

Agricultural Policies and Food Security in Nigeria

Agriculture as the road to the promised land of food security



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Abstract:

Nigeria is facing large problems with food security. The country is ranked 100th (out of 113) on the Global Food Security Index, and the statistics on hunger, poverty, malnourishment, are not painting a much more positive image (The Economist, 2020). President Muhammadu Buhari and his government consider agriculture to be the path to food security in Nigeria. Over the years, several policies have been installed to launch the agricultural sector into development, increase domestic food production, and decrease food imports. These policies are not undisputed. Critics argue that the Nigerian government acts erratic and that the implementation of the policies is lacking. Although the goals of the policies seem to be in line with what the sector needs, in spite of the efforts, the sector has not managed to significantly increase production and Nigeria remains food insecure. This paper aims to contribute to the debate by investigating why there is such a big gap between the policymaking and positive results. To this aim I will identify the threats to the Nigerian food security, conduct a thorough analysis of the standing agricultural policies of the Buhari administration, give an assessment of their effectiveness, and in addition, I will research the producers' perspectives on the policies by doing interviews. I find that the policies touch upon the right subjects; the goals and challenges are defined in line with what the agricultural sector needs, but the implementation is seriously lacking. Therefore, the agricultural sector is unable to develop and Nigeria remains food insecure.

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List of Abbreviations

Agriculture Promotion Policy	APP
Agriculture Transformation Agenda	ATA
All Nigeria Peoples Party	ANPP
All Progressives Congress	APC
Anchor Borrowers' Programme	ABP
Bank of Industry	BOI
Center for Nigerian Dutch Dairy Development	CNDDD
Central Bank of Nigeria	CBN
Corruption Perceptions Index	CPI
Country Export Programme	COEXPRO
Democratic Republic of Congo	DRC
Development Finance Institution	DFI
Dutch Entrepreneurial Development Bank	FMO
Economic and Financial Crimes Commission	EFCC
Economic Recovery and Growth Plan	ERGP
European Union	EU
Export Trading Companies	ETCs
Federal Ministry of Agriculture and Rural Development	FMARD
First City Monument Bank	FCMB
Food and Agriculture Organization of the United Nations	FAO
Foreign Exchange	FX
Government Enterprise and Empowerment Programme	GEEP
Gross Domestic Product	GDP
Metric Tonnes	MT
Micro, Small, and Medium Enterprise Development Fund	MSMEDF
National Bureau of Statistics	NBS
National Agricultural Research System	NARS
National Strategic Food Reserve	NSFR
Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden / Dutch Entrepreneurial Development Bank	FMO
Nigeria – Africa Trade and Investment Promotion Programme	NATIPP
Nigerian Economic Summit Group	NESG
Nigerian Export-Import Bank	NEXIM
Nigerian Peoples Party	NPP
Observatory of Economic Complexity	OEC
People's Democratic Party	PDP
Small and Medium Enterprises	SMEs
Smallholder Farmers	SHFs
Social Democratic Party	SDP

Special Economic Zones	SEZs
Strategic Implementation Plan	SIP
The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending	NIRSAL
The Sustainable Trade Initiative	IDH
United Nations	UN
United States	US
Unity Party of Nigeria	UPN
World Economic Forum	WEF
World Health Organization	WHO

Introduction

“Only the thing for which you have struggled will last.”

(Yoruba proverb)

In a recent report in the Financial Times, Pilling (2020) states that, with a median age of 18, Nigeria has one of the youngest populations in the world. Combined with the abundant natural resources available and enormous amounts of land, great things could be expected from this country. As the report notes, however, the country rather faces great challenges: conflicts and clashes, poverty and hunger, and corruption; president Buhari has his hands full and the country does not seem to be able to manage its take off into development (Pilling, 2020).

The food security situation in the country faces specific threats. Farmers are not producing sufficiently for the domestic market, multiple conflicts over farmland create unrest and insecurity, and climate change is affecting Nigerian farmers, who can no longer rely on their traditional knowledge about climate (Akinyele, 2009, p. 4). In 2020, nearly 14 million people were unable to meet their daily demands. The health and economic consequences of the Covid crisis and the strong population growth are putting the food security of Nigeria under further pressure (PWC, 2020a, p. 11; Owoo, 2020, p.1).

The Buhari administration, since coming to power in 2015, has installed several agricultural policies designed to increase domestic agricultural production, to improve and modernize the agricultural sector, and to contribute to food security across the country. These policies are mainly focused on the financial support of individuals active in the agricultural sector and through this support Buhari hopes to decrease food imports. Besides federal level policies, the federal government has encouraged the different Nigerian states to create their own agricultural promotion. States like Kebbi, Lagos and Edo have initiated such policies (PWC, 2020a, p. 10; Edo State Government, 2019).

On top of the supportive policies, the Nigerian government, over the past years, has also carried out several foreign exchange (FX) bans in order to further limit the import of agricultural goods. Yet, these measures were seen as radical, counterproductive and were openly critiqued by experts from the financial sector (SB Morgen, 2020b). Hence, the question arises whether or not the Buhari administration is addressing the challenges of domestic agricultural production and food security adequately and effectively. This research

will try to answer the research question: *“How have Buhari’s agricultural policies been received in the agricultural sector and what are the perceived challenges?”*.

The research will look into the agricultural policies set out by the Nigerian federal government under president Buhari, while also going into their implementation and state-specific agricultural policies. This will be done through literature research and by means of interviews with companies active within the agricultural sector in Nigeria. I found that although, the Nigerian federal government has successfully identified the key challenges for the agricultural sector, it seems unable to convert policy into implementation and actually make a difference on the ground.

