, with several products derived from cassava (Figure 49). These products are categorized into two broad groups, namely traditional products (staple foods) and industrial products. Traditional products are products consumed generally as staple foods such as gari, fufu, lafun, abacha and pupuru. Industrial products are products used in the manufacture of other finished products and these include: HQCF, starch (food and industrial grades), ethanol, high-quality cassava peels (HQCP), sweeteners (glucose and high-fructose syrups) and modified starches (sorbitol). Currently, there are several processing companies making various products and millions of village-level processors scattered across the country processing cassava into various staple foods (Annex XII).

Figure 50: Cassava value chain map in Nigeria



Source: Authors.

INPUT SUPPLIERS

The input suppliers (Table 42) in the cassava value chain are dominated by males. Most farmers usually source their inputs (agrochemicals and tools) within their locality. Some input suppliers also provide cassava cuttings for associated farmers and most famers source cassava cuttings directly from their own farms or from fellow farmers.

CASSAVA PRODUCERS

Cassava is produced by four types of producers:

- Small-scale subsistence farmers (dominant with planting 0.2ha–1ha, with minimum external inputs and with yield less than 10 tons/ha),
- Small-scale commercial farmers (1ha–5ha, with hired labour and yield of 11–15 tons/ha);
- Medium-scale commercial (6ha–10ha, with some mechanization and yield of 22–30 tons/ha);
- Large-scale farmers (very few with more than 10ha, usually mechanized and yield of 25–35 tons/ha).

These different categories of farmers often attract price variation and location (Table 43).

Table 42: Overview of cassava inputs and services in Nigeria	
Input and service suppliers	**Number**
Cassava stem nursery	4 [SAH LABs – IITA Go Seeds, Umudike Seeds, Psaltry and Eagleson]
Cassava stem entrepreneurs[70]	208 (mostly in Benue, Kogi, Oyo, Abia, Delta, Ogun and Enugu
Fertilizer suppliers[71]	57 companies; 200 distributors
Phytosanitary product suppliers	More than 50
Suppliers of organic fertilizers[72]	116
Providers of technical assistance and extension services	36 State ADPs; four private extension services* Four specialized universities of agriculture 17 faculties of agriculture in conventional universities Nine colleges of agriculture

Sources: Field study (2021); *Justice Development and Peace Movement (JDPM), Justice, Development and Peace Commission (JDPC), Catholic Relief Services (CRS), Sahel Consulting Agriculture and Nutrition Limited.

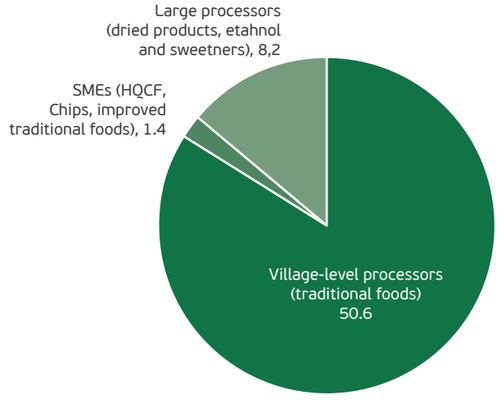
Table 43: Cassava producer segmentation in Nigeria					
Category of cassava producers	**% of producers**	**Typical yield (t/ha)**	**Typical area under cassava (ha)**	**Quantity produced (tons/yr)**	**Farm gate prices USD/ton**
Smallholders, for own consumption	2%	8–13	< 0.5	5 million	35–60 WS 50–80 DS
Smallholders, for selling in the market	90%	13–15	1–5	45 million	35–60 WS 50–80 DS
Commercial farms (> 10ha)	5%	20–25	10–40	3 million	35–60 WS 50–80 DS
Farms belonging to processing facilities	3%	15–25	10–150	0.4 million	35–60 WS 50–80 DS

Note: Wet season (WS); dry season (DS); cheapest in north central, followed by south-west, south-east and south-south.
Source: Field study (2021).

CASSAVA PROCESSORS

Cassava processing is mostly done in village processor groups/community processing groups. Cassava is processed into gari, wet fufu or fermented dried flour (lafun) for further distribution to traders. The typical annual demand for fresh cassava roots by different processor categories is shown in Figure 51. Cassava processing enterprises making orders between 0.5 tons and 3 tons per transaction usually operate in between these prices, depending on location and other circumstances surrounding the transaction.

Figure 51: Cassava processor segmentation in Nigeria and their typical annual demand for fresh cassava roots (million tons/year fresh roots equivalent)



Source: Field study (2021).

70 https://cassavamatters.org/basics-ii/.
71 https://www.businesslist.com.ng/companies/agricultural-chemical-dealers.
72 https://www.agriculture1.com/organic-fertilizer-suppliers/nigeria.

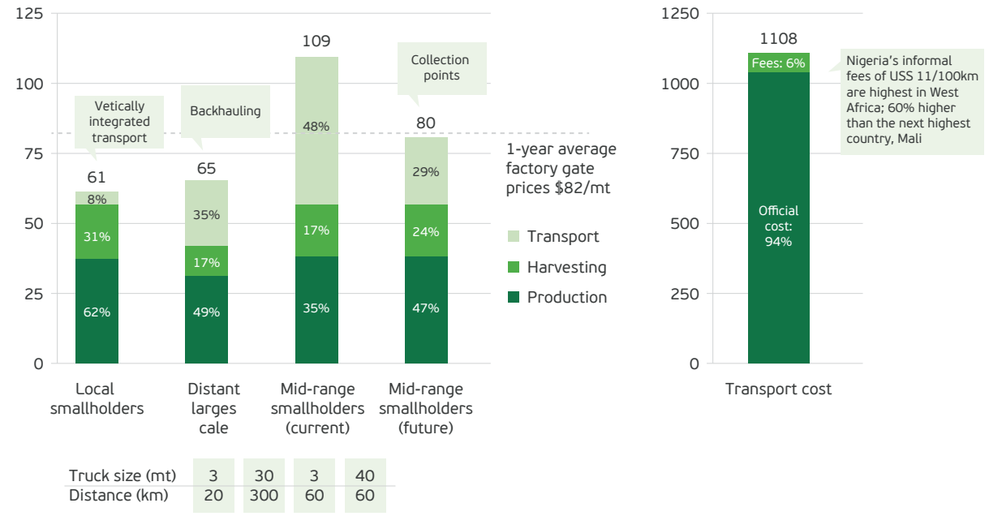
TRANSPORTERS

Transporters are a major actor in the cassava value chain in Nigeria. Cassava farmers get their produce to market by pick-up vans and trucks, which are usually overloaded and driving on heavily used and poorly maintained roads. Therefore, a large portion of the processors' price paid for cassava root is due to high transportation costs, often caused by frequent accidents, road closures, bad roads and numerous security checkpoints. The cassava sector would benefit greatly from improved roads and cheaper transport logistics.

Reducing the distance between farm and factory is one of the biggest long-term levers for improving profitability of cassava processing. One way to achieve this is through vertically integrated farms and factories. Farmers typically pay for transport themselves, thus reducing their willingness to send roots across long distances and encouraging them to sell to local gari processors. In turn, this barrier reduces industrial processors' ability to procure the quantity of raw materials needed to maintain adequate capacity usage (currently, large industrial cassava processors' capacity usage is 20%–50% according to Premium Cassava Products Limited, Ososa, 2021). For local smallholders and distant commercial farms, creative solutions have been found to reduce transport costs and make the transaction profitable for them. These include collection points and aggregators.

Potential cassava root suppliers can be divided into local smallholders, mid-range smallholders and distant commercial farms. The cost of transporting cassava root is presented in Figure 51. Movement of goods within Nigeria is subject to regulations and fees that also add to total costs. Trucks are stopped at local and state borders and charged additional fees, which add approximately 6% to the cost of transporting cassava (Figure 52). Trucks are required to carry many individual permits costing approximately $75–$150 per truck per year, not to mention the administrative bureaucracy involved in obtaining the permits.

Figure 52: Transport cost to deliver 1 ton versus 30 tons of cassava to factory gate



Note: Case study, Premium Cassava Products Limited, Ososa, Ogun State.
Source: https://reports.weforum.org/enabling-trade-from-valuation-to-action/enabling-trade-from-farm-to-fork/a6-case-studies-f2f/nigerian-cassava-flour-broadening-value-chains-for-traditional-crops/#view/fn-28.

9.6. INVESTING IN CASSAVA: KEY FIGURES

Access to land and water: According to the Nigerian Land Use Act of1978,[73] land is held in trust by the governor of each State on behalf of the community. However, in practice, most cultivated land is occupied by individuals and households under a customary tenure system where land is regarded as the property of the community or extended family, with the head of the community acting as the primary trustee or custodian of the farming land. There are various water bodies in the country, including rivers, streams, reservoirs and dams. There are 17 dams and reservoirs in the country. However, cassava cultivation in Nigeria is mainly rain-fed and it is usually done in two seasons annually, depending on the rainfall pattern in each part of the country.

Rules and regulations: The policies and instruments that shape agricultural market governance include tax policies that are generally import-restrictive and support for state trading enterprises, including the Abuja Securities and Commodity Exchange and the agricultural market and trade development corporations that are currently being developed.

The government is also pursuing a number of market development policies, including the policy of blending 10% ethanol with petrol, supported by incentives for investors to establish blending plants. This is expected to boost smallholders cassava production. The government is also introducing policies to encourage the substitution of high-quality cassava flour for wheat flour in bread-baking.

Market development: The Federal Ministry of Agriculture and Rural Development (FMARD) is planning to provide supportive incentives for investors establishing blending plants where 10% ethanol would be blended with petrol. This is expected to boost smallholder cassava production through increase in the domestic demand for ethanol.

It is expected that the establishment of the African Continental Free Trade Area (AfCFTA[74]) will help to support Africa's agribusiness, create new regional markets for farmers, strengthen the agriculture value chains and significantly reduce agricultural imports from outside the continent.

Table 44: Investment indicators in Nigeria's agricultural sector

Cost of farmland[1]	USD/ha	350–5 000
Cost of land in rural areas[2]	USD/ha	300–1 000
Cost of land in urban areas	USD/ha	2 000–12 000
Cost of electricity[3]	USD/kWh	0.06–1
Cost of unskilled labour[4]	USD/day	6–10
Cost of skilled labour[5]	USD/day	60–1 800
Cost of transportation from Abeokuta to Apapa port (120km)[6]	USD one way	600*
Enabling Business in Agriculture score (2019)*	SCORE	49.17
Doing Business (2020) score and rank: 131 out of 190)**	Rank	131

Note: 1. https://jiji.ng/44-farmland-for-sale.

2. https://jiji.ng/44-farmland-for-sale.

3. https://www.globalpetrolprices.com/Nigeria/electricity_prices/.

4. https://tradingeconomics.com/nigeria/wages-low-skilled.

5. https://www.statista.com/statistics/1119133/monthly-minimum-wage-in-nigeria/; https://documents1.worldbank.org/curated/en/555561468298481682/pdf/476070PUB0338855B01Official0Use0Only1.pdf.

6. https://www.vanguardngr.com/2018/06/apapa-traffic-hikes-container-transport-fee-1100 – from Abeokuta to Apapa Port, for example.

Sources: *https://eba.worldbank.org/en/data/exploretopics/all-topics; **https://home.kpmg/ng/en/home/insights/2019/10/nigeria-ranks-131-in-world-bank-s-2020-doing-business-report.html

73 https://www.cbn.gov.ng/out/2020/rsd/efr%20vol%2057%20no%204%20december%202019%20the%20land%20use%20act%20and%20the%20nigerian%20housing%20sector.pdf

74 https://www.thisdaylive.com/index.php/2020/03/26/investing-in-cassava-farming-processing/

9.7. INVESTMENT OPPORTUNITIES IN NIGERIA'S CASSAVA SECTOR

The demand for cassava and its products continues to increase in the domestic market and agro-allied industries. However, the supply has consistently been unable to meet the huge demand. For example, from the total output of 59.5 million tons of cassava roots produced in 2018, Nigeria has the economic potential to generate revenues of $427.3 million from domestic value addition and derive an income of $2.98 billion in agricultural exports of cassava products. In addition, the domestic value addition to cassava roots via SMEs and large-scale cassava processing could potentially unlock approximately $16 million in taxes to the government (PwC, 2020)[75]. It has been estimated that Nigeria would need an estimated additional 28.3 million tons of fresh cassava root planted annually on approximately 1.2 million hectares of land to bridge the demand–supply gap for some of the cassava by-products and derivatives such as starch, ethanol, glucose syrup, HQCF, gari, cassava-based adhesives and textiles.

SUPPLY SHORTFALL

The Federal Government of Nigeria's local content policy, backed up with incentives and credit facilities, is the major impetus for investing in cassava at the moment. The supply of cassava derivatives or by-products in Nigeria falls short of demand. For example, the annual demand for cassava starch exceeds 300,000 tons, with the supply at approximately 10,000 tons. This leaves a demand gap of approximately 290,000 tons. The demand for HQCF for bread, biscuits and snacks is estimated to be 500,000 tons/year, but supply of HQCF is less than 15,000 tons. There are four large-scale cassava starch processing factories with an annual output of approximately 9,000 tons. Therefore, there is a need for investment in establishment of more than 20 factories to meet the domestic demand for cassava starch.

ETHANOL PRODUCTION

The local content policy also applies to the production of ethanol in Nigeria. Nigeria needs more than 400 million litres of ethanol for industrial uses and there is only one ethanol factory (installed capacity is 240 tons of fresh cassava roots per day) currently using cassava roots as raw material.

INCREASING DEMAND FOR PACKAGED TRADITIONAL PRODUCTS FROM CASSAVA

The increasing demand for packaged traditional products from cassava is a result of the emergence of more departmental stores and rural–urban migration. For example, more than 12 million tons of cassava roots, from a total of 501,000ha, will be needed to meet the estimated 2.1 million tons of annual domestic demand for packaged gari. The global recession has also created a new approach of backward integration by end user industries.

INVESTMENT IN MECHANIZED CASSAVA CULTIVATION, OTHER EQUIPMENT AND TOOLS

There is need for investment in mechanized cassava cultivation, other equipment and tools, as well as the adoption of enhanced farming techniques in the planting and harvesting of cassava. The shortage of farm equipment and machineries is acute in Nigeria, particularly in the south, where cassava cultivation is most intense. In Ogun State, for example, there are only four farm equipment hiring companies servicing more than 400,000 farmers. The result is that many cassava farmers have no access to farm equipment and machines. Access to affordable and efficient farm equipment and machines will reduce the manual stress associated with cassava cultivation in Nigeria.

TRADE IN AGRICULTURAL EQUIPMENT ORIGINATING FROM NIGERIA

Since 2008, the Federal University of Agriculture Abeokuta (FUNAAB), the International Institute of Tropical Agriculture (IITA), Ibadan and the Natural Resources Institute (NRI) of the University of Greenwich, Chatham have worked with local cassava processing equipment fabricators in Nigeria to improve the efficiency, effectiveness and commercial viability of the machines. Cassava processing equipment such as flash dryers, automatic gari roasters, hydraulic pressers, stainless steel roasting pans, graters, and wet and dry hammer mills that are made in Nigeria are already being supplied to other African countries. There is still an opportunity to improve the volume and frequency of trade in agricultural equipment originating from Nigeria, primarily within ECOWAS, but also beyond.

75 PwC (2020). 'Harnessing the Economic Potential of Cassava Production in Nigeria'. Available from https://www.pwc.com/ng/en/assets/pdf/cassava-production-nigeria-report-2020.pdf.

FARM INPUTS

Access to recommended farm inputs (improved cuttings, herbicides and fertilizers, etc.) required for farmers to adopt Good Agricultural Practices (GAP) is often a limitation to farmers seeking to achieve optimum yield in cassava production. This investment opportunity for input suppliers and extension service providers, etc. is currently under-tapped.

9.8. CASSAVA PROMOTION PROGRAMMES AND POLICIES

The major cassava promotion programmes and policies in Nigeria are outlined in Table 45.

Table 45: The major cassava promotion programmes and policies in Nigeria

Programme/policy	Main features
Cassava Inclusion Policy	To reduce wheat importation by implementing 10% HQCF inclusion in bread policy
Building an Economically Sustainable, Integrated Seed System for Cassava in Nigeria (2016)	To sustainably improve farmers' access to high-quality and affordable cassava planting materials through the development and promotion of commercial models for seed provision.
Cassava: Adding Value for Africa (CAVA) Phases I & II	Phase I successfully piloted development of value chains for HQCF. Phase II created, by 2019, an annual demand for 69,030 tons of fresh cassava roots (FCR) supplied by more than 20,000 beneficiary smallholder farmers to processors of improved gari, grits, HQCF, starch and ethanol in Nigeria. Also supported SME processors to upgrade into flash drying technology from Nigeria[76]: https://cassava.nri.org/projects/39.

Table 46: The major agricultural programmes and policies in Nigeria

Programme/policy	Main features
The Anchor Borrowers' Programme (ABP) (2015–24)	To create a linkage between anchor companies involved in the processing and smallholder farmers of the required key agricultural commodities.[77]
Medium-Term National Development Plan (MTNDP) (2021–25)	Focus is on a sustainable food system in which at least 70% of smallholder farmers in Nigeria will have access to and benefit from funding facilities to ensure the use of improved inputs and mechanization, ultimately increasing their yields and overall food production.
Agricultural Sector Food Security and Nutrition Strategy (AFSNS) by the Federal Ministry of Agriculture, Land Reform and Rural Development (2016–25)	Provides guideline for the activities of the Ministry of Agriculture, Land Reform and Rural Development on improving nutrition.[78]
National Agricultural Seeds Council Act 2019 (this replaced the National Seeds Act 2004)	Advises the national research system on the changing pattern of seed demand and farmers' needs.[79]
E-Wallet Fertilizer Subsidy Scheme	To increase farmers' access to fertilizer so that the yield can be improved. Some privately owned fertilizer companies in Nigeria include: Indorama Eleme Fertilizer and Chemicals, Earthcare Nigeria Limited, Golden Fertilizer (division of Flour Mills of Nigeria, Plc), Dangote Fertilizer Limited, Black Earth Nigeria Enterprises and Elsahal Group Limited, etc.
Commercialisation of Biofortified Crops (CBC) Programme	To significantly increase access to biofortified seeds, grains and foods via commercial channels in Nigeria.[80]

76 https://cava.nri.org/images/documents/publications/cava_leaflet.pdf.

77 https://www.cbn.gov.ng/out/2017/dfd/anchor%20borrowers%20programme%20guidelines%20-dec%20%202016.pdf.

78 https://www.nipc.gov.ng/product/agricultural-sector-food-security-and-nutrition-strategy-2016-2025/.

79 https://seedcouncil.gov.ng/uploads/2020/07/Official-Gazatte-No.-142B-NASC-Act-2019.pdf.

80 https://www.gainhealth.org/resources/reports-and-publications/commercialisation-biofortified-crops-programme#:~:text=The%20Commercialisation%20of%20Biofortified%20Crops%20(CBC)%20Programme%20was%20launched%20in,made%20with%20biofortified%20staple%20crops.

RESEARCH AND DEVELOPMENT CENTRES RELEVANT TO NIGERIA'S CASSAVA SECTOR

Federal University of Agriculture, Abeokuta (FUNAAB): FUNAAB was established by Decree No. 48 as a centre of excellence in teaching academic, research and professional programmes leading to the award of first degrees (including diplomas) and postgraduate degrees. FUNAAB is experienced in basic and applied research, with national, regional and international partnerships, using funds from various donors (especially for cassava research) such as the Bill & Melinda Gates Foundation, the United Kingdom Department for International Development, Food and Agriculture Organization of the United Nations, Association of African Universities, the World Bank, the European Union and the Natural Resources Institute (NRI), Chatham, United Kingdom (https://unaab.edu.ng/).

National Root Crop Research Institute (NRCRI): This is the national research institute that has the mandate for root crop research in the country. It is involved in the release of new varieties of root crops (https://nrcri.gov.ng/).

National Centre for Agricultural Mechanisation (NCAM): This national centre conducts research and development into home-grown farm equipment and farm machinery systems. It has developed farm equipment for cassava cultivation and processing (https://www.ncamng.org/).

International Institute for Tropical Agriculture (IITA): IITA is a consultative group for international agricultural research (CGIAR) centre based in Ibadan, Nigeria with more than 50 years of experience in research and technology development. It has the African mandate for cassava research and development, including research for development (https://www.iita.org/).

There are approximately 91 accredited analytical laboratories and established agencies. Some of the most relevant to the cassava sector are mentioned below.

Federal Institute of Industrial Research Oshodi (FIIRO), Lagos: Established in 1956, FIIRO has a mandate for industrial research and technology in Nigeria, collaborating in the areas of training and analytical services, including cassava products such as HQCF for bread and confectionery.

Nigerian Institute of Food Science and Technology (NIFST): NIFST is the only recognized body of food science and technology professionals in Nigeria representing professional interests and the practice of food science and technology. It is, by **regulation, chartered under the 2019 Act** signed by the president, established as the Nigerian Council for Food Science and Technology.

Institute of Public Analysts of Nigeria (IPAN): Established by the IPAN Act Cap. I 16 LFN 2004, IPAN is the agency recognized to regulate the standard of skills and labour for laboratory analysis, register analytical laboratories and maintain a register of public analysts in the country.

Standard Organisation of Nigeria (SON): SON is responsible for preparing and establishing standards relating to various products, commodities, measurements, processes and materials for the certifying of products in Nigerian commerce and industry. It is also responsible for the promotion of these standards at the grassroots, national, regional and international levels.

National Agency for Food and Drug Administration and Control (NAFDAC): NAFDAC is a Nigerian federal agency under the Federal Ministry of Health established by Decree 15 of 1993, with the purpose of preventing the circulation of illicit and counterfeit products in Nigeria under the country's health and safety law.

FINANCE INSTITUTIONS RELEVANT TO NIGERIAN AGRICULTURE

Bank of Agriculture (BoA): The BoA was established in 2000, but its history can be traced to the Nigerian Agriculture Bank founded in 1972, which was a government project to support the country's agriculture sector. The bank's ownership structure provides a reliable and secure financial background.

Nigerian Agricultural Insurance Corporation (NAIC): NAIC is a specialized organization set up by the Federal Government with the primary mandate of providing insurance services to all categories of farmers (small, medium and large scale), either in groups or as individuals.

Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) (www.nirsal.com): NIRSAL was launched in 2011 and incorporated in 2013 by the Central Bank of Nigeria (CBN) as a dynamic, holistic $500 million public–private initiative to define, measure, price and share agribusiness-related credit risk. It reduces financial institutions' risks while granting agricultural loans by building the capacities of both banks and value chain actors on good practices in agricultural financing, loans usage and repayment.

INDUSTRY BODIES IN NIGERIA'S CASSAVA SECTOR

National Cassava Growers Association (NCGA): The NCGA is the umbrella organization for all cassava farmers in the country and has more than 2 million members. It has national executives that coordinate all activities in the country through the State branches and its executives.

National Cassava Processors and Marketers Association (NCAPMA): The NCAPMA is the national association of cassava processing small- and medium-scale enterprises. Most of the members have at least one flash dryer used for dried packaged flour products and the association currently has a membership of 157 SMEs scattered across the country.

Cassava Cottage Processing and Marketing Association of Nigeria (CACOPMAN): CACOPMAN is a small group of cassava processors with a membership of 35. The members process cassava into staple foods using semi-automated equipment.

Agricultural Machineries and Equipment Fabricators Association of Nigeria (AMEFAN): AMEFAN is an umbrella body for Nigerian fabricators involved in the development and commercial manufacture of machineries to service the entire agricultural value chain.

The Nigerian National Cassava Platform: It was launched with the support of Grow Africa and IDH – The Sustainable Trade Initiative in April 2015 as one of three national platforms (the other two are in Ghana and Mozambique) aimed at building a market for cassava products used in industrial processes. The platforms bring together producer groups, processors, offtakers, financiers and the public sector to work on building links between actors along the chain at the national level.

9.9. SWOT ANALYSIS OF NIGERIA'S CASSAVA SECTOR

Table 47: SWOT analysis of cassava in Nigeria

	Inputs and services	Production	Artisanal processing
Strengths	▪ Existence of public and private service providers ▪ High-yielding demand-driven cassava varieties by the IITA and the National Root Crops Research Institute (NRCRI) ▪ Existence of agro input dealers ▪ Availability of processing materials and tools	▪ Climate is excellent for growing cassava ▪ Suitable land ▪ Familiarity with cassava cultivation	▪ Existence of cottage to small cassava processing, mostly to traditional products like gari, lafun, fufu and chips ▪ Availability of local fabricators of equipment and operators
Weaknesses	▪ High input costs ▪ High energy costs ▪ Lack of appropriate technical expertise	▪ High raw material costs ▪ Smallholdings of farmers	▪ Inadequate processing equipment
Opportunities	▪ High-yielding cassava varieties available	▪ Experience in cassava production as the highest producer in the world ▪ Lowering cassava prices ▪ Rural employment	▪ Urbanization creates a demand for value-added cassava products ▪ Regional markets ▪ By-products (waste to wealth) ▪ Economies of scale
Threats	▪ Domestic maize price fluctuation ▪ Hike in price of inputs and services	▪ Climate change ▪ Pastoralist clash ▪ Poaching on cassava farms	▪ Educational background is a major threat for replication and consistency in machine fabrication, operation and maintenance

	Industrial processing	Logistics	Trade
Strengths	▪ Existence of National Cassava Processors and Marketers Association (NCAPMA) ▪ Existence of Agricultural Machineries and Equipment Fabricators Association of Nigeria (AMEFAN)	▪ Existence of management organizations ▪ Strong and dynamic Nigeria Cassava Growers Association ▪ Presence of research and development institutions; Nigeria has a core of well-informed and competent cassava scientists, furthered by the IITA and NRCRI in Nigeria ▪ Seed producers' network and donor-driven BASICS II Project with IITA (lead), NRCRI, National Agricultural Seed Council (NASC), Sahel Consulting Agriculture and Nutrition Limited and Catholic Relief Services (CRS) as partners	▪ The presence of a relatively huge domestic market is Nigeria's greatest strength ▪ Central Bank of Nigeria (CBN) credit facilities and partnership with Cassava Growers Association of Nigeria CGAN
Weaknesses	▪ Poor product quality ▪ Inadequate infrastructure ▪ High cost of cassava at factory gates	▪ High transportation costs ▪ Low-capacity development, especially women experts ▪ Lack of social capital	▪ Fluctuation in market prices ▪ No access to credit/loan ▪ Ineffective information system ▪ Inefficient market system
Opportunities	▪ Availability of improved processing technologies at SME level ▪ Pool of human resources and networks of professionals ▪ Existence of strong and emerging cassava industrial hub in a section of the country	▪ Large number of potential end users (e.g. bakers for HQCF; beverages for cassava starch) ▪ Availability of knowledge locally in the diverse use of cassava and products for industrial purposes	▪ Growing demand for cassava products ▪ Government inclusion and local content policy ▪ Savings in foreign exchange
Threats	▪ Relative prices of other food crops and products ▪ High cost of energy ▪ Smuggling	▪ Temporary gluts ▪ Corruption ▪ Gender disparity in access to loans ▪ Political interference	▪ Globalization of the international market and unpredictable changes in government policy ▪ Security in neighbouring countries

Sources: Sanni et al. (2009)[81]: United Nations Industrial Development Organization (UNIDO) (2006)[82].

81 Sanni, L.O., Onadipe, O.O., Ilona, P., Mussagy, M.D., Abass, A. and Dixon, A.G.O. (2009). 'Successes and challenges of cassava enterprises in West Africa: a case study of Nigeria, Benin and Sierra Leone'. ISBN 978-131-200-5. IITA, Ibadan, Nigeria, p. 35. Available from www.iita.org/c/document_library/get_file?uuid=fcbb3638-8fd3.

82 'A strategic action plan for the development of the Nigerian Cassava Industry', United Nations Industrial Development Organization (UNIDO)/ Federal Ministry of Industry, Trade and Investment/Presidential initiative on cassava (2006). Available from https://eucord.org/wp-content/uploads/2014/01/cassava_master_plan.pdf.

10. SIERRA LEONE COUNTRY PROFILE

10.1. COUNTRY OVERVIEW

Sierra Leone, named after the Lion Mountains (originally Portuguese for 'lioness mountains') that are located near the capital city of Freetown, is bordered on the north and east by Guinea, on the south by Liberia and on the west by the Atlantic Ocean (the Gulf of Guinea). Its tropical climate ranges from a savanna in the north to rainforests in the south. It has a dry season between November and April (characterized by the hot and dry Harmattan wind that blows from the Sahara). The rest of the year is the rainy season, with rain falling almost daily at the peak of the season (July to August) and the temperature as cool as mid-20°C, but the relative humidity as high as 90%).

Prior to the European contacts in the fifteenth century, considered to be the first in West Africa, the country's dense tropical rainforest and swampy environment has protected it from neighbouring empires, with a limited influence from the Mali Empire. Starting in 1462, Portuguese, Dutch, French and British alternatively have used the country as a major trading post. The colonial era ended on 27 April 1961, when the British granted independence to Sierra Leone, and the country went on to hold its first general election as an independent nation the following year under a multiparty regime. Instability and violence have marred the political context of the country, going from military coups (1967–68) to a one-party state (1968–91) and to a civil war (1991–2002). Thanks to the involvement of the regional community (through, for example, the multilateral force established by ECOWAS) and the United Nations (peacekeeping mission) that helped restore order and disarm the rebels, this constitutional republic with a unicameral parliament has been enjoying gradual political and social stability.

Of the 7.8 million Sierra Leoneans, an estimated 42.9% live in urban areas, mostly in the Freetown neighbourhood on the Atlantic coast (home to 802,639 individuals), as well as in Bo in the centre (174,354) and Kenema in the east (143,137). Most of the population is Muslim (78%) and there is extreme tolerance with an influential Christian minority. It is estimated that 18 ethnic groups exist in Sierra Leone, and they tend to exhibit similar cultural features. The two largest groups are the Mende, mostly found in the east and south, and the Temne, in the centre and north-west. The complexity of the ethnic fabric is also shown in the presence of immigrants from Guinea (the Fulani and Malinke on the coastal regions), the Creoles or descendants of liberated African-Americans who are mainly found in and around Freetown, and Lebanese and Indian traders in urban centres. Krio, a mix of English and a variety of African languages, is the country's commonly adopted language, while English remains the official language.

Nigeria – key facts	
Capital city	Freetown
Area	71 740km^2
Population, total	7.81 million
0–14 years	*40.7%*
15–65 years	*56.3%*
Youth literacy (15–24 years)	66.6%
Male (%)	*70.6%*
Female (%)	*62.7%*
GDP (nominal, USD billion, 2019)	4.12
GDP growth (real, 2014–19)	-0.86%
FDI, inflows	367.7 (8.9% of GDP)
Gross domestic private investment	329.6 (8% of GDP)
Employment to population ratio (+15years)	55.4%
Employment to population ratio (15–24 years)	25.5%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	659.2 (16% of GDP)
Main exported products	*Diamonds; cocoa; coffee*
Imports of G&S, 2014–19 (USD billion, 2019)	1 545 (37.5% of GDP)
Main imported products	*Machinery and transport equipment; fuel; foodstuffs*
Inflation, 2014–19 (2019)	14.8%
Bank credit to private sector	247.2 (6% of GDP)
Gov. expenditure	885.8 (21.5% of GDP)
Gov. revenue	737.5 (17.9% of GDP)
Total public debt	2 579.1 (62.6% of GDP)
Currency	Sierra Leonean leone (SLL)
Language	English (official), Krio, Mende, Kuranko, Temne and Krim

Sources World Bank, IMF, UNCTAD and Comtrade.

10.2. BROAD ECONOMIC OVERVIEW

INCREASINGLY STABLE AND DYNAMIC ECONOMY

The World Economic Forum's Global Competitiveness Index ranks the country's economy 134th globally, with a score of 39/100. It comes 41st in Africa and 14th in the region. Macroeconomic stability and business dynamism (48.7/100) are the dimensions along which the country performs relatively well, scoring respectively 52.3 and 48.7/100, with a clear improvement over the years.

FAST-IMPROVING INSTITUTIONAL QUALITY

The institutional quality is 173rd globally, 33rd in Africa and 13th in the region, according to the World Bank's Governance Indicators, with a score of 32.4/100. The country fares relatively well when it comes to the dimensions of political stability and the level of violence (5th in the region), and government effectiveness and control of corruption (7th). All of these represent a strong improvement over a relatively recent past when the country was embroiled in political and social instability and recurrent episodes of violence (civil wars).

FAIRLY GOOD INFRASTRUCTURE QUALITY

According to the World Bank's Logistics Performance Index, the country is ranked 156th globally, 50th in Africa and 14th in the region, with an overall score of 41.6/100. Positive aspects of the logistics system relate to the timeliness of shipments in reaching destination within the scheduled or expected delivery time (a score of 46.8/100, the 12th in West Africa), as well as the ability to track and trace consignments (45.4/100 and 11th in the region).

When it comes to the African Development Bank's Africa Infrastructure Development Index, Sierra Leone comes 45th on the continent and 14th in West Africa, with an overall score of 11.5/100. Relatively good performance is registered in the information and communications technology (ICT) component (32nd in Africa) and the electricity sector (33rd).

GOOD ENVIRONMENT TO START A BUSINESS

The World Bank's 2020 Ease of Doing Business ranks the country 163rd worldwide, 36th in Africa and 13th in the region, with an overall score of 47.5/100. Starting a business is the most favourable dimension of the business environment, with the country scoring 91.3/100, and the process involves no paid-in minimum capital requirement. The tax system is also a positive aspect, as paying taxes has a score of 73 out of 100.

Additionally, the Forbes Magazine's Best Country for Business ranks the country 131st globally, 24th in Africa and 9th in the region, owing to its combined growth dynamics, level of development, trade performance and population size.

10.3. INVESTING AND DOING BUSINESS IN SIERRA LEONE

A STEADILY GROWING ECONOMY

The Sierra Leonean economy used to grow at an erratic pace, but, in 2014–19, the economy's dynamics have been stabilizing. In 2019, growth settled at 5.5%, mainly driven by increased activities in agriculture and construction as well as the resumption of iron ore production and exports. The COVID-19 shock led to a contraction of the economy by 2.2%.

A LOW-COST BUSINESS ENVIRONMENT

In 2019, foreign investment in Liberia reached $367.7 million and, in 2010–19, FDI inflows increased on average by 4.9%, the 5th highest in the region. This is partly due to the quality and cost of business-related administrative processes. The latter include **starting a business**, which requires no minimum paid-in capital, and involves five procedures, the 3rd lowest number in Africa: (i) Check the uniqueness of the company name and pick up a company registration form from the Corporate Affairs Commission (CAC); (ii) Register the company with the CAC; (iii) Pay the registration fees by wire transfer or by mobile money; (iv) Register employees with the National Social Security and Insurance Trust (NASSIT); and (v) Make a company seal. All of these procedures take an average of eight days to complete, and the fees amount to SLL 30,000 (approximately $30).

Businesses seeking a **construction permit** typically go through 17 procedures that mostly involve the Ministry of Lands, Housing, Country Planning and the Environment, the Ministry of Works and Public Assets, and the Land Registry. The process takes 180 days to complete, at a total cost of SLL 4,894,750 ($475), which represents 21.5% of the value of a standardized warehouse of SLL 198,253,187 ($19,239).

For all business-related administrative procedures, the laws guarantee **equal treatment** to investors, whether local or foreign. **Visa rules** allow to recruit employees of any nationality, and a work permit required for non-ECOWAS citizen has a duration of stay that matches that of the contract.

Approximately 2.7 million individuals make up the **labour force** in Sierra Leone, representing 31.1% of the total population. The quality of the workforce's skill set is ranked 12th in the region according to the World Bank's Human Capital Index, with a score of 0.35 on a 0–1 scale. Monthly salaries typically range between SLL 1,440,000 ($140) and SLL 25,500,000 ($2,470). The average is SLL 5,700,000 ($552) and the minimum is SLL 500,000 ($48).

Electricity consumption is charged at an average $0.18 per kWh, the 5th cheapest in the region. Obtaining a connection from the Electricity Distribution and Supply Authority (EDSA) requires a total of eight procedures and 82 days. The corresponding fees amount to SLL2 00,519,804 ($19,421). It is estimated that 22.7% of the total population has access to electricity (51.4% in urban areas).

Water is provided by the Guma Valley Water Company (GVWC), and the tariff set up by the Sierra Leone Electricity & Water Regulatory Commission (SLEWRC) is SLL 5,500 ($0.53) per kilolitre for 'commercial-major' and 'commercial-slam', and SLL 10,000 ($0.97) for 'commercial-super major'. Approximately 90% of the general population uses at least basic drinking water services, and this is among the highest rates in the region (96.4% in urban areas).

The country's **infrastructure** system comprises five airports with scheduled passenger services on nine commercial airlines. Lungi International Airport (or Freetown International Airport), located across the Sierra Leone River from Freetown, is the only international airport. Regular flights are offered to the West African region, Europe (Paris and Brussels) and Asia (Istanbul). The airport is estimated to handle 227,649 passengers per year, and it has a cargo capacity of 3,000 tons annually.

The country has an estimated public road network of 11,700km, of which 8,700km (83%) are functionally classified in the National Road System. Only 8% are paved, mostly primary roads that connect Freetown to the three provincial capital cities and the district centres, as well as regional corridors that reach the national borders.

The Port of Freetown is the main entry and exit point of goods by sea. It has a (theoretical) annual capacity of 380,000 TEUs, with a full container storage capacity of more than 4,800 TEUs. Two additional sea ports are located in Pepel (near Freetown) and on Sherbro Island (south-east of Freetown).

The only existing railway links the Port of Pepel and the mining site of Marampa, with an estimated length of 84km. It is predominantly used for transporting iron ore.

The business **tax system** in Sierra Leone comprises nine taxes and mandatory contributions. They include a corporate income tax at 30%, social security contributions at 10% of gross income, capital gains tax at 30% of disposal of a chargeable asset, and value-added tax at 15%. The total of 34 payments to be made annually amount to 30.7% of corporate profit, the smallest in the region.

Being an ECOWAS member, Sierra Leone applies the regional CET, which regroups imported goods into five tariff bands. They range from 'essential social goods' (which are duty-free) to 'specific goods for economic development' (taxed at the highest rate of 35%). The CET also comprises safeguard measures, anti-dumping measures, anti-subsidy and countervailing measures and supplementary measures aimed at protecting vulnerable industries and promoting fair competition in the liberalized regional market.

When it comes to **banking and the financial system** in Sierra Leone, the capital adequacy tends to be relatively low, but the asset quality is relatively good, with non-performing loans representing only 12.1% of total gross loans. The system is part of the subregional monetary and financial integration of the West African Monetary Zone (WAMZ), with the ultimate goal of a single currency for the whole ECOWAS region (the eco). There is a total of 12 banks operating in the country, all headquartered in Freetown. The total credit they provide to the private sector represents 6.3% of the country's GDP. As a sign of the system's openness, anyone can open and hold a **foreign currency denominated bank account**, and international money transfers, including dividends, are also allowed without restrictions. The **exchange rate** has been on a downward trend in 2015–20, the local currency losing value against the US dollar (jumping from $10,250 to $10,325 on 25 August 2021).

Government incentives to foreign investment include tax exemption on dividends, free repatriation of profits, no expropriation of property and no technology transfer requirements. In addition, the country's SEZ, opened in May 2011, offers tax holidays for 10 years, renewable for another five years at the discretion of the Sierra Leone SEZ Authority. Additionally, these businesses can enjoy import duty exemptions and expedited government services, including customs, immigration and registration. Further to the drive to attract foreign investment and facilitate business operations, the government has set up the Sierra Leone Investment and Export Promotion Agency (SLIEPA), which is charged with 'promoting investment into Sierra Leone and exports of Sierra Leonean products'.

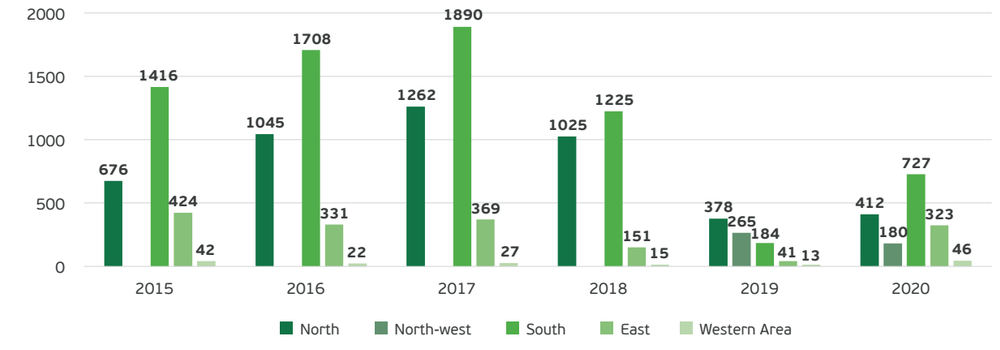
Overall, Sierra Leone offers plenty of opportunities to foreign investors. The latter can benefit from 'first mover advantage' (due to the relatively low numbers of current investors in many sectors), favourable tax rates and other government incentives, and a relatively low-cost business climate, all of which make Sierra Leone an attractive place to do business in Africa.

10.4. SIERRA LEONE'S CASSAVA SECTOR

In terms of the volume of cassava produced, Sierra Leone is the 7th among producers of fresh cassava roots in West Africa (FAOSTAT, 2019). Globally, the country is ranked 85 out of 190 countries. Cassava is the most consumed staple food after rice, with an annual per capita consumption of approximately 91kg (FAO, 2016b). The majority of cassava output is produced by smallholder farmers (95%) for household consumption, marketing and artisanal processing. The number of farmers growing cassava in 2020 was approximately 101,000 (Planning, Evaluation, Monitoring and Statistics Division of the Ministry of Agriculture & Forestry (PEMSD), 2020). The average area cultivated for cassava per annum is estimated at 134,404ha, with mean yields of 13.1 tons/ha (Planning, Evaluation, Monitoring and Statistics Division of the Ministry of Agriculture & Forestry, 2019). Despite this, domestic production of cassava exceeds local consumer demand, thereby providing a surplus of the crop for export. According to the PEMSD (2020), smallholder farms have average sizes of 1.39ha, while commercial or industrial farms are 10–400ha.

In general, all regions in Sierra Leone are suitable for cassava production, because it does well at elevations below 1,500m, rainfall of 1,000–1,500mm/year and a temperature of 23°C–25°C. The leading cassava-producing regions are the south, followed by the northern and north-west (Figure 53). The majority of cassava growers are smallholder farmers who use various production techniques depending on the purpose of farming. Monoculture production is typical among medium and large-scale growers, and it consists mostly of bitter cassava with a high starch content for processing. Intercropping is frequently practiced in all regions and consists primarily of sweet cassava for direct consumption (boil and eat), particularly during the lean season. Cassava farms rely on a rain-fed production method. However, Addax Bioenergy Sierra Leone Ltd, now called Sunbird Bioenergy Sierra Leone, is interested in cassava cultivation and aims to employ technologies to enable the production of cassava flour, starch and high-maltose syrup with a good irrigation system.

Figure 53: Cassava production output per region (2015–20) (thousand tons/year)



Note: North-west was created in 2017. Sierra Leone now has five regions and 16 districts. Prior to 2017, Sierra Leone had four regions and 12 districts.
Source: Planning, Evaluation, Monitoring and Statistics Division of the Ministry of Agriculture & Forestry (2015–20).

In Sierra Leone, farmers plant both local (mainly sweet) and improved (mostly bitter) cassava varieties for a variety of applications. Local varieties are cultivated primarily for family boiling and eating, as well as for immediate and direct economic gain, but have a modest yield (7–11 tons/year). In terms of improved varieties, the most commonly cultivated are the SLICASS series (SLICASS 1 to SLICASS 14). They are high yielding (22–45 tons/year), with the majority of them being bitter, but with a high starch content. They are preferred for processing. There are a few sweet ones like SLICASS 6 that are good for processing and boiling and eating.

The uplands in the north and north-west are mostly well-drained. The wet season lasts from May to November on average, and cassava is mostly planted between May and July and harvested between October and January. The rainy season in the country's south typically begins in April and ends in November. Cassava is typically grown between December and January, with harvest happening between June and August (Figure 54). The cropping season in the east is similar to that in the north. There is no cropping cycle information for the western area, because cassava output is minimal in this region. Also, because cassava can remain in the ground for numerous seasons, it can be left unharvested for up to 6–12 months or dug up during the lean season (May to August) to serve as a food security crop in the event of a poor rice harvest.

Figure 54: Season calendar of cassava planting and harvest in Sierra Leone

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
North & north-west												
Planting												
Harvest												
South												
Planting												
Harvest												
East												
Planting												
Harvest												

Source: FEWSNET (2017); Comprehensive Food Security and Vulnerability Analysis (CFSVA) (2020).

Sierra Leone produces primary products (cassava leaves, stems and roots) and secondary products (gari, flour, starch, dry chips and fufu, etc.). With the exception of the FAOSTAT database's annual total of fresh roots, there are no official statistics on the quantity produced or the leading producing region of each cassava product. Only the Sierra Leone Agricultural Research Institute's (SLARI) cross-sectional studies in Sierra Leone show the percentage of households making each product. These include gari (10.7%), processed cassava leaves (10.1%), fresh cassava roots (10.1%), fufu (9.7%), cassava stems (9.1%), cassava flour (8.7%), dry chips/roots (8.4%), tapioca (8.4%), starch (8.3%) and others (7.8%). The primary cassava and products currently used in high demand are mentioned below.

Cassava leaves: Cassava leaves are used in the popular cassava-leaf soup. The leaves are pounded or powdered to minimize cyanide concentration, then boiled and prepared with rice. Smallholder farmers, transporters, market assemblers and retail dealers sell directly to households and restaurants/food vendors.

Cassava stems: These are one-metre-long cuttings used for replanting. A few outgrower farms produce cassava stems, but they are small. Since farmers do not specialize in generating high-quality cassava stems, sources of stem cuttings include farmers' own cassava plots, relatives, neighbours, government, NGOs and private sector farms.

Fresh cassava roots (tubers): The roots have the highest economic value and are important for food security and the cassava industry. Raw, boiled, fried or roasted tubers are edible. Gari, foofoo (fufu), dried cassava chips, flour, starch and ethanol are secondary cassava products. Small, medium, and large-scale producers, market assemblers, transporters, wholesalers, retailers, processors and consumers are major players.

Gari: Gari is dry granulated cassava that is popular in Sierra Leone. It is prepared by roasting and is creamy-white with a slightly fermented taste. Its shelf stability and convenience boost its economic value. Attiéké/couscous and coconut gari are value-added goods made from traditional gari. Fresh tuber producers, local assemblers, small and medium processors, transporters, marketers and consumers are key gari value chain participants (e.g. food vendors and households).

Foofoo: This can be wet or dry. It is popular in Western Sierra Leone, but less so elsewhere. New value-added product: odourless foofoo flour. Due to insufficient knowledge about its benefits, it has not acquired popularity. Small and medium tuber growers, input suppliers and transporters comprise the foofoo value chain. Women process cassava in rural and urban processing centres.

HQCF: This is a new product gaining popularity in Sierra Leone. It is used to make cassava bread, pies, chips and vanilla cassava ice cream. Cassava bread, a roasted, pressed and dewatered cassava mash (cake), is made from HQCF. Despite its convenience, usage is modest due to insufficient public awareness and government efforts to promote rapid uptake. Small and medium-scale cassava producers, tuber transporters and wholesale traders who sell to the bread and confectionery industries are key players in the value chain.

There are other forms of cassava products produced and used, but in smaller quantities, such as dried cassava chips, cassava peels, tapioca starch/flour, ethanol and high-maltose syrup

CASSAVA TRADE IN SIERRA LEONE

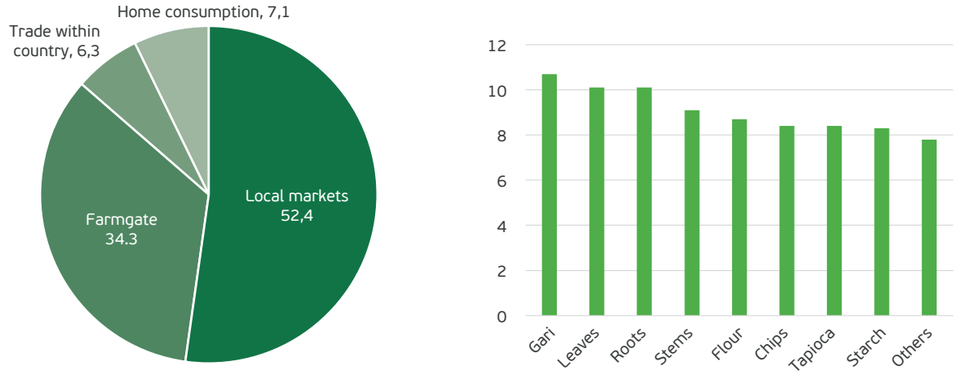
DOMESTIC TRADE

Cassava production and processing in Sierra Leone is dominated by the traditional food market, with Freetown as the main market destination for fresh cassava roots and leaves. There are a few medium-sized mechanized processing plants located in the major cities. Large-scale or industrial processing is limited, as only one large-scale industrial firm, Sunbird/Addax Bioenergy Company, is emerging as a key value chain player. Smallholder farmers account for more than 95% of total cassava output. The majority of these smallholder farmers (0.2ha and 2ha fields using minimal inputs and basic agronomic procedures) have an average yield of 8–15 tons/ha depending on the variety of cassava grown and other inputs used. Approximately half of the fresh cassava roots produced are sold to local markets (daily/permanent, periodic and village markets) and only 6.3% are traded to other parts of the country (Figure 55).

Furthermore, 23.6% of the fresh cassava sellers perform cassava processing functions and thus sell processed cassava products such as gari, tapioca, flour and chips. Similarly, 80.6% of cassava used in processing enterprises is produced on their own farms. Cooperatives societies are not widely engaged in cassava trade in Sierra Leone, although, in some areas, outgrower and block farmer groups have been formed with the assistance of processors and extension staff.

There are four main cassava-based products traded in Sierra Leone, such as gari, fresh cassava roots, processed cassava leaves and fufu. Other cassava-based products processed or traded in Sierra Leone include cassava stems, cassava flour, dry chips, tapioca, cassava bread and starch. In terms of processing methods, 54.2% is done traditionally, while 43.2% is done mechanically. Roots are frequently dried or fermented and turned into food products for consumption at home or sale in local markets.

Figure 55: Domestic market share (%) and cassava products traded in Sierra Leone

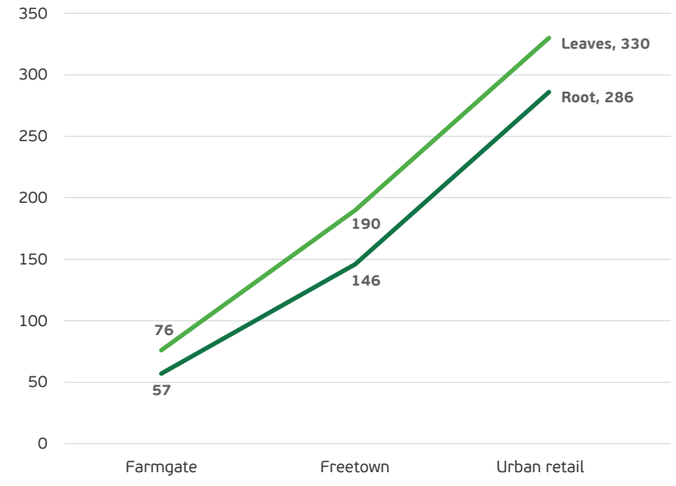


Source: Cassava value chain study report by SLARI/Njala Agricultural Research Centre (NARC) (2013–16).

Although a few SMEs process gari for export to neighbouring countries, local consumption and packaging of other traditional cassava delicacies for retail sale predominate. Most stores want to sell products like HQCF and tapioca, but they are in short supply. Consumers purchase 50% of cassava items from periodic markets, 44% from daily markets, 4.3% from roadside markets and 0.9% from the street. It is worth noting that several daily market locations also serve as periodic marketplaces in some areas.

Fresh cassava roots and leaves are commonly sold in Freetown (the largest consumer of cassava goods) and other important cities such as Bo and Makeni. As a result, a major amount of the consumer price is related to marketing expenditures such as storage, packaging, shipping and handling, market dues and selling labour. Inflation and fuel price increases can have an impact on cassava pricing. For fresh cassava roots and leaves, urban retail prices are approximately five times higher than farmgate prices (Figure 56). The price of cassava in Sierra Leone is affected by the two seasons (rainy and dry). Cassava prices often fall during the rice harvest season. However, during the lean season of rice production, every increase in rice prices produces a corresponding increase in cassava prices. This is due to an increase in demand for cassava, because it is less expensive than rice, which is scarce during the lean season (June to August). Cassava prices have changed in 2013–20). According to the Comprehensive Food Security and Vulnerability Analysis (2020), the price of cassava was $140/ton in 2013 and reached an all-time low of $55/ton in 2016. However, as a result of rising inflation and the depreciation of the Sierra Leonean leone (SLL) against the USD, cassava prices have been rising since 2017.

Figure 56: Price of cassava roots and leaves (USD/ton) at different points in the value chain in Sierra Leone



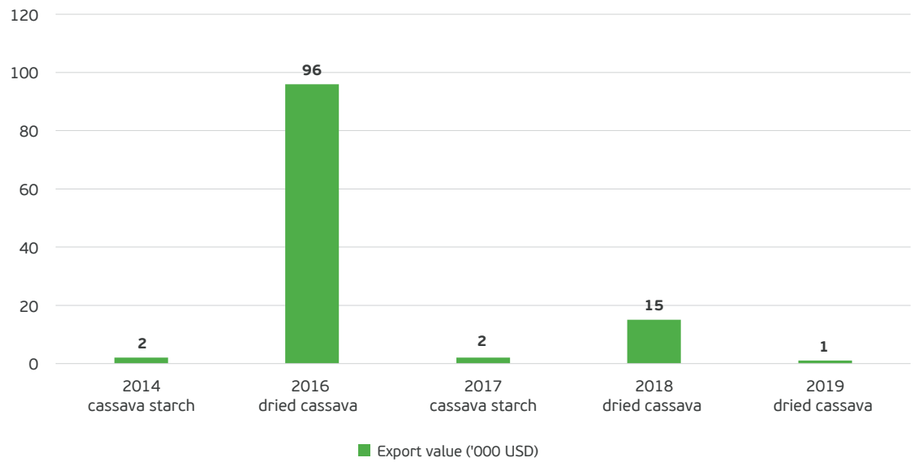
Source: Field survey (2021).

NTERNATIONAL TRADE

Sierra Leone is not currently a player in the international trade in cassava products. There are no records that the country imports cassava products. However, Sierra Leone's scanty records of exports of cassava products were approximately $15,000 in 2018, reduced from $36,000 the previous year.

Exports of dried cassava reduced from $96,000 in 2016 to $1,000 in 2019 (Figure 57). The main destinations of cassava from Sierra Leone are the United Kingdom, the Gambia and Australia (Cassava Export, World Data Atlas).

Figure 57: Exports of cassava-based products in Sierra Leone (USD thousand)



Source: Field survey (2021).

Cross-border trade in gari to Guinea occurs at a rate of 15,000–20,000 tons/year via the Barmoi International Market and the Pamélap border crossing post in the Kambia District. Similar cross-border activity is observed at roughly 3,000 tons/year via the Bo Waterside border crossing post in Liberia (West and Central African Council for Agricultural Research and Development, 2014). The majority of these exports are small-scale, cross-border shipments. Given the country's unusually significant cassava production, actual exported volumes are likely to be higher. Gari shipments to neighbouring countries have surged in recent years, according to industry stakeholders.

10.5. VALUE CHAIN AND STAKEHOLDERS IN SIERRA LEONE'S CASSAVA SECTOR

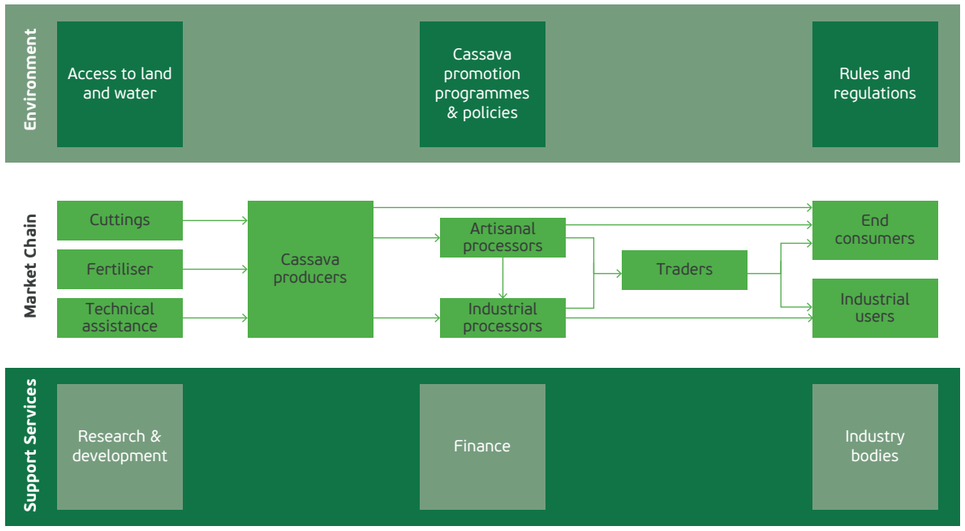
Cassava and its traditional by-products (fresh tubers, gari and foofoo) have no specific marketplaces; buying and selling occur in practically all local markets across the country. Other products, such as starch, HQCF and dried cassava chips, are gradually increasing their market share. Male marketers predominate in the northern and southern regions, whereas female marketers predominate in the eastern and western regions (UN Women, 2017). The cassava industry has growth potential in both domestic and international arenas, but marketers face constraints that limit their involvement. Producers (mainly small-scale) and market outlets are the most common suppliers of fresh cassava roots and leaves (Figure 58).

Main buyers include:

- Market assemblers: These are mostly farmers who sell their products in rural markets or small-scale traders who accumulate smaller volumes of cassava directly from the producers.
- Wholesalers: Traders who sell larger quantities of cassava products to other traders within the domestic market or to exporters.
- Retailers: These sell directly to consumers in smaller quantities using metric measurements such as kilograms or informal/non-standard measurements such as bowls for tubers and bundles/ties for the leaves.
- Processors: They mostly source their fresh roots from their own farms and sometimes from other farmers.

The main markets for cassava in the rural areas are weekly and periodic markets, which make up approximately 50% of the type of markets available (World Food Programme, 2021). Owing to the high perishable nature of cassava roots, most (53%) are usually marketed close to production sites or local markets, while 34% are sold on-farm, 7% consumed on-farm and 6% transported to other parts of the country (Famine Early Warning Systems Network, 2017). In big cities, cassava and its products can be found in permanent markets and parks.

Figure 58: Cassava value chain map in Sierra Leone



Source: Field survey (2021).

The current input suppliers for the cassava subsector in Sierra Leone are as follows: cassava stem nurseries, fertilizer suppliers, and technical assistance and extension services. Good-quality cassava stems are unusual in Sierra Leone, and only a few outgrower farms specialize in their cultivation. According to a 2019 NARC report, the sources of cassava stems are farmers' own plots kept from last season's harvest (88%), local cutting producers (7%), extension/research (2%), cutting merchants (2%) and presents from family, friends or neighbours (1%). Cassava farmers in Sierra Leone rarely use chemical fertilizers despite the fact

that there are several fertilizer merchants around the country. Because organic fertilizer is more expensive, it is used even less than chemical fertilizer. There are a few organic fertilizer companies, and most of them have an online presence. There is presently no data source for all of the country's fertilizer suppliers.

Farmers get technical information and training on planting, weed management and other agronomic practices applied to cassava farming from extension staff at the Ministry of Agriculture & Forestry (MAF), SLARI, NGOs and private sector players such as Sunbird Bioenergy.

Cassava processing is generally done at artisanal levels in rural or small towns. Sierra Leone has 11 public-owned small-scale cassava processing units. The Cassava Value Chain Development Project, which supported processing and value addition by SMEs in West Africa, established or upgraded these units. The majority of cassava processing centres are not focused on a single type of product, but rather on a variety of products such as gari, foofoo, starch and cassava flour. Cassava producers, aggregators, transporters, processors and marketers are the primary players in this category. As a result of poor record-keeping, there is no data for the total amount of cassava processed by these divisions of processors.

There are a few large-scale processors of gari, foofoo, dried cassava chips, HQCF, native starch and cassava peels in Sierra Leone. Sunbird Bioenergy[83] is the sole producer of ethanol (E-10), with ambitions to generate glucose syrup/high-maltose syrup. The facility is located in Mabilafu, approximately 110km east of Freetown and approximately 30km south-west of Makeni in the Bombali district of the northern region. The property features a cassava plantation of roughly 160ha.

Road transport is the most prevalent means of transportation in Sierra Leone, accounting for approximately 85% of the total transportation system. Only 1,051km of the country's 11,300km of roadways (main, secondary, feeder and urban roads) are paved. However, highways account for approximately 95% of inland passenger and freight travel (Government of Sierra Leone, Ministry of Transport and Aviation, 2019). The country has limited commercial transportation capability, with most transportation services handled on a one-time contractual basis.[84]

Farmers who also assemble and process raw tubers into gari, as well as other minor goods like foofoo and kondugbala, are major players, as are transporters and marketers (both wholesale and retail). Farmers and traders travel with headloads of cassava from farm to highway or market. Cassava produce is subsequently transported to rural or urban processors and marketplaces by local market assemblers, travelling dealers and transporters. Motorbikes (which account for approximately 45% of agricultural product delivery) are followed by light trucks, minivans, taxis and boats (SLARI and IITA report, 2016). The rainy season, particularly in rural regions, adds to the difficulty of transporting cassava, because heavily travelled and poorly maintained roads are harmed by heavy rain. Motorbikes are frequently employed at such times when light vehicles and taxis are unable to travel these roads and routes connecting major manufacturing and consumption locations, as well as large-scale processors.

Cassava and its major products (gari, foofoo and starch) flow through major producer regions in the south (Pujehun, Bo, Bonthe and Moyamba), north (Makeni and Tonkolili) and east (Kenema and Kailahun) to major consumer regions (especially the Western area), and to export markets in the north-west (Port Loko and Kambia) for cross-border trade to Guinea. A significant volume of gari is also exported to Liberia on a weekly basis via Bo Waterside. High-quality gari, for example, is mostly made in the Bo District and is delivered by traders and wholesalers into local retail stores before being shipped to regional markets. However, Freetown (which has the most daily markets) gets the majority of its gari supply from traders and truckers in Bo (174km away from the capital city). Large amounts of cassava and its main by-product (gari) are exported weekly from Bo to Guinea, covering a distance of 241km to the regional market in Barmoi and the Pamelap border crossing stations in the Kambia District. Improved roads from major cassava producing areas such as Bo, Bonthe, Kenema and Bombali, as well as export lanes such as Pamelap to Guinea, have increased both internal and subregional cassava trade.

According to the Diagnostic and Trade Integration Study Update in 2013, Sierra Leone's road freight prices were substantially higher than certain key routes in Sub-Saharan Africa, both within the country and across borders (World Bank, 2013). It was $0.09–$0.16 per km within the country and up to $0.21 per km over the border. However, thanks to a considerably upgraded road network system, transportation is now less expensive than it was more than a decade ago. According to transporter interviews, the cost of shipping a bag of cassava roots from Makeni to Freetown is approximately SLL 10,000 ($0.95), while the transportation charge from Makeni to Barmoi market is approximately SSL 20,000 ($1.95) per bag (field data, 2021).

83 https://www.sunbirdbioenergy.com.

84 https://dlca.logcluster.org/display/DLCA/4.8+Sierra+Leone+Transporter+Contact+List.

10.6. INVESTING IN CASSAVA: KEY FIGURES

Access to land and water: Sierra Leone has approximately 5.4 million hectares of land suitable for sustainable crop production. However, 4.3 million hectares of this total are uplands with low productive soils, whereas an estimated 1.06 million hectares are fertile lowlands with significant potential for food crop production. The country has an estimated total water resource potential of 160km^3/year, which includes surface and groundwater. A total of nine major river systems with a catchment area of approximately 72,080 km^2 contribute to surface water. Furthermore, the country receives 2,000–3,000mm of rain per year. A substantial amount of water can be saved for agricultural use/irrigation with sufficient rain-collecting systems. Foreign investors cannot acquire land in Sierra Leone on their own. However, before land can be awarded, they must form a partnership with a Sierra Leonean and form a corporation. Land registration and allocation are the responsibility of the Ministry of Lands, Country Planning, and Environment (MLCPE) in urban areas, and the local government in rural regions.

Income tax-exempt income: The income of an individual derived from any agricultural activity involving tubers for a period of 10 years from the start of the agricultural activity or the income of a company incorporated in Sierra Leone derived from any agricultural activity involving tubers for a period of 10 years from the start of that activity and 50% of any dividend paid during that period provided the company keeps a full record of all transactions relevant to the agribusiness, is exempt from income tax. This concession only applies to: (i) Foreign investors who intend to irrigate at least 500 hectares of agricultural land or cultivate at least 2,500 hectares of such land that is not irrigated; and (ii) Domestic investors who intend to irrigate at least 100 hectares of agricultural land or cultivate at least 500 hectares of such land that is irrigated, as amended in **Income Tax Act 2000** Section 31, Subsection (1), Sub-subsection (f).

Agricultural inputs: Entities engaged in agricultural production are entitled to the duty-free import of agricultural inputs for a period of five years from the date of first registration. Agricultural inputs for the crop sector mean: (i) Fertilizers, (ii) Pesticides, (iii) Insecticides, and (iv) Seeds and seedlings as amended in the **Finance Act 2013** Section 49.

Table 48: Investment indicators for Sierra Leone's agricultural sector

Indicator	Unit	Cost
Cost of farmland[1]	USD/ha	27.5
Cost of land in rural areas[2]	USD/ha	2 678–5 357
Cost of land in urban areas[3]	USD/ha	21 428–26 761
Cost of electricity[4]	USD/kWh	0.15
Cost of unskilled labour[5]	USD/day	2.38
Cost of skilled labour[6]	USD/day	2.86
Cost of transportation from Freetown to Queen Elizabeth II Quay (Distance (i.e. straight line distance) of any location within Freetown to the port is ≤ 9km)7	USD one-way	0.95
Enabling the Business of Agriculture score (2019)	USD	27.7
Doing Business (2020): Score (47.5) and rank (163/190)		

Note: The conversion rate of Sierra Leonean leone to United States dollars is as recent as 17 September 2021.

1: Cost of leasing a hectare of agricultural land from Government of Sierra Leone/Ministry of Agriculture & Forestry (MAF).

2: Cost of private-owned uncleared farmland in provincial rural communities.

3: Cost of private-owned cleared farmland in provincial urban areas.

4: The tariff indicated is that of the Electricity Distribution and Supply Authority (EDSA) for commercial and large energy users. Though the cost per unit of kWh is the same for both categories of consumers, the service charge per meter differs and is higher for large energy users than commercial users. Separate tariff rates exist for: (i) Gbinti Town in Port Loko, the northern region, and (ii) Segbwema and Panguma in the eastern region.

5: Average cost of unskilled (casual) labour per man-day across the country.

6: The cost of skilled labour per day is $2.86, as the national minimum wage is set at SLL 600,000 ($57.14) per month (i.e. 20 days per month).

7: Assuming that a passenger car or light truck consumes 25 miles per gallon (i.e. 9.4 litres per 100km), the amount of fuel consumed for a distance of 9km will be 0.85 litres. In September 2021, a litre of fuel cost SLL 10,000 ($0.95).

Source: Ease of Doing Business 2020 in Sierra Leone, www.edsa.sl.

10.7. INVESTMENT OPPORTUNITIES IN SIERRA LEONE'S CASSAVA SECTOR

CASSAVA PRODUCTION

In Sierra Leone, cassava production is profitable and producing cassava locally is cheaper than importing it for processing or consumption. Though the yield information shows a growing trend, farmers have not fully used the potential of the newly released SLICASS varieties by Sierra Leone Agricultural Research Institute, with a potential of 20–40 tons/ha with good agronomic management practices and correct application of inputs. The cassava market is projected to register a compound annual growth rate (CAGR) of 4.18% and reach a value of $237.76 billion in 2022–30 in the world market, apart from the local markets' demand. The demand for fresh cassava tubers is growing in domestic, regional and international markets and the smallholder cassava farmers in Sierra Leone have not been able to respond effectively to exploit these opportunities due to several structural and financial constraints that limit their market participation. This gives room for investors to come in and transform the status of the cassava sector' in Sierra Leone from subsistence to commercial level. The availability of fertile land, experienced labour and improved cassava planting materials, the presence of research and development institutions, and strong government and donor support for agriculture make Sierra Leone an investors' haven for cassava production investment.

CASSAVA PROCESSING

In Sierra Leone, very few enterprises are engaged in processing starch, HQCF, cassava chips and animal feed. Cassava production in Sierra Leone has a considerable surplus, and most cassava crops produced can be processed into exportable materials. It is estimated that households consume one-third of the cassava produced, and one-third is used to process gari and fufu for local markets. Therefore, approximately one-third of Sierra Leone's cassava production in the international market can be used for other needs. The limited use of cassava often results in a glut during bumper harvest periods.

Since 2010, cassava processing equipment imported from Nigeria through development projects are gradually changing the commercial viability of medium- to large-scale cassava processing in Sierra Leone. These processing projects are usually not managed like business enterprises and are unsustainable due to poor managerial competences. There is a need for greater private sector investment in these emerging opportunities.

Investment in processing will not only transform the cassava processing industry into a commercialized sector, but can also drive interest in cassava production. More importantly, this will create a market for cassava products both locally and internationally by feeding into the rising market share for high-value cassava products like cassava/tapioca starch, cassava flour, cassava ethanol and high-maltose syrup in the West African subregion.

CASSAVA MARKETING

Even though there is a significant demand for cassava and its products in large quantities worldwide, Sierra Leone has not explored its desired cassava market potential. This could be partly attributed to inadequate or faulty marketing systems and strategies. The potential markets for cassava-based products are as follows: **fresh cassava** (waxed, root peeled, dried, instant boiled and vacuum-packed cassava), **processed cassava products** (gari, fufu, cassava/tapioca starch, cassava flour, cassava ethanol and high-maltose syrup) and **animal feed**.

10.8. CASSAVA PROMOTION PROGRAMMES AND POLICIES IN SIERRA LEONE

The relevant cassava promotion programmes and policies in Sierra Leone are summarized in Table 49.

Table 49: Relevant cassava promotion programmes and policies in Sierra Leone

Programme/policy	Main features
National Sustainable Agricultural Development (NSADP) (2010–30)	▪ Targets rice, cassava, livestock and export crops (oil palm, cocoa, coffee and cashew) ▪ Provides the basic infrastructure required for agricultural development ▪ Provides an enabling environment through the review of investment and other related policies ▪ Ensures an effective and coordinated implementation and management of the sector's activities
Medium-Term National Development Plan (MTNDP) (2019–23)	▪ To achieve middle-income status by 2039 through inclusive growth that is sustainable and leaves no one behind
National Agricultural Transformation Programme (2023)	▪ Addresses some major bottlenecks impeding the industry's growth and ability to compete in regional and international markets
Fertilizer Subsidy Program (2017)l	▪ Shift from the government-led fertilizer scheme to a private sector-led strategy ▪ To achieve a fertilizer application rate of 50kg/ha by 2029
West Africa Virus Epidemiology (WAVE) project (Phase 2) https://agshare.today/project_wave	▪ To help monitor, detect and control the spread of trans-boundary plant pathogens in the West African region
West Africa Competitiveness Programme (WACOMP), Sierra Leone	▪ To strengthen Sierra Leone's competitiveness and enhance its integration into the regional and international trading systems

RESEARCH INSTITUTES CONDUCTING RESEARCH AND DEVELOPMENT IN SIERRA LEONE'S CASSAVA VALUE CHAIN

Sierra Leone Agricultural Research Institute (SLARI): This is the sole research institute in the country and is government owned. NARC, located in Njala, Moyamba District in the southern region, is one of the six operational centres under SLARI. SLARI is mandated with the development and promotion of the cassava value chain. In terms of varietal development, NARC has achieved: (i) Development of improved cassava varieties (SLICASS 1 to 14) that have different characteristics such as high yield (25–40 tons/ha), disease resistance, high starch and dry matter contents and poundability; and (ii) Multiplication and release of SLICASS varieties.

Ministry of Agriculture & Forestry (MAF): MAF is a government agency whose core mandate is to formulate agricultural development policies and to advise the government on such policies relating to its administration and the management of the agricultural sector in Sierra Leone. It has a strategic focus on crop diversification, livestock and forestry. It plays a key role in the development of the cassava value chain through the dissemination of cassava technologies generated. See https://maf.gov.sl.

Njala University: Its mission is to generate and transmit knowledge through quality teaching and research for sustained development. Since the founding mandate emphasizes agricultural productivity, the university plays a key role in the development of specialists in the fields of agriculture, including the sector dealing with crops. See https://njala.edu.sl.

IITA: A recently signed a memorandum of understanding in February 2019 between IITA and the Ministry of Agriculture & Forestry (MAF) aims to partner with the Government of Sierra Leone on the reduction of malnutrition and ensuring food security in Sierra Leone. The memorandum of understanding entails the introduction of new crop varieties and cultivation techniques, among others. Priority areas of collaboration include rice transformation, cassava initiatives, and production and marketing of cowpea. There is a strategic focus on developing the cassava industry to produce HQCF and vitamin A-fortified cassava products. See https://www.iita.org.

ANALYTICAL LABORATORIES IN SIERRA LEONE

The Sierra Leone Standards Bureau (SLSB) has a quality control laboratory that can determine nutritional contents/values of foods such as dry matter (i.e. total solids), protein, ash (which is a measure of the total quantity of minerals present in food) and fat (which contributes to the calorie content of foods). The laboratory can also test for food-borne pathogens such as bacteria, Staphylococcus aureus and Escherichia coli, which are pre-harvest (field) contaminations. The lab also screens for post-harvest pollutants that harm the cassava crop, such as yeast, moulds and aflatoxin. The lab, on the other hand, lacks the ability to test for cyanogenic glycosides, which determine the bitterness or sweetness of a cassava variety. Despite its multiple testing scopes, the laboratory has yet to be accredited in any of the above. See slsb.gov.sl.

FINANCIAL INSTITUTES IN SIERRA LEONE'S AGRICULTURAL SECTOR

Rural financial institutions: The International Fund for Agricultural Development (IFAD), in collaboration with the Government of Sri Lanka, has been actively developing rural financial institutions through two programmes under the Rural Finance and Community Improvement Programme (RFCIP and RFCIP 2). These cater to the economically active rural poor, especially micro and small business owners. These programmes aid in the establishment of an apex entity (Apex Bank) that provides regulatory and supervisory services to rural financial institutions.

Agricultural credit facility (AFC): A SLL 100 billion agricultural credit facility has been established by the Ministry of Agriculture, Forestry and Food Security, the Ministry of Finance (MOF) and the Bank of Sierra Leone (BSL). In order to boost agricultural productivity, this facility will be made available to potential agri-dealers, importers and exporters of agricultural goods. The facility is offered at a 5% interest rate, and no actor in the crop value chain will be authorized to access more than 10% of the credit capacity.

Sierra Leone Agribusiness Development Fund (SLADEF): The Smallholder Commercialization Agribusiness Project, of which SLADEF is a component, is a five-year (2016–21) programme in Sierra Leone that aimed to increase agricultural production through increased market access, access to finance and the creation of inclusive smallholder farmer agribusiness connections.

BRAC Microfinance Sierra Leone (BMSL): BMSL is a non-profit organization that began operations in 2008. It offers financial services to persons who do not have easy access to traditional financial institutions. BRAC is the country's largest microfinance provider in terms of client base, having 33 branches in 11 districts in 2018. BRAC provides individual micro-loans to women through groups, as well as enterprise loans to both male and female small-scale entrepreneurs. Individual micro-loans from women typically vary from $100 to $800, and enterprise loans are $700–$10,000. Conditions for loan disbursement and repayment include the furnishing of collateral and the payment of 5% interest on individual loans.

INDUSTRY BODIES IN SIERRA LEONE

Sierra Leone Chamber of Commerce Industry and Agriculture: This is a local organization of businesses and companies in Freetown with the intention to develop and further the interests of local companies and businesses in Sierra Leone. Its main responsibility is to bring together value chain actors of different commodities. See https://www.commonwealthofnations.org/.

Sierra Leone Produce Marketing Company (SLPMC) Limited: The SLPMC is one of the leading exporters of produce in the country. It was set up by the Government of Sierra Leone and its area of responsibility is to deal with agricultural commodities. Its main activities are to help with quality improvement, ensure better prices for farmers and supervise the re-establishment of relationships with international commodity organizations. It also helps link farmers to markets with highly competitive products. See SLPMC_Homepage.

Agricultural business centres: These were developed by the government to act as the source for agricultural inputs for rural communities. They also serve as cooperatives and act as private sector agribusinesses. Funding from government agricultural development programmes is channelled through agricultural business centres. See https://www.youtube.com/watch?v=ilf6U8Hlb10.

Sierra Leone Chamber for Agribusiness Development (SLeCAD): SLeCAD is a forum of agribusiness operators, companies and industries with interests in promoting agribusiness, private sector investment and agro-industrialization in the agricultural sector. Its objective is to promote agribusiness and private sector development, particularly in establishing platforms and facilitating interactions for agribusiness, partnerships, trade and investment in agriculture in Sierra Leone. See https://www.slecad.biz.

Sierra Leone Investment and Export Promotion Agency (SLIEPA): SLIEPA is charged with the responsibility to promote investment in Sierra Leone and provide information to potential investors on matters relating to investments. Its main activities include promoting the export of products made in Sierra Leone, facilitating registration of business enterprises, assisting investors in obtaining permits, licences, certificates or clearance for the commencement of business, assisting potential investors in identifying joint venture partners and develop the relationship between the public and private sectors for investment growth.

10.9. SWOT ANALYSIS OF SIERRA LEONE'S CASSAVA SECTOR

Table 47: SWOT analysis of cassava in Nigeria

	Inputs and services	Production	Artisanal processing
Strengths	▪ Availability of improved cassava varieties, credit and financial institutions and relatively good access to technical and extension services	▪ Availability of large hectares of suitable land for cassava production, access to low-cost labour market, presence of a huge domestic demand for cassava, favourable climate conditions for planting cassava and a strong knowledge base and experience in cassava production	▪ Relatively good access to processing facilities across the major towns and cities
Weaknesses	▪ Difficulty in accessing high-quality cassava stems early in the cropping season ▪ Challenges in obtaining credit and high interest rates ▪ High cost of fertilizers and agro-chemicals ▪ Insufficient training on cassava production	▪ Poor use/adoption rates of improved cassava varieties, low yields due to declining soil fertility/low use of fertilizers or lack of application of Good Agricultural Practices (GAPs) ▪ Poor/ineffective land tenure system, which results in unsecured land ownership and fragmentation of land, which affect the development of large-scale mechanization schemes ▪ Despite the presence of modern farm machinery such as tractors, cassava farming is still dominated by the use of crude tools such as the hoe and cutlass ▪ Limited access to agricultural machinery and equipment owing to the high cost of hire and purchase	▪ Lack of specific and sufficient machinery to scale up processing ▪ Processors are yet to fully understand and implement the principles and practices of process control, Good Hygiene Practices (GHP) and Good Manufacturing Practices (GMP) ▪ Cassava product development efforts are weak, and the product and market/use base is narrow ▪ Poor organization/coordination of value chain actors ▪ Capacity building in product development is focused mostly on gari and foofoo flour ▪ Less focus on products such as HQCF, tapioca starch and sweeteners (glucose syrup or high-maltose syrup), which have wide usage pathways. As a result, beneficiary groups lose out on significant wider cassava market opportunities.
Opportunities	▪ Availability of improved cassava varieties and the presence of strong government and donor support (subsides)	▪ High market demand for fresh cassava tubers ▪ Cassava production is profitable and very competitive	▪ High market demand for fresh cassava tubers ▪ Cassava products are profitable and very competitive
Threats	▪ Outbreak of diseases like ebola and other viruses within a nation	▪ Theft and poaching on cassava farms ▪ Crop–livestock farmers' conflict ▪ High pre-harvest losses as a result of pest and disease and post-harvest losses due to tuber deterioration ▪ Outbreak of recurrent bush fires and climate variation	▪ Lack of specialized technicians for repairing of their simple tools and machineries

	Industrial processing	Logistics	Trade
Strengths	▪ Low production cost ▪ Availability of labour	▪ Better access to labour, planting materials and other agricultural inputs ▪ The presence of research and development institutions; SLARI and Njala University provide competent scientists in cassava cultivation	▪ Huge market demand for roots and traditional cassava by-products in urban areas and in the diaspora
Weaknesses	▪ The cassava industry is a relatively micro industry that uses simple technology. The production process of cassava products is still mostly traditional. The use of labour is also quite massive, especially in the peeling of cassava. It requires a considerable amount of time to produce and harvest cassava. This leads to insufficient supply of products for processors. ▪ Low-quality products dominate the local markets	▪ Poor linkage between farmers and processors leading to mismatch in demand and supply ▪ High cost of operations due to poor infrastructure, limited energy supply and poor communication	▪ High transportation cost from farm to processing centres, owing to bad roads and increase in fuel price ▪ Lack of social capital as a result of distrust among value chain actors regarding business relationships ▪ Lack of market flow information ▪ Fluctuations in market price ▪ Exclusion from international markets due to low, non-existent or substandard cassava products that have high demand
Opportunities	▪ Cassava products industry can increase its production capacity by using higher technology. Higher technology will result in improving the production quantity of cassava products. Those will also increase the quality of cassava products by having standardized taste of cassava products ▪ Knowledge of a diverse range of cassava-based products that can be produced locally	▪ There is potential for investment in improved transportation services, value addition and packaging ▪ Government policies on lease of arable land, and tax reductions, etc. create an enabling environment for the cassava industry ▪ High transportation costs coupled with the highly perishable nature of cassava provides the potential for processing to occur near production areas ▪ There is a high demand for post-harvest technologies in major production and processing areas	▪ Market diversity and competition with food substitutes of cassava such as rice, potatoes and beans, etc. ▪ There is seasonal opportunity that exists in the regional market for staple quality food products
Threats	▪ The cassava industry is facing threats in finding the uniqueness of its cassava products. In Sierra Leone, there are various places that produce cassava products on a smaller scale (small and medium processing units). Therefore, cassava product production in Sierra Leone needs to find its uniqueness and improve its quality of production to fulfil international demand. By using higher technology, the quality and quantity of production for fermented cassava could increase.	▪ Lack of proper management ▪ Potential for theft	▪ Irregular tuber supply and temporary glut could affect cassava prices, making producers decide not to harvest roots ▪ Presence of informal/black market trade of cassava products to neighbouring countries, which affects market prices ▪ Lack of specific policies on cassava and poor coordination of existing agricultural policies could drive away investors

11. TOGO COUNTRY PROFILE

11.1. COUNTRY OVERVIEW

Togo, an indigenous Ewe word for 'behind the river', is among the geographically smallest countries on mainland Africa, with only 56,785km2. It is also one of the narrowest in the world, with a width of less than 115km from east to west. It shares borders with Ghana to the west, Benin to the east and Burkina Faso to the north, and it extends south to the Gulf of Guinea, where its capital and largest city, Lomé, is located. The country's tropical climate is divided into the dry conditions typical of a tropical savanna in the north, with temperature averaging 30°C, and more rainfall and cooler temperatures (averaging 23°C) in the southern or coastal part.

Prior to the arrival of the Portuguese in 1490, the region was increasing populated by tribes from outside, such as the Ewe coming from the west, and the Mina and Gun from the east, which all settled on the coast. The country was much involved in the slave trade that started in the sixteenth century, which earned it the name the Slave Coast.

During the colonial era that spanned 1884–1960, the country was first occupied by Germans (in 1905, it became the German colony of Togoland), whom are credited to have introduced modern techniques of cultivation of cocoa, coffee and cotton and developed the physical infrastructure. The United Kingdom and France took over during World War One, and the country was then divided between French and British zones. After World War Two, British Togoland voted to join the Gold Coast (part of the newly independent Ghana in 1957), while French Togoland remained an autonomous republic under France's rule, and became Togo as we know it today after independence on 27 April 1960. The country went on to hold its first presidential election and adopt its constitution in 1961. Political turmoil ensued, with two military coups. The latest, 13 January 1967, marked the ruling of Gnassingbé Eyadéma, which lasted until 2005, and during which opposition political parties were banned under a one-party system. The current relative stability of the political scene, which operates under a framework of a presidential republic and a multiparty system, has often been marred by violence, especially during elections.

Of the 8.1 million Togolese, 42.8% live in cities that have fewer than a million inhabitants, such as the capital city of Lomé (749,700), Sokodé (117,811), Kara (104,207) and Atakpamé (80,683). The last three stretch in the middle of the country, while Lomé is on the southern coast. The cultural setting is made up of approximately 30 different ethnic groups. The Ewe in the south is the most populous, with an estimated 32% of the country's population. Additional major groups include the Kotokoli or Tem and Tchamba in the centre and the Kabye in the north. French remains the official language.

Nigeria – key facts	
Capital city	Lomé
Area	56 785km^2
Population, total	8.08 million
0–14 years	*41%*
15–65 years	*56.1%*
Youth literacy (15–24 years)	84.3%
Male (%)	*89.7%*
Female (%)	*78.4%*
GDP (nominal, USD billion, 2019)	7.22
GDP growth (real, 2014–19)	5.18%
FDI, inflows	133.3 (1.8% of GDP)
Gross domestic private investment	1 083 (15% of GDP)
Employment to population ratio (+15years)	56.7%
Employment to population ratio (15–24 years)	23.4%
Exports of goods and services (G&S), 2014–19 (USD billion, 2019)	1 667.1 (23.1% of GDP)
Main exported products	*Refined petroleum; crude petroleum; electricity; calcium phosphates; raw cotton*
Imports of G&S, 2014–19 (USD billion, 2019)	2 255.9 (31.3% of GDP)
Main imported products	*Refined petroleum; motorcycles; crude petroleum; rice*
Inflation, 2014–19 (2019)	0.69%
Bank credit to private sector	1 927.7 (26.7% of GDP)
Gov. expenditure	1 920.5 (26.6% of GDP)
Gov. revenue	1 732.8 (24% of GDP)
Total public debt	5 212.8 (72.2% of GDP)
Currency	CFA franc (XOF)
Language	French (official), Ewe, Kwa, Kabe, Wachi and Mina

Sources World Bank, IMF, UNCTAD and C

11.2. BROAD ECONOMIC OVERVIEW

A SUPPORTIVE ENVIRONMENT FOR INNOVATION

The overall competitiveness of the Togolese economy rests on the extent of its innovative drive. According to the Global Innovation Index co-published by Cornell University, the Institut Européen d'Administration des Affaires (INSEAD) and the World Intellectual Property Organization (WIPO), the country is ranked 125th worldwide, 26th on the continent and 8th in the West African region, with a score of 18.5/100. This is a result of its enabling institutions (with a score of 56.3/100 and a ranking of 6th West Africa) and the level of market sophistication (a score of 34.3 and ranked 8th in the region). Human capital and research capacity and environment are also very supportive in the regional context, where the country comes 6th.

RELATIVELY STRONG RULE OF LAW

Togo's institutional quality is ranked 155th globally, 23rd in Africa and 10th in the region, according to the World Bank's Governance Indicators, with a score of 36.4/100. The extent of rule of law in the country is the dimension along which the country fares relatively well, as it comes 8th in the region with a score of 38.2/100.

GOOD TRANSPORT INFRASTRUCTURE

The World Bank's Logistics Performance Index ranks the country 118th worldwide, 24th in Africa and 7th in West Africa, with a score of 50/100. Most of the country's logistics system's dimensions relate to the frequency with which shipments reach consignees within scheduled or expected times, the quality of trade and transport-related infrastructure, and the efficiency of the customs clearance process.

Additionally, the country's overall infrastructure comes 42nd in Africa and 13th in West Africa, according to the African Development Bank's Africa Infrastructure Development Index, with a score of 14.1/100. When it comes the component of transport (such as road and airport), the country fares relatively well: it ranks 27th in Africa and 6th in the region.

EASIEST ENVIRONMENT TO DO BUSINESS IN WEST AFRICA

According to the World Bank, Togo is the country where doing business is the easiest in West Africa, with an overall score of 62.3/100. It comes 97th worldwide and 9th in Africa. The business environment's conduciveness owes mostly to the easy process of starting a business, which takes an average of 2.5 days, the shortest in Africa.

Furthermore, Togo is considered the 140th Best Country for Business globally, 31st in Africa and 11th in the West African region, according to *Forbes Magazine*. This is a result of its combined economic growth, GDP per capita, trade balance and market size.

11.3. INVESTING AND DOING BUSINESS IN TOGO

ONE OF THE FASTEST-GROWING ECONOMIES IN AFRICA

The Togolese economy grew at 5.18% in 2014–19, the 9th highest in the region. In 2019, it grew by 5.3%. The economy's dynamism is mainly driven by the construction sector's expansion, as well as the agricultural sector, in which productivity has been on the rise. The services sector remains the main engine of growth, and it has benefitted from an expansion of the port and airport capacities and operations. The COVID-19-related shock reduced growth to 0.7%, but the economy is expected to recover. Growth was forecast at 3.5% in 2021, and more than 5% in the medium term.

A COMPETITIVE BUSINESS ENVIRONMENT

In 2019, Togo received $133.3 million worth of FDI. In 2010–19, incoming flows increased at an annual rate of 6%, the 4th highest in the region. The business environment's overall quality contributed to the country's attractiveness. For example, **starting a business** in Togo requires a small paid-in minimum capital of XOF 25,000 ($46). A total of three procedures are involved and it takes up to 2.5 days to complete, both numbers the lowest in Africa. Investors have to: (i) Check the company name at the Centre de Formalités des Entreprises (CFE), the country's one-stop shop; (ii) Deposit the company's initial capital in a bank account opened under the name of the company or the notary; and (iii) Deposit all the documents for company registration, tax registration, social security registration and publication, and pay the fees at the CFE, which amount to XOF 31,250 ($57).

When dealing with **construction permits**, businesses have to go through 12 procedures in 165.5 days. It involves public agencies such as the Direction Générale de l'Urbanisme et de l'Habitat (DGUH), the municipal authority and the Togolese Water Company (TdE). Total fees and charges are XOF 1,291,000 ($2,348), representing 9.6% of the total estimated value of a standard warehouse of XOF 18,739,772 ($34,073).

Togolese laws prohibit discrimination against any investors, who enjoy **equal treatment**, and **visa rules** are accommodative to the extent that foreign investors and workers can be granted a duration of stay that corresponds to that of their business activities.

The **labour force** is estimated at 2,817,000 (34.4% of the total population). The quality of the workforce's skill set is assessed at 0.42 on the 0–1 scale of the World Bank's Human Capital Index. Monthly **salaries** typically range between XOF 133,000 ($242) and XOF 2,250,000 ($4,273), the average being XOF 527,450 ($959). The minimum wage is XOF 35,000 per month ($64).

Electricity is tariffed at $0.18 per kWh, the 4th lowest in the region. Getting a connection from the Compagnie Energie Electrique du Togo (CEET) requires only three procedures. These are submit application to the CEET and await site inspection, receive external inspection by CEET and await estimate, and pay estimate and receive external works with meter installation from CEET. Fees amount to XOF 7,947,113 ($14,449) and the whole process takes up to 66 days. The electricity network is ranked 4th in the region when it comes to the reliability of supply and transparency of the tariff index. Nationwide, the service is accessible to 55.4% of the population (91.8% in urban centres).

Water is provided by the Togolese Water Company (TdE) at a tariff of $0.42–$0.74 per cubic metre. It is available to 65.1% of Togolese throughout the country (89.1% in urban areas).

The country's **infrastructure system** comprises the Gnassingbé Eyadéma International Airport, also known as the Lomé–Tokoin Airport. It serves as a hub for Asky Airlines, an Ethiopian Airlines subsidiary. Its facilities are estimated to handle between 1.5 million to 2 million passengers and 50,000 tons of cargo per year.

The road network spans approximately 11,777km, of which asphalted national roads and city roads represent 2,101km and 1,473km respectively. It also has three main road corridors: the national road Number 1 of 746km that cuts across the country from the south to the north; a 53km road from Lomé to Hillacondji (at the border with Benin), which is part of the 1,022km Abidjan–Lagos Corridor; and the 180km WAEMU corridor (CU19) that starts in Nyamassila and connects to the border with Benin and many towns in between.

The autonomous Port of Lomé has the capacity to handle more than 1.4 million TEUs (twenty-foot equivalent units). In 2017, it overtook Lagos in terms of container traffic. In 2019, for the third consecutive year, it was awarded the best transhipping port in West and Central Africa. These all indicate its leadership position in the Gulf of Guinea.

The railway network is operated by the Société Nationale des Chemins de Fer Togolais (SNCT), and is mostly used for the transportation of minerals (such as phosphate) between the mining site in Hahotoé, north of Lake Togo, to a pier on the southern coast.

Businesses operating in Togo should expect to pay approximately 15 **taxes and mandatory contributions**. They include corporate income tax at 28% (or 1% of turnover minimum tax), value-added tax at 18%, social security contributions at 17.5% of gross salaries, property tax on developed land at 15% of the building's assessed rental value, payroll tax at 3% of gross salaries and property surtax at 1% of the assessed rental value of the land. Total payments represent an average 48.2% of corporate profit.

As an ECOWAS member, Togo applies the regional CET. This categorizes imported goods into five tariff bands, from 'essential social goods' that are duty-free to 'specific goods for economic development', taxed at the maximum of 35%. Additionally, safeguard measures, anti-dumping measures, anti-subsidy and countervailing measures and supplementary protection measures are applied to protect vulnerable industries and guarantee fair competition in the liberalized regional market.

The Togolese **banking and financial system** is part of the subregional WAEMU monetary and financial integration framework. It is relatively sound, according to indicators such as non-performing loans ratio to total loans (18.3%) and regulatory capital to risk-weighted assets (6%). Fourteen commercial banks of national, regional and international scope contribute to provide credit to the private sector of 26.7% of the country's GDP, among the largest in the region. The system's openness suggests that **foreign currency denominated bank accounts** can be held by anyone (foreign and national alike), and free international transfer of capital and revenue is guaranteed. The fixed exchange rate of the single currency at XOF 656 against the euro allows great stability and reduced risk for international transactions.

A wide range of **government incentives** have been developed to attract foreign investment, mainly in key opportunity-filled sectors such as agriculture (coffee, cocoa, cotton and palm oil) and mining (phosphate, limestone and clay transformed into clinker), as well as infrastructure, energy, information and communications technology (ICT) and tourism. In addition to equal treatment between Togolese and foreign companies and investors, free movement of capital for foreign investors and respect for private property under the 2019 Investment Code, most incentives are given to companies in the country's export free zones. They include:

- A tax exemption for the first 10 years (and a rate of 15% from the 11th year);
- A tax exemption on dividends during the first 10 years for non-Togolese shareholders;
- An exemption from all duties and taxes when exporting products imported or manufactured in the free zone, and on import of raw materials, as well as machinery and plant equipment;
- Preferential tariffs on utility services (electricity, water and telephone);
- Protection against nationalization of the property of foreign investors.

The Business Climate Unit (CCA) was created in 2017 with the aim to coordinate economic reforms and play a key role in improving the business climate for the private sector.

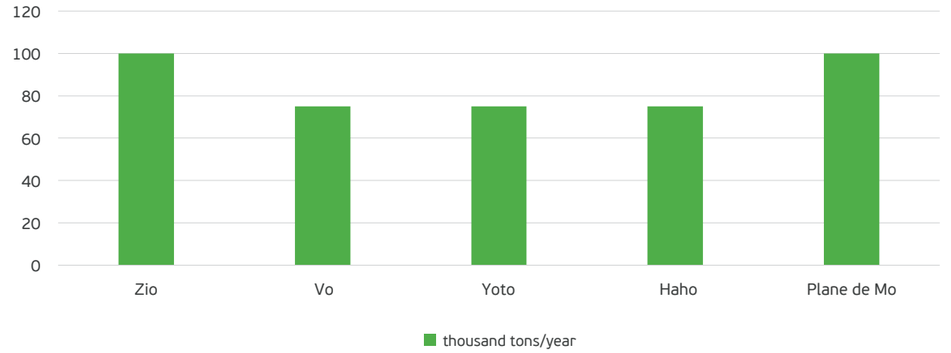
Overall, a supportive environment for innovation, high-quality institutions, low-cost production factors and a business climate among the most competitive in the region are key reasons why foreign investors should consider Togo as a favourite place to do business in Africa.

11.4. TOGO'S CASSAVA SECTOR

Togo is a small producer of cassava in Africa with an annual production of approximately 1 million tons/year. However, cassava is one of the most produced commodities in volume in Togo and occupies 8.9% of the total agricultural area. Among the root and tuber plants, cassava is the most cultivated crop (52%), followed by yam (46%). Cassava production statistics in Togo indicate that the average area used for cassava is increasing in the Plateaux, central and Kara regions. In the Maritime region, the region with the largest area of cassava, the trend has been towards a decrease in 2012–17. On the other hand, in the Savanes region, where the climate is less favourable, cassava production only began in the 1996/97 agricultural season with an area of 2,095ha. In terms of size of land covered, cassava is in fourth place after maize, sorghum and cowpea. The prefectures of Zio, Yoto and Vo are the top producing regions.

In Togo, optimal yields are obtained when cuttings are taken on a flat surface, after ploughing, on a ridge or mound, at a density of 10,000 plants per hectare in pure culture. At least two weedings are necessary. Most cassava farmers do not use pesticides in in Togo. However, the results of the farmers' surveys indicate that 5% use herbicides during soil preparation. This low use could be caused by a lack of knowledge, the fact that they are expensive or because they do not have the technical skills to use them, without excluding a possible third-party pressure discouraging them from using them.

Figure 59: Estimated quantity of cassava grown (thousand tons/year) in Togo's major growing prefectures



Source: Direction des Statistiques Agricoles de l'Information et de la Documentation (DSID) (2019).

Many cassava farmers in Togo do not cultivate improved varieties. The majority use local varieties despite the proven high-yield potential of improved varieties. The available improved varieties of cassava in Togo are listed in Table 51. The acquisition of seeds (cuttings) of new varieties is mostly done by donation, purchase or inheritance. In contrast, cuttings of previously cultivated varieties are acquired mainly by retaining the stems of these varieties and then donating or buying them. No cassava seeds are used to sow the fields, and even the seedlings that germinate from the seeds are considered weeds.

The rate of use of local or improved varieties depends on the region. Improved varieties are used more in the Maritime region (49.5%) (Figure 60).

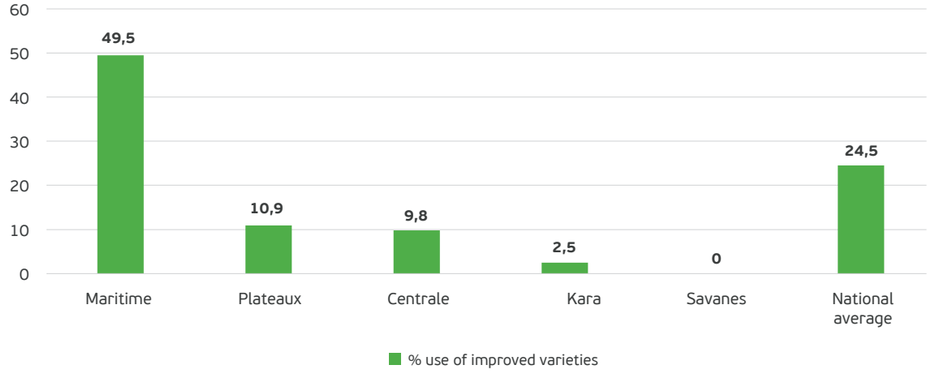
At the national level, the rate of use of improved varieties is approximately 25%, compared to 68% for local varieties. The latter are used entirely in the Savanes region and in a significant proportion in the Maritime region (42%). The top five criteria for cassava selections are high productivity, early maturity good fufu quality, disease resistance and good gari quality (Kombate et al., 2017). According to producers' explanations, high productivity includes a high number of long and large roots. In addition to these major criteria are: non-toxicity of roots, drought resistance, high gari yield, weed resistance, rot resistance, good taste (sweet), good tapioca quality, good cossette quality, insect resistance of cossettes, high starch content and good post-maturity storage.

Table 51: Characteristics of available improved cassava varieties in Togo

N°	Varieties	Origin	Colour of the flesh	Cycle (in months)	Dominance/region	Potential yield	Farmers' farm yield
1	Gbazékouté	Improved local clone	Whitish	12	Maritime; Plateaux; central; Kara	40 tons/ha	7 tons/ha
2	TMS 01/0379	IITA	Yellow	12	Maritime	>35 tons/ha	4 tons/ha
3	TMS 01/1224	IITA	Yellow	12	Maritime; central	45 tons/ha	10 tons/ha
4	TMS 95/0166	IITA	White	12	Maritime; Plateaux; central	55 tons/ha	10 tons/ha
5	TMS 96/0409	IITA	White	12	Maritime; Plateaux; central	50 tons/ha	8 tons/ha
6	TMS 92/0326	IITA	White	12	Maritime	40–50 tons/ha	5 tons/ha
7	Ampong	Crop Research Institute, Kumassi	White	12	Maritime; Plateaux	50 tons/ha	10 tons/ha
8	Sika	Crop Research Institute, Kumassi	White	12	Maritime; Plateaux	35 tons/ha	5 tons/ha

Source: Somana (2018).

Figure 60: Extent of cultivation of improved cassava varieties in Togo's cassava-growing regions



Source: Adapted from Kombate (2016).

The timing of the various activities involved in cassava production depends on the type of climate and rainfall regime. In the northern zone (central, Kara and Savanes), the climate is dry tropical with a long dry season from October to May and annual rainfall of 900–1,300mm and a monomodal rainfall pattern. In the south (Maritime and Plateaux regions), the climate is Sudano-Guinean with a bimodal rainfall pattern. In the south, soil preparation activities take place between the months of February and April and July to August. The planting periods for cuttings are primarily between March and May during the long rainy season and from September to October during the short rainy season. According to producers, maintenance operations are carried out on a monthly basis. Harvesting takes place throughout the year depending on the planting time and the strategies for keeping the roots underground.

In the northern zone, soil preparation activities take place between April and May. Planting operations take place between May and June. Maintenance operations are carried out according to the producers at a monthly frequency. The harvest is annual and takes place between October and March (Figure 61).

Figure 61: Season calendar of cassava planting and harvesting in Togo

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MARITIME												
Planting												
Harvest												
PLATEAUX												
Planting												
Harvest												
CENTRAL												
Planting												
Harvest												
KARA												
Planting												
Harvest												
SAVANES												
Planting												
Harvest												

Source: Sanvi (2013).

Fresh cassava tubers: Harvested tubers can be consumed raw in the case of sweet cassava, boiled in water and eaten in pieces, or pounded for consumption as foufou (fufu). Fresh cassava tubers are widely consumed for self-consumption by households and by fufu bars. The consumption of fresh tubers is very developed in the Plateaux and Maritime regions.

Cossettes: Harvested, peeled tubers are dried and then ground into flour, which is consumed alone or mixed with maize flour and consumed in the form of paste. The consumption of cassava pods is very developed in urban areas. The transformation of cassava into cossettes also constitutes an original form of cassava conservation.

Gari: Gari is a food obtained by crushing peeled cassava roots into a puree, then fermenting the puree and pressing it. The pressed cake is crumbled and sieved, and the resulting meal is toasted. Gari has a slightly acidic taste and can be white or creamy depending on the variety of cassava used and the process adopted. The particle size is 0.6–1.1mm. Gari is a product consumed throughout Togo. It is also exported.

Tapioca: Tapioca is a food consumed mainly in the form of porridge. It is consumed in urban areas and is considered a product of choice among the products derived from cassava.

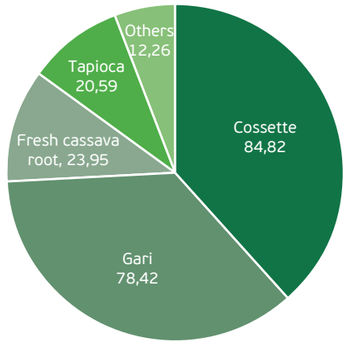
Fermented cassava paste: Cassava paste, also called agbelima, is an intermediate transformation. It is a ground, fermented (lactic bacteria) and pressed paste, but it has not been cooked. This pressed paste is packaged in bags of approximately 50kg. This paste can be preserved for several weeks and transported over long distances, including for export, to be transformed into attiéké or prepared directly or mixed with corn. This transformation represents an original form of cassava conservation, allowing to avoid an energy-intensive drying step.

CASSAVA TRADE IN TOGO

DOMESTIC TRADE

The major cassava production areas are: the eastern part of the Maritime region (Vo and Yoto), the entire Plateaux region (Moyen Mono and Agou) and the central region (Blitta, Sotouboua and Tchamba). The major consumption areas are the cities (Lomé, Sokodé, Tsévié, Aného, Kpalimé, Kara, Dapaong and Cinkassé). Cassava products are destined primarily for the domestic market. Cassava roots are consumed in the form of fufu or processed and preserved products such as gari, tapioca, starch, bread flour and pods, which are traded extensively. Most cassava is sold through informal relationships based on mutual trust, sometimes involving pre-financing, whereby traders advance money to actors for the production and/or processing of cassava at agreed prices. Gari, pods, tapioca and fresh roots are the main cassava products sold in Togo (Figure 62). Starch, alcohol, leaves and HQCF are products sold in small quantities on the domestic market. The main buyers are local households.

Figure 62: Overview of the domestic markets for cassava products (USD thousand) in Togo



Source: L'Institut de Conseil et d'Appui Technique (ICAT) (2019).

INTERNATIONAL TRADE

Exporting takes a small portion of cassava production. In 2016 and 2017, Togo exported 4,375 tons and 3,653 tons of gari respectively. In 2017, the exported quantities of tapioca and other cassava derivatives were 132 tons and 540 tons respectively. The destinations of these exported products are Belgium, Gabon, Switzerland, the United States, Germany, France, the Gambia, the Netherlands, the Niger, Spain, Sao Tomé and Príncipe, Senegal, Equatorial Guinea and China. In 2020, the cassava market in Togo was estimated at $57 million by Banque Centrale des États de l'Afrique de l'Ouest (BCEAO) analysts. This was an increase of more than $1 million compared to 2019, when it amounted to $55.89 million. A year before, in 2018, the market was $54.475 million.

In 2019 and 2020, 43,000 tons and 55,000 tons respectively of gari was exported from Togo. In 2021, the exported quantities of tapioca and other cassava derivatives were 438 tons and 822 tons respectively. The destinations of these exported products are Belgium, Gabon, Switzerland, the United States, Germany, France, the Gambia, the Netherlands, the Niger, Spain, Sao Tomé and Príncipe, Senegal, Equatorial Guinea and China. Land borders are often porous, so there are product flows across borders (Ghana, Togo, Benin and Burkina Faso), but there are no statistics on these flows for cassava.

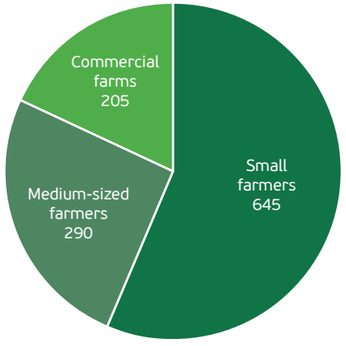
11.5. VALUE CHAIN AND STAKEHOLDERS IN TOGO'S CASSAVA SECTOR

Cassava farms are mostly family owned and small, and vary in size depending on the production area and whether producing for self-consumption or for sale. In 2020, cassava production was estimated at 1,140,200 tons by Banque Centrale des États de l'Afrique de l'Ouest (BCEAO) analysts. This was an increase of more than 20,000 tons compared to 2019, when it was 1,117,800 tons. In 2018, Togolese farmers produced a volume of 1,089,500 tons. The price of fresh cassava roots ranges from $30/ton in the Plateaux region to $167/ton in the Savanes region and $37/ton, $46/ton and $83/ton in the Maritime, central and Kara regions respectively.

Inputs in cassava production are mainly stem cuttings taken at harvest and often exchanged among producers. The current suppliers of cuttings are the NGO Association pour la Gestion Intégrée et Durable de l'Environnement (AGIDE) in the Maritime region, the NGO Action pour la Jeunesse d'Afrique (AJA) in the central region and the Institut Togolais de Recherches Agronomiques (ITRA). Only ITRA has a real wood park and makes improved varieties available to producers through the Institut de Conseil et d'Appui Technique's (ICAT) extension services.

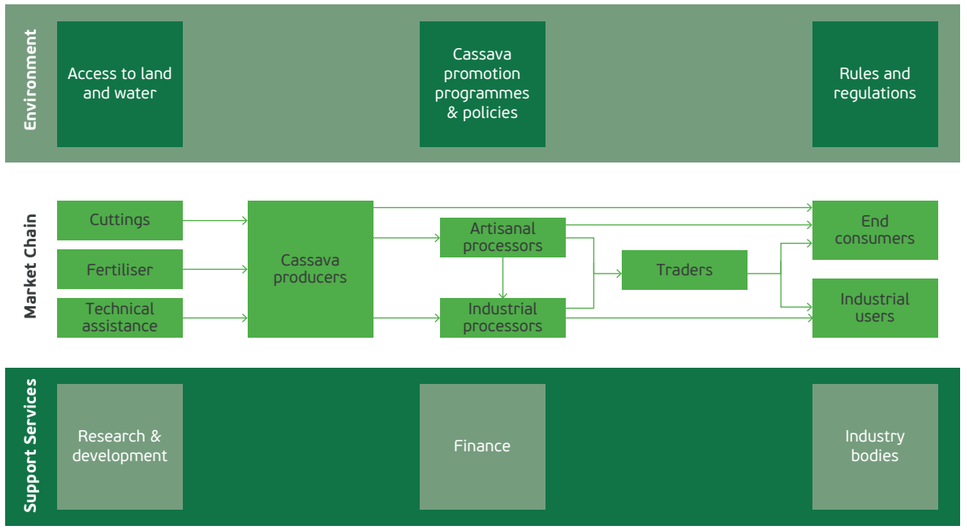
Cassava farmers (producers) use almost no fertilizers or phytosanitary products in cassava production. Only 5% of farmers use herbicides during soil preparation. More than 97% of farmers use rudimentary tools such as the hoe, the daba and the cutter.

Figure 63: Segmentation of cassava farmers (thousand tons/year) in Togo



Source: Institut Togolais de Recherches Agronomiques (ITRA) (2019).

Figure 64: Map of the cassava value chain in Togo



Source: Field survey (2021).

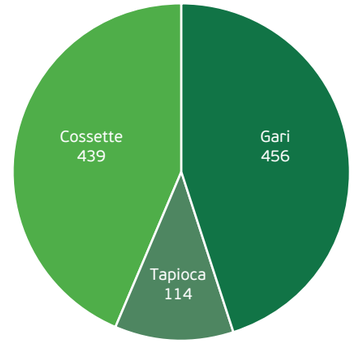
The suppliers of fertilizers and phytosanitary products in Togo are: Cecoagro, Commerce General Construction (CGCO), the International Center for Tropical Agriculture (CIAT), Comptoir International Des Logements (CIL), Elisée Crane SAU, Fredo Vanos, Global African Building Logistic, Gracias Logistics, Togo, Groupe Alleluia SA, Monfith Sarl U, Phyto-Santé Plus, Qualitas, Synergie d'Actions pour un Developpement Approprié (SADA) and the Société Togolaise d'Intrants et d'Equipements Agricoles (STIEA) Sarl. Technical assistance on production and processing itineraries is also provided by these NGOs: Institut Africain Pour Le Developpement Economique Et Social (INADES-Formation) and the Institut de Conseil et d'Appui Technique (ICAT).

Processing is done mainly in villages, via artisanal units (family type or informal association within a village neighbourhood) and more rarely in semi-industrial units (organized in formal cooperatives or entrepreneurial type) on the outskirts of urban consumption centres.

The industrial processing of cassava in Togo is insignificant. There are only two industrial units installed in the Plateaux region, with a national dimension and with subregional and international scope. These emerging pioneering efforts are the Nouvelle Société de Commercialisation des Produits Agricoles (NSCPA) cassava starch processing facility installed at Atakpamé, with a processing capacity of 17,000 tons/year (fresh cassava roots equivalent), and the Sino-Togolaise (SINTO) facility installed at Anié, which has a processing capacity of 24,000 tons/year (fresh cassava roots equivalent).

Cassava is consumed in the forms of pounded cassava (fufu) or in the form of gari, tapioca and cossettes, fermented cassava paste, flour for fufu, bread-making flour and cassava starch powder, which are the subjects of important commercial transactions. However, the dominant value chains are gari (57%), tapioca (12%), cossette (20%), fermented dough (3%) and bread flour (2%).

Figure 65: Segmentation of cassava products (FCR equivalent in thousand tons/year) in Togo



Source: Institut Togolais de Recherches Agronomiques (ITRA) and survey data.

Figure 66: Prices of cassava-based products (USD/ton) in Togo

Source: Direction des Statistiques Agricoles de l'Information et de la Documentation (DSID) and survey data.

Cassava is transported at two levels. At the farm level, producers and aggregators use motorcycle tricycles to collect the products at points to allow large vehicles and bush cabs to take the product to its final destination. They are subject to road hassles that can result in costs of 5%–7%. It should be noted that illicit levies are taken from cassava products, sometimes reaching XOF 100,000 per trip of a semi-trailer truck, or 5%–7% of the load's value. They are received by all the bodies on the various routes.

A typical case: A consortium of four companies was formed around the Nouvelle Société de Commercialisation des Produits Agricoles (NSCPA) starch production plant. In this consortium, Terre Ne Trompe Pas (TNTP) SARL, Ifenou Groupe and Ade Vision aggregate fresh cassava, which is unloaded with tricycles (7,500 tons/year), and Cremo-Trans is in charge of transporting it to the factory.

11.6. INVESTING IN CASSAVA: KEY FIGURES

ACCESS TO LAND AND WATER

Togo has 3.4 million hectares of available agricultural land. Approximately 1.53 million hectares (45% of the total) is developed (African Union, n.d.). On the specific legislative and regulatory level of the country, the main texts constitute the law on rural land (adopted in 2017), which was preceded by the law governing the exploitation of the rural land domain (23 December 1998). It should also be noted that a decree issued by the Council of Ministers on 27 February 2019 'obliges any owner of rural land to develop it under penalty of having its exploitation allocated to any person who requests it'.

The potential for the use of lowlands or irrigation downstream of existing water reservoirs is largely under-exploited due to a lack of development and support for development.

Large-scale irrigation schemes can be developed in Togo in the alluvial plains, using hillside reservoirs, diversion works or pumping. Significant potential for irrigable land exists in the Oti and Mono basins. The potential for irrigable land is high, but relatively poorly known due to the lack of a precise inventory. In 1990, the FAO estimated the area of irrigable land in Togo at 180,000ha, of which approximately 2,000ha are currently developed (other sources cite 4,000ha) and equipped for modern irrigation. This represents only 1.1% of the available potential, and only 1,000ha are actually irrigated.[85]

85 For more information, see https://www.togofirst.com/fr/domaine-construction/1211-8923-togo-comment-obtenir-un-titre-foncier; www.dadc.gouv.tg; http://www.droit-afrique.com/pays/togo/#documentation; https://investirautogo.tg/procedure/163?l=fr.

Table 52: Investment indicators for Togo's agricultural sector

Indicator	Unit	Cost
Cost of farmland[1]	USD/ha	479–5 000
Cost of land in rural areas[2]	USD/ha	479–5 000
Cost of land in urban areas	USD/ha	30 000 to several million
Cost of electricity[3]	USD/kWh	0.205/household and 0.190/company
Cost of unskilled labour[4]	USD/day	5–25
Cost of skilled labour[5]	USD/day	60–400
Cost of transportation from Lomé to Port Autonome de Lomé (25km)[6]	USD one-way	100
Doing Business report (2020) score and rank:	62.3	97
Doing Business (2020): Score (47.5) and rank (163/190)		

Notes: 1. There is a wide variation in the price of land; the price is a function of accessibility. The price of accessible land is higher than that of inaccessible land.
2. Some could go beyond what is mentioned here.
3. The price per kWh is different according to households and businesses.
4. The cost of unskilled labour is higher in urban areas.
5. The cost of skilled labour is higher depending on the scarcity of expertise and the complexity of the work.
6. The port of Togo is located in the capital, Lomé.
Sources: Documentary review (Compagnie Energie Electrique du Togo; INSEAD; Direction des Statistiques Agricoles de l'Information et de la Documentation (DSID); Doing Business report).

11.7. INVESTMENT OPPORTUNITIES IN TOGO'S CASSAVA SECTOR

ACCESS TO DOMESTIC, SUBREGIONAL AND INTERNATIONAL MARKETS

Gari and tapioca can be traded in order to contribute to food security in Togo and in African countries in crisis. There is a real dynamism in the domestic and foreign markets for cassava. In addition, there is an under-supplied local market for starch. Products such as starch and bioethanol are produced in small quantities compared to the market potential in Togo. A private company, Nouvelle Société de Commercialisation des Produits Agricoles (NSCPA), seeking to produce 15,000 tons of cassava starch per annum is leading this drive at the moment. Bioethanol is currently produced at cottage level, mainly for use as local beverages and spirits. Cassava's potential as a feedstock for the production of bioethanol is high and is a desirable investment given that cassava production can be boosted in Togo to feed such an investment.

Togo imported maize in excess of $32 million in 2020. Some of these imports can be replaced with cassava in the animal feed markets for cassava chips in the north of the country. Togo offers a convenient route to other countries in the subregion via the Lomé–Ouagadougou and Abidjan–Lagos corridors. The demand for cassava products has been growing steadily in West Africa.

MORE EFFICIENT CASSAVA PRODUCTION

The current production is at a rather low level. The best yields are approximately 20 tons per hectare for a potential of 40 tons per hectare. Togo has accessible fertile land suitable for cassava production. The equipment used for production is still mostly traditional; hence, the opportunity to modernize the entire production chain and improve yields. Most of the production is carried out by family units, so there is also an opportunity to professionalize the

production actors.

MODERNIZATION OF CASSAVA PROCESSING

There is an opportunity to modernize the cassava processing supply chain and, therefore, the by-products in Togo with a valorization of the by-products (cattle feed and biogas). Processing units with economic models based on the aggregation of producers (individuals and groups) constitute real opportunities. It is also important to note the existence of the Adétikopé Industrial Platform, with an area of 400ha, located approximately 27km from the Port of Lomé. This industrial platform offers investors a framework for the establishment of factories for the processing of local products in situ. It is equipped with modern infrastructure and integrated multimodal logistics services, including a parking lot with a capacity of 700 trucks, a container storage yard with a capacity of 12,500 TEUs, a warehouse for loading, unloading and transferring containers, warehouses for storing raw materials, and an area of 200,000m^2 dedicated to other logistics activities, roads and road rights-of-way. The presence of the Togolese port platform allows Togo to serve many ports in the Gulf of Guinea and the hinterland countries. On the modernization side, we note the total dematerialization of the procedure of removal of goods and the effectiveness of online payment. In Africa, the Port Autonome de Lomé ranks 5th among the main container ports according to Lloyd's List and second in Sub-Saharan Africa behind Durban in South Africa.

11.8. CASSAVA PROMOTION PROGRAMMES AND POLICIES IN TOGO

National Development Plan (NDP) 2018–22: This plan has three fundamental components: the establishment of a logistics hub of excellence for international trade, job creation through the development of agricultural processing, manufacturing and extractive industries, and the consolidation of social development and the strengthening of inclusion mechanisms.

RESEARCH AND DEVELOPMENT

Institut Togolais de Recherches Agronomiques (ITRA): ITRA (https://itra.tg) is involved in cassava research. The work carried out by ITRA on cassava includes:

- *Density and maintenance:* In Togo, optimal yields are obtained when cuttings are taken on a flat surface, after ploughing, on a ridge or mound, at a density of 10,000 plants per hectare in pure culture. At least two weedings are necessary.
- *Mineral fertilizer:* The recommended use of N90P45K45 is one 50kg bag of urea and three 50kg bags of NPK15-15-15 per hectare (ITRA, 2012).
- *Improved plant material:* Diseases such as cassava mosaic and bacterial blight and insects (especially mealybug and green mites) can annihilate crops. The use of clones that are both efficient and resistant or tolerant to pests is essential to ensure a high yield.

Institut de Conseil et d'Appui Technique (ICAT): ICAT is involved in the extension of techniques and technologies related to the cassava sector. High-performance varieties (high yield potential of 40 tons/ha, tolerance to diseases and yield in cuttings, etc.) and technical itineraries have been popularized in the field through:

- Farmer field schools, applied to good, intensive and sustainable production practices (integrated soil fertility management options, cassava production technical itinerary and production of certified cassava cuttings);
- Monitored production plots, which are production fields intended for consumption, or fields in the form of woodlots intended for cuttings (these monitored production plots make it possible to accompany the producers in the real conditions of management of their fields for the appropriation of technologies).

Togo has four laboratories:

- National Institute of Hygiene (INH);
- Laboratory of Microbiology and Quality Control of Foodstuffs (ESTBA), University of Lomé;
- Tomkouani Kodom Laboratory of Water Chemistry, Faculty of Sciences, University of Lome, Lome;
- Laboratory service of the Togolese Institute of Agronomic Research (Institut Togolais de Recherches Agronomiques) for physiochemistry.

All these laboratories are public.

FINANCIAL INSTITUTIONS IN TOGOLESE AGRICULTURE

The financing sources available to cassava sector actors are: self-financing, financing from microfinance institutions, bank financing and pre-financing by certain clients (Table 53).

Table 53: The financing sought by the cassava value chain actors in Togo

Product name	Time	Interest	Maximum credit	Deferred	Guarantee
Short-term credit or campaign credit	18 months	7%–12%	No limit	According to the nature of the activity	Depending on the risk involved
Medium-term credit	2–7 years	7%–12%	No limit	According to the nature of the activity	Depending on the risk involved
Long-term credit	Up to 7 years	7%–12%	No limit	According to the nature of the activity	Depending on the risk involved

Sources: https://finances.gouv.tg; https://www.ecobank.com.

As for pre-financing by customers, there is no interest except that the producer guarantees the sale of the product to the customer. It should be noted that some organizations facilitate access to credit for actors in the sector. Some of these are mentioned below.

Le Projet d'Appui à l'Employabilité et à l'Insertion des Jeunes dans les Secteurs Porteurs (PAIEJ-SP): PAIEJ-SP is a project to support the economic inclusion of young people in growth sectors. It is financed by the African Development Bank (ADB) that facilitates access to credit for producers, processors and traders in the cassava sector. The loans granted through the PAEIJ-SP are at 10% interest. Loan guarantees are provided by the Agence Nationale de Promotion et de Garantie de Financement (ANPGF).

Agence Nationale de Promotion et de Garantie de Financement (ANPGF): The national agency for the promotion and guarantee of SME/small and medium industries (SMI) financing supports the growth of businesses and entrepreneurial initiatives. It contributes to solving the financing problems of national companies and strengthens the technical capacities of their personnel. The ANPGF provides companies with financial and technical services to help them carry out their projects.

Mechanism for Incentive Financing for Agriculture (MIFA): MIFA will ultimately help to combat poverty, address the fragmentation of agricultural value chains to mitigate the risks associated with agricultural lending, and mobilize financing for agriculture and agribusinesses through credit guarantees to mitigate the risk of default. It also aims to provide technical assistance through capacity building to professionalize value chains, reduce the cost of borrowing for producers and agribusinesses, provide technical advice to agribusinesses and SME/small and medium industries (SMI) around agricultural chains and create massive decent and sustainable employment.

INDUSTRY BODIES IN TOGO

It is important to note the presence at the national level of the Interprofessional Council of the Root and Tuber Plant Sector of Togo. Its mission includes:

- *Promotion and management of interprofessional agreements:* Facilitation of consultation, solidarity, establishment and reinforcement of rules between the sector's actors.
- *Lobbying and advocacy:* Price negotiation and participation in policy development.
- *Services to members:* Facilitation of input supply, capacity building (training), facilitation of access to markets, facilitation of access to financial services, establishment of campaign plans and price information.
- *Organization of the sector's actors:* Communication between actors and improvement of the sector's governance.
- *Guarantee of product quality:* Protection of the brand or label and product safety.
- *Sector promotion:* Promotion of products, search for greater competitiveness, research and agricultural advice, and competitive and technological monitoring at national and international level.

11.9. SWOT ANALYSIS OF TOGO'S CASSAVA SECTOR

Table 54: SWOT analysis of Togo's cassava sector

Inputs and services	Production	Artisanal processing
Strengths		
Cassava is one of the most studied crops by the national research system from the point of view of breeding, pest control and simple agronomy.	Sustainable cultivation and processing practices: Low inputs, no nitrogen fertilizers and soil fertility maintained (crop rotation; fallow).	Processors' know-how.
Weaknesses		
Production technique of cuttings still traditional and not very efficient for large areas.	Producers' isolation and infrastructure: Poor road conditions, costly transportation, rudimentary cultivation practices, difficulties in treating cassava diseases, and low productivity per hectare.	Low-performance production equipment; transformation process.
Opportunities		
Existence of a domestic demand for inputs and services for the cassava sector.	Availability of fertile and suitable land, political commitment to cassava, and existence of financing mechanisms for producers.	New actors: Investors in industrial transformation into quality starch and flour, new outlets for processed cassava, and valorization of by-products for animal feed.
Threats		
Cassava is susceptible to a large number of diseases, the most important of which are cassava vascular bacterial disease, African cassava mosaic disease and anthracnose.	Cassava is susceptible to a large number of diseases, the most important of which are cassava vascular bacterial disease, African cassava mosaic disease and anthracnose.	Competition from industries and threat of disappearance of artisanal units.
Industrial processing	**Logistics**	**Trade**
Strengths		
State commitment to industrialization.	Existence of a deep-water port that allows access to other ports and to hinterland countries.	Business climate conducive to investment.
Weaknesses		
A weak industrial fabric and lack of qualified labour.	-	Very informal market; market access conditions: Lack of information on outlets and prices.
Opportunities		
Existence of a maritime and air hub and promotion of re-export activities.	Plateforme Industrielle d'Adétikopé (PIA) industrial platform and an industrial free zone.	Existence of an internal and external market for fresh cassava and its by-products.
Threats		
International competitiveness: High cost of roots in relation to the world market for industrial processing, and threat of mechanization of processing for the income of day labourers.	Enclosed production areas, and impassable tracks during the season for large vehicles.	International competition.

12. ANNEXES

ANNEX I – ECOWAS 2020 SHARE OF WORLD CASSAVA TRADE

Countries	USD export	USD imports
Benin	40 051	969
Burkina Faso	433 636	25 098
Côte d'Ivoire	386 617	8 729
Ghana	983 078	6 154
Guinea	1 980	–
Gambia, the	27 762	41 496
Guinea Bissau	112 225	–
Liberia	99	9 803
Niger, the	2 455 724	72 729
Nigeria	922 055	859 599
Senegal	735 571	20 743
Sierra Leone	6 492	–
Togo	1 118 267	–
Mali	1 222 974	67 451
Cape Verde	–	165 076
ECOWAS total	**8 446 531**	**1 277 847**
Global	**2 563 138 304**	**2 563 138 304**
ECOWAS total/global total	**0.33%**	**0.05%**

Source: Produced from data extracted from https://oec.world/en/profile/hs/cassava#.

ANNEX II – WHEAT AND MAIZE TRADE IN ECOWAS NATIONS

Countries	Wheat		Maize	
	Export value	Import value	Export value	Import value
Ghana	5 830	185 783 635	1 416 445	7 060 136
Guinea	42	80 825 697	10	684 387
Gambia, the	55 661	19 120 391	–	272 785
Liberia	552	7 482 773	–	602 055
Nigeria	16 497	2 146 147 358	240 761	129 172 166
Senegal	1 633 112	233 955 023	373 046	56 962 267
Togo	585	32 568 005	342 567	548 364
Guinea Bissau	–	–	–	8 150
Sierra Leone	–	6 135	–	267 967
Côte d'Ivoire	–	169 013 594	90 258	2 684 367
Benin	–	4 735 382	41 764	913 525
Niger, the	–	14 902	1 126	9 169 028
Burkina Faso	–	37 759 603	7 024 918	240 340
Mali	–	81 818 505	667 822	596 346
Cape Verde	–	7 318 269	–	5 297 795
ECOWAS total	**1 712 279**	**3 006 549 272**	**10 198 717**	**214 479 678**
Global total	**51 436 131 364**	**51 436 131 364**	**38 215 023 968**	**38 215 023 968**
ECOWAS total/global total	**0.003%**	**5.845%**	**0.03%**	**0.56%**

Source: Produced from data extracted from https://oec.world/en/.

ANNEX III – ECOWAS 2020 TRADE IN STARCH, TRADE VALUE (USD)

	Export value	Import value
Benin	707	25 274
Côte d'Ivoire	279 529	2 599 810
Ghana	387 057	2 449 872
Guinea	12 753	642 928
Gambia	26 225	46 185
Liberia	387	9 602
Mali	405	33 624
Niger, the	69 545	7 071
Nigeria	710 049	38 974 788
Senegal	105 902	6 316 264
Togo	134 231	52 571
Guinea Bissau	–	3 600
Sierra Leone	–	13 604
Burkina Faso	–	65 321
Cape Verde	–	30 872
ECOWAS total	**1 726 790**	**51 271 386**
Global	**4 564 952 262**	**4 564 952 262**
ECOWAS total/global total	**0.04%**	**1.12%**

Source: Produced from data extracted from https://oec.world/en/profile/hs/cassava#.

ANNEX IV – CASSAVA PRODUCTION, FARM SIZE, YIELD AND NUMBER OF FARMS IN CÔTE D'IVOIRE (2019)

Region	Amount produced (tons)	Number of farms	Area cropped (ha	Average farm size (ha)	Share (%) of production	Average yield (t/ha)
Bandama Valley	1 253 512	224 095	170 873	0.76	23.93%	7.34
Lower Sassandra	578 826	312 031	105 311	0.34	11.05%	5.50
South Comoé	527 491	101 767	119 576	1.18	10.07%	4.41
Lagoons	507 062	278 608	114 926	0.41	9.68%	4.41
Mountains	476 680	214 188	64 257	0.30	9.10%	7.42
Upper Sassandra	315 342	212 731	42 546	0.20	6.02%	7.41
South Bandama	205 863	148 445	33 400	0.23	3.93%	6.16
Middle Cavally	162 386	125 609	32 972	0.26	3.10%	4.92
Denguélé	136 194	44 601	18 398	0.41	2.60%	7.40
Lacs	70 192	90 739	11 342	0.13	1.34%	6.19
Agnéby	63 383	115 386	14 423	0.13	1.21%	4.39
Other regions	941 312	1 006 747	138 428	0.14	17.97%	6.80
All the country	**5 238 244**	**2 874 949**	**866 452**	**0.37**	**100%**	**6.05**

Source: Updated from Rongead (2015), FIRCA (2019), Promm İnşaat Taahhüt Mimarlik (Pro2M) and FAOSTAT (2019). Accessed October 2021.

ANNEX V – DESCRIPTION OF SOME CASSAVA VARIETIES GROWN IN CÔTE D'IVOIRE

Varieties	Production zones	Cycle (month)	Yield (t/ha)	Characteristics	Taste	Common use
Traditional varieties						
YACE	South; centre	11–18	20	Variety sensitive to mosaic, mites and mealybugs; 40% dry matter content	Bitter	Attiéké; placali
BONOUA	Widespread	12–20	15	Sensitivity to mosaic and mealybugs; low yield; 40% dry matter	Sweet	Foutou (fufu)
Improved varieties						
YAVO	Widespread	12–20	20	Resistance to mosaic; high yield; high dry matter content (40%)	Sweet	Attiéké; foutou (fufu)
BOCOU 1	Widespread	12–24	25	Variety with a very good canopy; high yield; resistance to mosaic; sensitive to mites and mealybugs; 39% dry matter content	Sweet	Attiéké; placali
BOCOU 2	Widespread	11–16	25	Variety with good plant coverage; high yield; sensitive to mites; sensitive to root rot; easy to harvest; 38% dry matter	Bitter	Attiéké
BOCOU 3	Widespread	12–16	25	Variety with good plant coverage; high yield; tolerant to virus; susceptible to root rot; 37% dry matter content	Sweet	Attiéké; placali
TMS4(2)14252	West; centre	11–18	25	Good plant coverage; high yield; resistance to mosaic; tolerant to viruses and susceptible to mites; easy harvest; 36% dry matter content	Sweet	Attiéké; placali
TMS 30572	Centre; east; north	12–20	30	Strong branching; high yield; mosaic resistance; sensitivity to mites and mealybugs	Bitter	Attiéké
IM 84	Widespread	12–20	30	Good adaptation to soil; high yield; sensitive to mosaic; easy to harvest; sweet taste; good for attiéké	Sweet	Attiéké; foutou (fufu)
IM 89	Widespread	12–20	28	Sensitivity to mites; good cooking; good for attiéké; high dry matter content (39%)	Bitter	Attiéké
IM 93	Centre; east	12–20	28	Strong branching; resistance to mosaic; sensitivity to mites; mild taste; poor cooking	Sweet	Attiéké

Sources: Centre National de Recherche Agronomique de Côte d'Ivoire (CNRA) (2013); Agence Nationale d'Appui au Développement Rural (ANADER) (2017).

ANNEX VI – SOME COMMERCIAL CASSAVA FARMERS AND THEIR PRODUCTION CAPACITIES IN GHANA

Farmers	Location	Capacity (hectares)	Average output (tons/ year)	Contact details
Bankyekrom Ltd	Gomoa Abaasa	240	3 000	Sarpei Kwardey, 0547789333
Oxy Industries Ltd*	Gomoa	160	800	Enoch Ampretwum, 026463622
Warren Farms*	Agogo	160	2 500	Rev. Warren, 0554818009
Manglobe	Ejura	320	5 000	Jawula, 0243860950
Sky 3 Ltd*	Kintampo	400	3 500	Etu-Bonde, 0208151375

Note: *These farms belong to processing facilities.

Source: Author's compilation

ANNEX VII – SUMMARY OF OPERATIONAL AND LOCATION DETAILS OF COMPANIES BUYING MORE THAN 5 TONS/DAY OF CASSAVA IN GHANA

Company name and product	Installed capacity	Current product output	FCR input (tons/day)	Location	
Ayensu Starch Co. Ltd	60 tons/day	0	0	Bawjiase, CR	Lat.: 5.711145648137921 Long.: 0.5758225055584665
Amantin Starch Co. Ltd	300 tons/day	0	0	Amantin, BR	Lat.: 7.542321293470098 Long.: 1.2049544733312814
Twin Rock Limited (starch)	100 tons/day	15 tons/day	60	Afram Plains, BER	Lat.: 0.11419 Long.: 0.007513
Caltech Ventures (ethanol)	3 million litres/year	1.5 million litres/year	21 000	Ho, VR.	Lat.: 6.6617 Long.: 0.5667
Pitiku Farms Ltd (HQCF)	20 tons/day	10 tons/day	50	Afram Plains	Lat.: 0.11419 Long.: 0.007513
Sky 3 Ltd (HQCF)	2 tons/day	1.45 tons/day	7.25	Kintampo	Lat.: 8.0471580 Long.: -1.7266800
Coastal Groves Ltd (HQCF)	6 tons/day	1 tons/day	5	Cape Coast	Lat.: 5.2060156 Long.: -1.1700982
Franzakos Processing Ent. (HQCF)	6 tons/day	0	0	Kumasi	

Source: Field survey (2021).

ANNEX VIII – ARTISANAL AND SMALL-SCALE PROCESSOR SEGMENTS: DESCRIPTION AND MAIN PLAYERS IN LIBERIA

Segments	Main players (processors)	Description
Kanyan	Small-scale	Mixture of gari, sugar and groundnut to form paste, which is preferred as snacks.
Gari	Artisanal and small-scale	The most consumed and traded cassava product in West Africa. Gari is a partially gelatinized/toasted product with slightly fermented flavour, which is eaten as paste with soup or soaked in water and taken as flakes. Gari made from yellow roots, biofortified with vitamin A is more expensive due to its health benefits. Artisanal gari production does not require sophisticated equipment, but is lower in quality than those produced with improved methods.
Fufu	Artisanal and small-scale	These segments mainly produce the wet form of fufu using local methods with poor organoleptic qualities compared to the dry/odourless type. Generally considered unhygienic and sold at a lower price on the market.
Chips	Artisanal and small-scale	Chips are unfermented, white, dried cassava products often used for flour in production of other cassava products. Local markets and export are now available.
Depa	Artisanal and small-scale	Locally prepared cassava flour, usually fermented.
Boiled roots	Artisanal	Roots of some local varieties of cassava boiled until soft and eaten with sauce.

Source: Adapted from Awoyale et al. (2020). 'Assessment of the Suitability of Different Cassava Varieties for Gari and Fufu Flour Production in Liberia'. Asian Food Science Journal 14(2): 36–52, Article no. AFSJ.54567, ISSN: 2581-7752.

ANNEX IX – LOCATION OF COUNTY AGRICULTURAL OFFICES IN LIBERIA

- Bensonville Village Hall, Bentonville, Montserrado County
- County agricultural office, Tubmanburg, Bomi County
- County agricultural office, World Bank, Kakata, Margibi County
- County agricultural office, Suakoko, Bong County
- County agricultural office, Grant Cape Mount County
- County agricultural office, Ganta, Nimba County
- County agricultural office, Bopolu, Gbarpolu County
- County agricultural office, Buchanan, Grand Bassa County
- County agricultural office, Lofa, Lofa County
- County agricultural office, Sinoe
- County agricultural office, Harper, Maryland County
- County agricultural office, Small Bomi, Grand Cape Mount County

ANNEX X – NIGERIA'S CASSAVA PRODUCTION BY AGROECOLOGICAL REGION (2013–18) (TONS)

	2013	2014	2015	2016	2017	2018
Nigeria	**47 406 770**	**56 328 480**	**57 643 271**	**59 565 916**	**59 350 878**	**59 475 202**
South-west	9 481 354	11 265 696	11 528 654	11 913 183	11 870 176	11 895 040
Ekiti	1 327 390	1 577 197	1 614 012	1 667 846	1 661 825	1 665 306
Lagos	474 068	563 285	576 433	595 659	593 509	594 752
Ogun	1 991 084	2 365 796	2 421 017	2 501 768	2 492 737	2 497 958
Ondo	2 275 525	2 703 767	2 766 877	2 859 164	2 848 842	2 854 810
Oyo	1 706 644	2 027 825	2 075 158	2 144 373	2 136 632	2 141 107
Osun	1 706 644	2 027 825	2 075 158	2 144 373	2 136 632	2 141 107
South–south	9 955 422	11 828 981	12 105 087	12 508 842	12 463 684	12 489 792
Akwa Ibom	1 393 759	1 656 057	1 694 712	1 751 238	1 744 916	1 748 571
Bayelsa	696 880	828 029	847 356	875 619	872 458	874 285
Cross River	3 086 181	3 666 984	3 752 577	3 877 741	3 863 742	3 871 836
Delta	1 194 651	1 419 478	1 452 610	1 501 061	1 495 642	1 498 775
Edo	895 988	1 064 608	1 089 458	1 125 796	1 121 732	1 124 081
Rivers	2 687 964	3 193 825	3 268 373	3 377 387	3 365 195	3 372 244
South-east	9 481 354	11 265 696	11 528 654	11 913 183	11 870 176	11 895 040
Abia	474 068	563 285	576 433	595 659	593 509	594 752
Anambra	1 042 949	1 239 227	1 268 152	1 310 450	1 305 719	1 308 454
Ebonyi	758 508	901 256	922 292	953 055	949 614	951 603
Enugu	3 602 915	4 280 964	4 380 889	4 527 010	4 510 667	4 520 115
Imo	3 602 915	4 280 964	4 380 889	4 527 010	4 510 667	4 520 115
North-west	3 318 474	3 942 994	4 035 029	4 169 614	4 154 561	4 163 264
Kaduna	2 522 040	2 996 675	3 066 622	3 168 907	3 157 467	3 164 081
Kano	796 434	946 318	968 407	1 000 707	997 095	999 183
North central	12 325 760	14 645 405	14 987 250	15 487 138	15 431 228	15 463 553
Abuja	123 258	146 454	149 873	154 871	154 312	154 636
Benue	5 916 365	7 029 794	7 193 880	7 433 826	7 406 990	7 422 505
Kogi	4 314 016	5 125 892	5 245 538	5 420 498	5 400 930	5 412 243
Kwara	739 546	878 724	899 235	929 228	925 874	927 813
Nassarawa	493 030	585 816	599 490	619 486	617 249	618 542
Plateau	739 546	878 724	899 235	929 228	925 874	927 813
North-east	2 844 406	3 379 709	3 458 596	3 573 955	3 561 053	3 568 512
Adamawa	227 552	270 377	276 688	285 916	284 884	285 481
Bauchi	312 885	371 768	380 446	393 135	391 716	392 536
Borno	113 776	135 188	138 344	142 958	142 442	142 740
Gombe	113 776	135 188	138 344	142 958	142 442	142 740
Taraba	2 076 417	2 467 187	2 524 775	2 608 987	2 599 568	2 605 014

Source: FAOSTAT; extrapolated from Cassava Statistical Book (IITA, 2004). [86]

86 T. Philip, D. Taylor, L. Sanni, R. Okechukwu, C. Ezedinma, M. Akoroda, J. Lemchi, P. Ilina, F. Ogbe, E. Okoro and A. Dixon (2005). The Nigerian cassava industry, Statistical handbook. IITA, Ibadan.

ANNEX XI – CASSAVA VARIETIES CULTIVATED IN NIGERIA

S/N	Official clone name	Original name	Variety name	Year of release	Featured traits
1	IITA-TMS-IBA30555	TMS-I30555	NICASS 10	1976	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
2	IITA-TMS-IBA30572	TMS-I30572	NICASS 1	1984	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
3	IITA-TMS-IBA4(2)1425	TMS-4(2)-1425	NICASS 2	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
4	IITA-TMS-IBA90257	TMS-I90257	NICASS 3	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
5	IITA-TMS-IBA84537	TMS-I84537	NICASS 4	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
6	IITA-TMS-IBA8200058	TMS-I8200058	NICASS 5	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
7	IITA-TMS-IBA8200661	TMS-I8200661	NICASS 6	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yield (> 25 tons/ha)
8	IITA-TMS-IBA8100110	TMS-I8100110	NICASS 7	1986	High dry matter (25%), moderate cassava mosaic disease resistance, early bulking, high starch and high yielding (> 25 tons/ha)
9	MS-6	TME1 (Antiota)	NICASS 8	1986	Local landrace that has been released as a variety
10	MS-3	TME2 (Odongbo)	NICASS 9	1986	Local landrace that has been released as a variety
11	NR8083	NR-8083	NICASS 12	1986	High yielding (> 25 tons/ha) – NRCRI, Umudike
12	NR83107	NR-83107	NICASS 13	1989	High yielding (> 25 tons/ha) – NRCRI, Umudike
13	NR8082	NR-8082	NICASS 14	1986	High yielding (> 25 tons/ha) – NRCRI, Umudike
14	IITA-TMS-IBA50395	IITA TMS-I50395	NICASS 15	1986	Moderate cassava mosaic disease resistance, early bulking and high yielding (> 25 tons/ha)
15	NR8212	NR-8212	NICASS 16	1986	High yielding (> 25 tons/ha) – NRCRI, Umudike
16	NR41044	NR-41044	NICASS 17	1986	High yielding (> 25 tons/ha) – NRCRI, Umudike
17	IITA-TMS-IBA30001	TMS-I30001	NICASS 18	1986	High dry matter (25%), poundable, cassava mosaic disease and cassava bacterial blight (CBB) resistance
18	IITA-TMS-IBA91934	TMS-I91934	NICASS 19	1986	High dry matter (25%), early bulking, stay green and high yielding (> 25 tons/ha)
19	NR8208	NR-8208	NICASS 11	1988	High starch and high yielding (> 25 tons/ha) – NRCRI, Umudike
20	TME419	TME-419	NICASS 20	2005	High dry matter (25%), high cassava mosaic disease resistance, high yielding (> 25 tons/ha), poundable and high starch
21	IITA-TMS-IBA972205	TMS I972205	NICASS 21	2005	High dry matter (25%), high cassava mosaic disease resistance and high yielding(> 25 tons/ha)
22	IITA-TMS-IBA980505	TMS I980505	NICASS 22	2005	High cassava mosaic disease resistance , high starch, high yielding and early bulking
23	IITA-TMS-IBA980510	TMS I980510	NICASS 23	2005	High dry matter (25%), high cassava mosaic disease resistance and high yielding (> 25 tons/ha)
24	IITA-TMS-IBA980581	TMS I980581	NICASS 24	2005	High dry matter (25%), high cassava mosaic disease resistance, high yielding (> 25 tons/ha), stay green and drought tolerant
25	NR87184	NR 87184	NICASS 25	2006	High yielding (> 25 tons/ha) – NRCRI, Umudike

S/N	Official clone name	Original name	Variety name	Year of release	Featured traits
26	IITA-TMS-IBA920057	TMS I920057	NICASS 26	2006	High dry matter (25%), high cassava mosaic disease resistance, high starch, poundable, high yielding (> 25 tons/ha) and stay green
27	IITA-TMS-IBA920326	TMS I920326	NICASS 27	2006	High cassava mosaic disease resistance, high yielding, early bulking, stay green and drought tolerant
28	IITA-TMS-IBA961632	TMS I961632	NICASS 28	2006	High dry matter (25%), high cassava mosaic disease resistance, high yielding (> 25 tons/ha), stay green and drought tolerant
29	IITA-TMS-IBA980002	TMS I980002	NICASS 29	2006	High cassava mosaic disease resistance, high yielding and high starch
30	NR930199	NR 93/0199	NICASS 30	2008	High yielding (> 25 tons/ha) – NRCRI, Umudike
31	IITA-TMS-IBA961089A	TMS I961089A	NICASS 31	2008	Light yellow roots, moderate cassava mosaic disease resistance, high dry matter and high yielding (> 25 tons/ha)
32	NR01/0004	NR 01/0004	UMUCASS 32	2010	High starch and high yielding (> 25 tons/ha) – NRCRI, Umudike
33	CR41-10	CR 41-10	UMUCASS 33	2010	Early bulking, high starch and high yielding (> 25 tons/ha) – NRCRI, Umudike
34	IITA-TMS-IBA010040	TMS I010040	UMUCASS 34	2010	High dry matter (25%), high cassava mosaic disease resistance, early bulking, high yielding (> 25 tons/ha), pink skin and high starch
35	IITA-TMS-IBA000203	TMS I000203	UMUCASS 35	2010	High dry matter (25%), high cassava mosaic disease resistance, early bulking, high yielding and high starch
36	IITA-TMS-IBA011368	TMS I011368	UMUCASS 36	2011	Vitamin A cassava, yellow roots, moderate cassava mosaic disease resistance and high yielding (> 25 tons/ha)
37	IITA-TMS-IBA011412	TMS I011412	UMUCASS 37	2011	Vitamin A cassava, yellow roots, high cassava mosaic disease resistance, early bulking and high yielding (> 25 tons/ha)
38	IITA-TMS-IBA011371	TMS I011371	UMUCASS 38	2011	Vitamin A cassava, yellow roots, moderate cassava mosaic disease resistance and high yielding (> 25 tons/ha)
39	NR03/0211	NR 03/0211	UMUCASS 39	2011	Early bulking, high starch and high yielding (> 25 tons/ha), high flour – NRCRI, Umudike
40	NR03/0155	NR 03/0155	UMUCASS 40	2011	Early bulking, high starch and high yielding (> 25 tons/ha) and drought tolerant – NRCRI, Umudike
41	CR36-5	CR 36-5	UMUCASS 41	2012	High starch and high yielding (> 25 tons/ha), high dry matter (25%) and high cassava mosaic disease resistance
42	IITA-TMS-IBA982132	TMS I982132	UMUCASS 42	2012	Light yellow roots, moderate cassava mosaic disease resistance, high yielding (> 25 tons/ha), early bulking and drought tolerant
43	IITA-TMS-IBA011206	TMS I011206	UMUCASS 43	2012	Light yellow roots, moderate cassava mosaic disease resistance, pink skin and high yielding (> 25 tons/ha)
44	NR07/0220	NR 07/0220	UMUCASS 44	2014	Vitamin A cassava, yellow roots, moderate cassava mosaic disease resistance, high yielding (> 25 tons/ha), early bulking, stay green and drought tolerant
45	IITA-TMS-IBA070593	TMS I070593	UMUCASS 45	2014	Vitamin A cassava, yellow roots, high cassava mosaic disease resistance, high yielding (> 25 tons/ha), early bulking and stay green
46	IITA-TMS-IBA070539	TMS I070539	UMUCASS 46	2014	Vitamin A cassava, yellow roots, high cassava mosaic disease resistance, high yielding (> 25 tons/ha), early bulking, stay green and drought tolerant

Source: https://seedtracker.org/cassava/index.php/released-cassava-varieties-in-nigeria/.

ANNEX XII – NUMBER OF PROCESSORS OF CASSAVA-BASED PRODUCTS IN NIGERIA

Products	Number of village-level processors	Number of SMEs	Number of medium- to large-scale processors
Ethanol	–	–	4
Starcw	A few thousand	3	5
HQCF	–	157	3
Glucose syrup	–	–	1 (currently not operational)
Sorbitol	–	–	1
Odourless fufu	–	8	–
Gari	Millions	15	1
Fufu	Hundreds of thousands	–	–
Lafun	Hundreds of thousands	2	–
Pupuru	A few thousand	–	–

Source: Cassava: Adding Value for Africa (2019).[87]

ANNEX XIII – INDUSTRIAL CASSAVA PRODUCTS SEGMENT IN NIGERIA

Product name	Description	Main players
Native starch	Starch is a major constituent of the cassava tuber. Starch is an important industrial raw material for food, pharmaceutical, textile and chemical industries in Nigeria.	Food, pharmaceutical, textile and chemical industries in Nigeria
Ethanol	Ethanol is produced by the fermentation of sugar-related materials such as molasses and sugar juice, or starchy materials. Cassava is one of the richest fermentable substances for the production of crude alcohol/ethanol, with dry chips containing up to 80% of fermentable substances (starch and sugars).	Food and beverage industries
Glucose syrup/sorbitol	A concentrated aqueous solution of glucose maltose and other nutritive saccharine made from edible starch. It is used in large quantities in fruits, liquors, crystallized fruits, bakery products, pharmaceuticals and breweries.	Food and beverage industries in Nigeria
HQCF	High-quality cassava flour is simply unfermented cassava flour. Cassava flour can be used as a partial replacement for many bakery and pasta products. Several sources report that at least 10% of the wheat flour used for baking can be substituted by cassava flour without a change of taste or other qualities.	Food, bakery[88] and confectionery industries
Noodles	This is a long, thin extruded food product made from a mixture of flour, water and eggs, usually cooked in soup or boiling water. At 12.5%, cassava starch/flour forms an integral part of the final product.	Food, bakery and confectionery[89] industries

Source: Field survey (2021).

87 https://www.afrii.org/programmes/cassava-adding-value-for-africa-project-cava/.
88 https://guardian.ng/features/using-high-quality-cassava-flour-for-inclusive-economic-growth/.
89 https://guardian.ng/features/using-high-quality-cassava-flour-for-inclusive-economic-growth/.

ANNEX XIV – COMMERCIAL LARGE-SCALE CASSAVA FARMS IN NIGERIA

S/N	Company	Address	Size of cassava farm (ha)	Coordinates
1	Psaltry International Company Ltd	Alayide-Wasimi Village, Ado-Awaye, Oyo State	600	N7.828755 E3.428869
2	Weppa Farm, Leventist Foundation Integrated Farms Limited	Auchi-Agenebode Road, Edo State	250	N7.052971 E6.560158
3	Niji Group	Ilero, Oyo State	1000	N8.090338 E3.351431
4	Obasanjo Farms	Lanlate, Oyo State	300	N7.453797 E3.318741
		Iseyin, Oyo State	700	N7.992380 E3.585345
		Ibogun, Ogun State	30	N6.786569 E3.096827
5	Shao Golden Farms	Malete, Ilorin, Kwara State	2 000	N8.591868 E4.560376
6	Wadahi Integrated Farms	Lokoja Expressway, Kogi State	120	N7.787300 E6.717280
7	Heritage Farms Limited	Kale/Iwofin Village, Ogbomoso, Oyo State	100	N8.184084 E4.273882
8	Tosin Farms and Agric Ventures	Okaka, Oyo State	150	N7.976481 E3.591476
9	FMS Farms	Iyemero-Ekiti, Ekiti State	5000	N8.017222 E5.474292
10	Traxivest	Kobape, Ogun State	100	N7.097071 E3.395468
11	Riparian Farms Limited	Olohunda, Ayetoro, Ogun State	50	N7.226673 E3.145419

Source: Field study (2021).

ANNEX XV – LARGE-SCALE INDUSTRIAL CASSAVA PROCESSORS IN NIGERIA

S/N	Company	Address	Products	Capacity T/year	PWebsite
1	Psaltry International Company Ltd	Alayide-Wasimi Village, Ado-Awaye, Oyo State	Food-grade starch; HQCF; gari	35 000	https://psaltryinternational.com/
2	Premium Cassava Products	Ososa, Ogun State	HQCF; industrial-grade starch; gari	15 000	https://premiumcassavaproducts.com/
3	Allied Atlantic Distilleries Limited (AADL)	Igbesa, Ogun State	Ethanol	9 million litres/ year	https://allied-atlantic-distilleries-limited.business.site/?utm_source=gmb&utm_medium=referral
4	GreenTech Industries Limited	Agbara Industrial Estate, Ogun State	Food-grade starch	20 000	https://greentechindustriesng.com/
5	Matna Foods Company Limited	Akure – Owo Expressway, Ogbese, Ondo State	Food-grade starch	10 000	https://www.matnafoods.com/
6	Harvest Farm and Agro Processing Limited	Ajura, Ogun State	Food-grade starch	8 000	https://hfap.ng/
7	Tempo Starch And Glucose Ltd	Adigbe, Ogun State	Food-grade starch	Currently not producing	https://tempo-starch-and-glucose-ltd.business.site/?utm_source=gmb&utm_medium=referral
8	Niji Group	Ilero, Oyo State	Starch; gari; fufu	6 000	https://farms.nijigroup.com/
9	ATMAN Corporation Nigeria Limited	Ido, Oyo State	HQCF	6 000	https://www.atmancorporation.com/
10	Irede Farms & Agro-Allied Ltd	Sagamu Interchange, Ogun State	Cassava; starch	10 000	https://iredegroup.com/
11	Ondo/Linyi Ethanol factory	Ore, Ondo State	Ethanol	1.8 million litres/year	
12	Crest Agro Products Limited	Lokoja, Kabba Road, Kogi State	Cassava; starch	20 000	https://www.crest-agro.com/
13	Unicane Industries Limited	Off Lokoja, Abuja Road, Kogi State	Ethanol	140 million litres/year	
14	Rivers Cassava Processing Company	Off Afam/ Ban-Ogoni Road, Rivers State	HQCF	12 500	http://riverscassava.com/

Source: Field study (2021).

ANNEX XVI – RULES AND REGULATIONS GUIDING BUSINESS OPERATIONS IN SIERRA LEONE

- Anti-Corruption Act, 2008 (No. 12 of 2008): This act establishes an independent Anti-Corruption Commission of the Republic of Sierra Leone to prevent, investigate, prosecute and punish corruption and corrupt practices, as well as to address other connected issues.
- Finance Act, 2021 (No. 1 of 2021): This act provides for the imposition and alteration of taxes, to give effect to the government's financial proposals and provide for other related matters for the financial year 2021.
- Environmental Protection Agency Act, 2008 (No. 11 of 2008): This act established the Environment Protection Agency, Sierra Leone (EPASL), which is charged with all issues concerning the environment and climate change. It has the role of creating and enforcing a strict regulatory framework for environmental regulation in Sierra Leone. It has the mandate to coordinate, monitor and evaluate the implementation of national environmental policies, programmes and projects, including issuing environmental impact assessment licences. This Act also regulates the acquisition of land majorly for commercial purposes.
- The Income Tax Act, 2000 (No. 8 of 2000): This is an Act to consolidate, with amendments, the law relating to the taxation of incomes. It provides the major taxes, taxpayer obligations and tax administration in the country.
- The National Revenue Act, 2002 (No. 11 of 2002): This Act established the National Revenue Authority (NRA), which is charged with the responsibility of assessing and collecting domestic taxes, customs duties and other revenues specified by law, as well as administering and enforcing laws relating to these revenues. The NRA also establishes the cost of licences and permits for all business enterprises, and administers taxes related to income, sales, customs, excise and mineral royalties.
- National Social Security and Insurance Trust (NASSIT) Act, 2001 (No. 5 of 2001): This Act established the National Social Security and Insurance Trust and a social security scheme to provide financial security (retirement, invalidity and other benefits) to meet the contingency needs of workers and their dependents. It covers all public and private sector employees. Under this Act, employers and employees are obligated to make a minimum contribution of 10% and 5% of the employee's monthly salary to NASSIT.
- The Local Government Act, 2004 (No. 1 of 2004): This Act gives local councils and chiefdom councils the power to raise revenue through the collection of local taxes, property rates, licences, fees and charges. Also, local government can receive revenue, interest and dividends from multinational companies of all sectors. This Act also gives residents of a locality the right to be consulted before a council approves or reviews potential investors' development plans.
- Public and Private Partnership Acts, 2014 (No. 11 of 2014): This Act aims to promote, facilitate and streamline the conclusion and implementation of public–private partnership agreements by a contracting authority, to establish a public–private partnership unit, to establish private partner selection procedures in public–private partnership agreements and to deal with other related matters.
- The Investment Promotion Act, 2004 (No. 10 of 2004): It was established to promote and attract private investment, both domestic and foreign, for the development of production and value-added activities, to improve exports and provide employment opportunities, and generally to create an environment conducive to private investment. This Act also provided the rights of foreign investors and repealed the Non-Citizens (Trade and Business) Act, 1969. The Investment Promotion Act of 2004 gives **foreign investors** the platform to compete on the same terms as domestic firms and protects **foreign** entities from discriminatory treatment.
- The Sierra Leone Investment and Export Promotion Agency Act, 2007 (No. 3 of 2007): This Act established the Sierra Leone Investment and Export Promotion Agency to promote investments and exports and other related matters.
- The Sierra Leone Small and Medium Enterprises Development Agency Act, 2016 (No. 2 of 2016): This Act provided for the establishment of the Small and Medium Enterprises Development Agency to create a conducive environment within which SMEs can thrive and operate, to provide for Sierra Leone's fiscal, monetary and banking policy, trade and industry, technology, marketing, infrastructural and institutional development, and for other related matters.
- The Sierra Leone Local Content Agency Act (No. 11 of 2015): This established several aspects of the local content inclusion process, namely the Sierra Leone Local Content Agency. The Act creates a fund to support suppliers, exporters and importers, provisions for employment and training of citizens and rules for tendering processes.
- The Borrowers and Lenders Act, 2014 (No. 13 of 2014): This Act provides the legal framework for credit agreements, to improve standards of disclosure of information in credit agreements, prohibit certain practices and promote consistency in the enforcement of credit agreements and to provide for other related matters.
- The Trade Marks Act, 2014 (No. 8 of 2014): This Act makes provision for the protection, registration and regulation of trademarks, trade names and other related matters.
- The Business Registration Act, 2007 (No. 18 of 2007): The Act consolidates the law on the registration of businesses and business names and provides for other related matters.
- General Law (Business Start-up) Amendment Act, 2007 (No. 15 of 2007): The Act amended certain enactments in order to eliminate barriers to the expeditious establishment, growth and development of business in Sierra Leone.
- The Patent and Industrial Designs Act, 2012 (No. 10 of 2012): This Act was established to provide for the promotion of inventive and innovative activity and facilitate the acquisition of technology through the granting and regulation of patents and industrial designs and for other related matters.
- The Companies Act, 2009 (No. 5 of 2009): The Act was established to provide for the registration and incorporation of companies. It includes guidelines for company formation, share capital, meetings, and director's powers and duties and also sets out procedures for closing a company.
- Bankruptcy Act, 2009 (No. 7 of 2009): The Act provides for declaring bankrupt any person who cannot pay his/her debts of a specified amount and to disqualify him/her from holding certain elective and public offices or from practising any regulated profession. The Act also includes provisions to encourage and assist ailing businesses to reorganize instead of going straight into liquidation.
- The Goods and Service Tax Acts, 2009 (No. 6 of 2009): This provides for the imposition of a broad-based tax on the consumption of goods and services in Sierra Leone and provides for other related matters.
- Statutes relating to land law in Sierra Leone: Several of these laws date back as far as 1961, with recent reviews and policies guiding land issues detailed in the 2005 and 2015 land policy documents.
- Labor Laws Act, 1965 (No. 37 of 1965) (Chapter 212): The Employers and Employed Act regulates relations between employers and the employed and safeguards the health of the employed. Sets forth provisions relating to the formation and interpretation of contracts of service, the recruitment of native labour for foreign services, restrictions on the engagement of industrial workers, and employment of women, adolescents and children apprenticeship contracts. Also regulates the death, insolvency and change of residence of the employer, breaches of contract and disputes between employer and employed.

ANNEX XVII – PESTLE ANALYSIS IN SIERRA LEONE'S CASSAVA VALUE CHAIN

Political

- Sierra Leone's Income Tax Act 2000 and the multiple finance Acts enacted since 2010 contain various incentives to encourage private sector investment and promote the inflow of foreign capital and technology in the country.
- The Anti-Corruption Commission of the Republic of Sierra Leone is the body that is responsible for investigating and indicting companies for corruption. The ACC Act 2000, as amended in 2008, applies in respect of both domestic and foreign companies.
- The Ministry of Trade and Industry oversees the regulation of anti-competitive practices. A competition policy and a consumer protection policy have been approved by the Cabinet, though not yet translated into draft legislation.
- Customs clearance for imported goods was simplified in the early 2000s. The Customs Act 2011 further reformed import and export requirements. The Customs Act is administered by the Customs and Excise Department on behalf of the National Revenue Authority.

Economic

- The government has adopted policies focused on reducing inflation, although there are external shocks still serving as impediments to these policies.
- The central bank is charged with the responsibility of regulating and supervising foreign exchange operations. It restricts the purchase, sale, holding or transfer of foreign exchange in order to avert a foreign exchange crisis.
- Unemployment is another economic analysis in the country that is far above the employment rate. It is argued that youths are the ones whom are hard hit.

Social

- A population and housing census in 2015 revealed a total population of approximately 7.1 million people, with a median age of 18.6 years, which indicates a youthful and active population.
- Approximately 59% of the total population resides in the rural areas and their main livelihood is agriculture.
- The people's culture and traditions are accommodating and the main religions are Islam and Christianity.
- The country boasts a high literacy rate of 51.4% and there is significant experience in farming activities in the rural areas.
- Diverse gender roles; different roles and responsibilities are given to men, women, youths, children and disabled persons.

Technology

- Improved-cassava varieties are developed by SLARI, which helps to boost production.
- New technologies (such as machinery, and agronomic practices) are also developed by tertiary educational institutions, SLARI and other organizations such as NGOs.
- The communication infrastructure has grown tremendously, especially mobile telephony and electronic media in the country.
- The internet infrastructure is also gaining ground in the nation since many people are now using social media like WhatsApp and Facebook for social media interactions.

Legal

- The Ministry of Labour and Social Security is responsible for the regulation of the country's labour market, but, in reality, most employment in Sierra Leone is informal and unregulated. However, to mitigate this scenario, the outdated employment law needs urgent reform.
- General employment law concepts such as salary, holidays, redundancy and disputes are governed by the Regulations of Wages and Industrial Relations Act, 1971 and the Employers and Employed Act, 1965.
- The national minimum wage was adjusted to SLL 600,000 ($57.14) per month in 2019, up from SLL 500,000 ($47.62) in 2016.
- The Sierra Leone Intellectual Property Organization currently deals with intellectual property issues, but there are plans to establish a specialized intellectual property division within the High Court of Sierra Leone.

Environmental

- The Environmental Protection Agency, Sierra Leone (EPASL) regulates activities carried out in the environment.
- There is significant encouragement from the Government of Sierra Leone, civil society and NGOs for inward investors to undertake cooperate social responsibility projects in Sierra Leone, and greater participation from local enterprises is also evident.
- There are many civil society organizations that are pressure groups in the country

13. REFERENCES

(1) Adjanohoun, A. and Allagbe, M. (2011). 'Référentiel Technico-économique: pour une meilleure production du manioc au sud et au centre du Bénin'. Ministère de l'Agriculture, de l'Elevage et du Développement Rural (INRAB), ISBN: 978-99919-380-2-8, ISSN: 1840-5479, Dépôt légal n° 5045 du 23/01/2011, 2ème Trimestre 2011. Bibliothèque Nationale (BN) du Bénin; p. 46.

(2) African Peer Review Mechanism (2016). Country Review Report of the Republic of Benin. African Union.

(3) African Union (n.d.) 'The African Peer Review Mechanism'. Available from https://au.int/en/aprm.

(4) Agence Nationale d'Appui au Développement Rural (ANADER) (2017). Technico-economic data sheets for cassava.

(5) Alamu, E.O., Abass, A., Maziya-Dixon, B., Diallo, T.A., Sangodoyin, M.A., Kolawole, P., Tran, T., Awoyale, W., Kulakow, P., Parkes E., Kouame, K.A., Kouame, K., Amani, K., Appi, A. and Dixon, A. (2019). Report on the Status of Attieke Production in Côte d'Ivoire. IITA, Ibadan, Nigeria, p. 37.

(6) Ben, M.G. and Michael, E.I. (2018). 'Biogas Production from Farm Waste (Cassava Peels and Swine Dung): Co-Digestion and Prospect on Economic Growth'. Research Journal of Environmental Sciences, 6:58–63.

(7) Centre National de Recherche Agronomique de Côte d'Ivoire (CNRA) (2013). 'Growing cassava well in Côte d'Ivoire'.

(8) Coulibaly, O., Arinloye, A.D. and Faye, M. et al. (2014). 'Analyse des chaînes de valeur regionals du manioc en Afrique de l'Ouest'.

(9) Enete, A.A. (2009). 'Middlemen and Smallholder Farmers in Cassava Marketing in Africa'. Tropicultura Open Access ISSN 0771-3312 eISSN 2295-8010 27: 40–4.

(10) Famine Early Warning Systems Network (2014). 'Sierra Leone Staple Food Market Fundamentals'. Available from https://fews.net/sites/default/files/documents/reports/Sierra Leone MFR_final_20170228_1.pdf.

(11) FAO (2016). Evaluation des pertes alimentaires dans les filières maïs, manioc, banana plantain, mangue et tomate en Côte d'Ivoire. Rapport final, p. 69.

(12) FAOSTAT (2021). Crops and livestock products. Available from https://www.fao.org/faostat/en/#data/QCL. Accessed on 18 October 2021.

(13) FIRCA (2018). La filière manioc. La filière du progrès, Magazine d'information du FIRCA, Acte 19, p. 40.

(14) FIRCA (2019). Établissement de la situation de référence du projet d'appui au développement des filières manioc et maraichers en côte d'ivoire (pro2m): filière manioc. Rapport final d'étude, p. 68.

(15) Gabriella Otunba-Payne (2020). 'An Analysis of the Role of Women in the Cassava Value Chain in Nigeria'. Master of Professional Studies in Agriculture and Life Sciences, Field of International Agriculture and Rural Development.

(16) Government of Sierra Leone, Ministry of Transport and Aviation (2019). 'Environmental and Social Management Framework' Available from https://mof.gov.sl/wp-content/uploads/2019/03/ESMF_IRUMP-March-2019.pdf.

(17) Groupe Detude et de Recherche-action pour l'education, la securite Alimentaire et la Sauvegarde de l'environnement (GERASS) (2020). Analyse du fonctionnement de la chaine de valeur manioc et effets de l'activité de transformation de manioc sur l'environnement, le cadre de vie et la sante des transformatrices de la commune d'adja-ouèrè.

(18) Goussanou, S.E. (2003). Etude de quelques alternatives technologiques pour la production d'amidon de manioc : évaluation des procédés et caractérisation physicochimique des produits obtenus. Thèse pour l'obtention du diplôme d'ingénieur agronomes. Abomey – Calavi : Faculté des Sciences Agronomique – Université d'Abomey – Calavi (Bénin).

(19) Guy-Blanchard Adou Akpa Gnagne, Ernest Kouadio Koffi and Justine Bomo Assanvo (2016). 'Influences de la congelation et du séchage de l'attiéké sur ses caractéristiques physico-chimiques et organoleptiques'. *International Journal of Biological and Chemical Sciences*, Vol 10, N°2.

(20) Haggblade, S., Traoré, A. and Goura Soulé, B. et al. (2014). Promotion d'une chaîne de valeur inclusive : perspectives et potentialités du manioc au Benin.

(21) Israël, Guebo (2021). 'Découvrir le manioc et ses opportunités en côte d'ivoire'.

(22) Kombate, K., A. Dansi, I. Dossou-Aminon, A. Adjatin, K. Kpemoua, M. Dansi, K. Akpagana and A. Sanni (2017). 'Diversity of Cassava (Manihot esculenta Crantz) Cultivars in the Traditional Agriculture of Togo'. Int. J. Curr. Res. Biosci. Plant Biol. 4(6), 98–113.

(23) Laboratoire d'analyse régionale et d'expertise sociale (LARES) (2013). Analyse de la structure et la dynamique de la chaine de valeur du manioc au Bénin.

(24) Mendez del Villar, P., Adaye, A., Tran, T., Allagba, K. and Bancal, V. (2017). Analyse de la chaîne de valeur du Manioc en Côte d'Ivoire. Rapport pour l'Union Européenne, Directorate-General for International Cooperation and Development (DG-DEVCO). Value Chain Analysis for Development Project (VCA4D CTR 2016/375-804), p. 157 + annexes.

(25) MINADER (2017). 'Recensement Des Exploitants Et Exploitations Agricoles 2015/2016'. 200.

(26) Ministère de l'Agriculture et du Développement Rural (MINAGRI)/General Directorate of Production and Food Safety (DGPSA) – Transtec International Cote d'Ivoire and SHER Ingénieurs-Conseils (2013). Etude pour l'Elaboration de la Stratégie Nationale de Développement des Cultures Vivrières autres que le Riz (SNDCV). Rapport provisoire, October 2013. Projet de stratégie nationale de développement des cultures vivrières autres que le riz (SNDCV), p. 167.

(27) Ministère de l'Agriculture, de l'Elevage et du Développement Rural (MAEP)/Direction de la Statistique Agricole du Ministère de l'Agriculture (DSA) (Ministère de l'Agriculture, de l'Elevage et de le Pêche/Division des Services Statistiques) (2021). Statistiques de production agricole 2019–2020.

(28) Nestlé Côte d'Ivoire (2021). 'Les secrets d'une culture : Pourquoi Nestlé paye 80% de la production de manioc en Côte d'Ivoire'. Available from https://www.mediaterre.org/climat/actu,20120213130049,5.html.

(29) N'zué, Boni, Djédji, Catherine, Dibi, Konan, Essis, Brice, Kouakou, Amani, Kouassi, Kouadio, Zohouri, Goli and Tahouo, Odile (2014). La diffusion des variétés améliorées de manioc en Côte d'Ivoire. Technical report, Centre National de Recherche Agronomique de Côte d'Ivoire (CNRA), p. 3.

(30) Olotu, I.O., Obadina, A.O. and Sobukola, O.P. et al (2015). 'Effect of chemical preservatives on shelf life of mushroom (Pleurotus ostreatus) cultivated on cassava peels'. *International Journal of Food Science & Technology, 50:1477–1483*.

(31) Olotu, A., Salami, R. and Akeremale, I. (2015). 'Poverty and Rate of Unemployment in Nigeria'. *International Journal of Management and Business. Vol. 2* (Issue 1).

(32) Otunba-Payne, G. (2020). 'An Analysis of the Role of Women in the Cassava Value Chain in Nigeria'.

(33) National Programme for Agricultural Investment and Food Security (PNIASAN) (2017–21). Programme National d'Investissement Agricole, de Sécurité Alimentaire et Nutritionnelle.

(34) Strategic Plan for the Development of the Agricultural Sector (PSDSA) (2018–25). Plan Sectoriel de Développement du Secteur Agricole.

(35) Rongead (2015). Etude de la Filière Manioc en Côte d'Ivoire. Projet « Promotion et commercialisation de la Banane Plantain et du Manioc en Côte d'Ivoire » financé par le Comité Français pour la Solidarité Internationale (CFSI). Rapport final, December 2015, p. 87.

(36) Rongead (2017). Etude sur la filière amidon de manioc en Côte d'Ivoire. Rapport version 2, October 2017, p. 25.

(37) Sahoré Drogba, A. and Jean, N.G. (2012). 'Changes in Biochemical Properties of fresh Attiéké During Its Storage'. Food and Public Health. 2(4), pp. 99–103.

(38) Sanni, L.O., Kosoko, S.B., Adebowale, A.A. and Adeoye, R.J. (2009). 'The Influence of Palm Oil and Chemical Modification on the Pasting and Sensory Properties of *Fufu Flour*'. *International Journal of Food Properties*, 7, 229–237.

(39) Soulé, B.G., Gansari, S. and Tassou, M. (2013). Analyse documentaire de la chaine de valeur manioc au Bénin. Cotonou: Laboratoire Régional des Etudes Socio-économiques (LARES).

(40) UN Women (2017). 'Sierra Leonean women in agribusiness are critical for inclusive economic growth'. Available from https://africa.unwomen.org/en/news-and-events/stories/2017/06/women-in-agribusiness-in-sierra-leone.

(41) West and Central African Council for Agricultural Research and Development (CORAF/WECARD) (2014). 'Regional Cassava Value Chains Analysis in West Africa: Case Study of Sierra-Leone', p. 29. Available from https://www.researchgate.net/profile/Djalalou-Dine-Aa-Arinloye/publication/269988165_REGIONAL_CASSAVA_VALUE_CHAINS_ANALYSIS_IN_WEST_AFRICA_CASE_STUDY_OF_SIERRA-LEONE/links/549bd83e0cf2fedbc30e516e/REGIONAL-CASSAVA-VALUE-CHAINS-ANALYSIS-IN-WEST-AFRICA-CAS.

(42) Wollor and UNDP (2011). 'Assessment of Investment and Financial Flows for Adaptation in the Agriculture Sector in Liberia'. Available from https://www.ndcs.undp.org/content/dam/LECB/docs/iff/iff%20results/Liberia/undp-iff-liberia-assessment-agriculture-en.pdf.

(43) World Bank (2013). 'Trading towards Prosperity: Sierra Leone Diagnostic Trade Integration Study Update'. Available from https://enhancedif.org/en/system/files/uploads/sierra_leone_dtis_update_12_16_2013.pdf.

(44) World Bank (2015). Programme d'Appui à la Compétitivité Industrielle et à l'Innovation en Côte d'Ivoire (CIIP): Etude des opportunités pour l'agro-industrie et la transformation des produits agricoles dans les pôles de croissance agricoles. Rapport final, June 2015, p. 67.

(45) World Bank (2022). Country profile, Côte d'Ivoire. Accessed online on 31 May 2022. Available from https://www.worldbank.org/en/country/Côtedivoire/overview#1.

(46) World Bank. Enabling the Business of Agriculture. Available from https://eba.worldbank.org/en/data/exploretopics/all-topics.

(47) World Food Programme (WFP) (2010). 'Cross-border trade and food security: Liberia & Sierra-Leone', p. 29.

(48) World Food Programme (2021). 'Comprehensive Food Security and Vulnerability Analysis'. Available from https://docs.wfp.org/api/documents/WFP-0000129312/download/.

(49) World Food Programme (2021). 'Comprehensive Food Security and Vulnerability Analysis'. Available from https://docs.wfp.org/api/documents/WFP-0000129312/download/