The research was hosted by the Dutch Entrepreneurial Development Bank (FMO), where I did an internship with the purpose of doing research into the Nigerian agricultural policies and food security situation, and is based on an extensive literature review combined with several interviews with companies that are active within different agricultural sectors of Nigeria. In addition to that, Mariska Lammers, from the Dutch Embassy in Nigeria, Brian Udoh, from the Dutch Consulate in Nigeria, and Kudzai Gumunyu, from the First City Monument Bank (FCMB), were interviewed and/or consulted because of their expertise on food security and agriculture, their in-depth knowledge of the Nigerian situation, and their extensive network of contacts with agricultural companies in Nigeria.

At the time of the research not all data was public, or publicly available yet, but it was made available for the research. This has not affected the academic level of the thesis, as the research was conducted independently, thoroughly, and not in favor of a particular policy agenda.

This thesis is structured as follows: first, an introduction on the Nigerian political system and the Buhari administration. Second, a discussion of the Nigerian economy, focused on agriculture, and its history. After that, the concept of food security will be discussed; a definition and different perspectives on achieving food security, the facts and figures of the current situation in Nigeria, and the threats that are looming over Nigeria’s food security. Following up on this, the thesis delve into the role of the Nigerian federal government; what goals has the government set with regards to food security, how are these goals translated into actual policies, will give an overview of the policies instated by the federal government as well as by the states. Subsequently, an analysis of the implementation of the policies based on interviews will be given. The thesis concludes with an evaluation of the agricultural policies in Nigeria to answer the following questions: are these policies effective? Have they achieved the goals set by the Nigerian government, and what do they mean for food security challenges

in the future of Nigeria? Eventually, it will answer the main research question and give several recommendations on how to improve the agricultural sector and the food security of Nigeria.

Background to the Nigerian case

To introduce the Nigerian case, this chapter will first give a brief profile of Nigeria and then zoom in on the Nigerian political institutions and the current administration of President Muhammadu Buhari.

Country profile of Nigeria

The Federal Republic of Nigeria is the third largest country in Sub-Saharan Africa and is located on the west side of the continent (Onah, 2014, p. 151). The country covers an area of 923.768 km² and is home to approximately 200 million people (World Bank, 2019b). Centrally located Abuja is the official capital, and has a population of about 1 million people, but Lagos, with 21 million people, is the economic capital (Nations Online Project, 2020).

Nigeria is extremely rich in resources, such as petroleum and gas, but the country also has an abundance of coal, iron, ore, tin, zinc, lead, gold, as well as limestone and uranium, and several minerals (Onah, 2014, p. 151).

As Nigeria was a colony under British rule, English is the official language. Besides English, Hausa, Yoruba, and Igbo are commonly spoken and it is estimated that, besides these three, there are an additional 250 languages and dialects in Nigeria (Nations Online Project, 2020). The country, ethnically, is very diverse. In the North, the majority of people belong to the Hausa-Fulani, in the Southwest to the Yoruba, and in the southeast to the Igbo peoples. Next to this, there are hundreds of minority ethnic groups like the Igala, Edo, Urhobo, Ijaw, and the Kanuri in the Central-Belt, South-South and the far-North (Onah, 2014, p. 152). There is no official state-religion for the country, although there are large Christian and Islamic communities, as well as a great number of Nigerians adhering to traditional beliefs (Onah, 2014, p. 152).

The borders of the territory of Nigeria stem from the colonist times, when it fell under British rule. The British ruled the area of Nigeria as three separate protectorates. In 1914, the protectorates were merged into the Colony and Protectorate of Nigeria (Onah, 2014, p. 152). With the Independence Constitution of 1960, Nigeria became an independent nation, albeit as

a part of the British Commonwealth. In 1963, the Republican Constitution took effect, making Nigeria a sovereign republic.

The independence and sovereignty were followed by a bloody civil war and long stretches of military rule, with several (military) coups, shifts of power, and authoritarian leaders (Onah, 2014, p. 153; Diamond, 1983, p. 472).

Political institutions in Nigeria

Nigeria is a federal republic, and initially had a parliamentary system. With the constitution of 1979 this was replaced by a presidential system, still continuing to this day.

In Nigeria, the president is the head of state, as well as the head of government and the federal cabinet of ministers (Onah, 2014, p. 155). Every four years the president is elected as federal head of the executive pillar, where he is supported by the vice-president. These functions at the state levels are carried out by a governor and his deputy, who also stay in office for four years with the possibility of a one-term extension (Onah, 2014, p. 155).

The legislative pillar, at the federal level, consists of a bicameral National Assembly, made up by the Senate, led by the Senate President, and the House of Representatives, led by the Speaker (Onah, 2014, p. 155). At the state level, the House of Assembly, led by the Speaker, is the legislator. In addition to this, every local government also has a Council, that weighs and approves local matters (Onah, 2014, p. 156).

The dominant parties in Nigeria's politics are the People's Democratic Party (PDP), who had the majority of seats and the presidency from 1998 until 2015, and the All Progressives Congress (APC) of president Buhari, who is currently serving his second term in office (International Republican Institute, 2020, p. 2).

The judicial pillar is headed by the Chief Justice of the Federation and at the state level by the Chief Judge. The Supreme Court is the highest tier in the system, functioning as a last resort, and is the constitutional court. The second highest tier is the Court of Appeal, structured along judicial areas, followed by several courts at the state and federal level (Onah, 2014, p. 156). The Nigerian judicial system also differs for states with different dominant religions. The Customary Courts primarily functions as courts for customary issues in states with Christian majorities. In predominantly Muslim states this role is taken up by Sharia Courts. (Onah, 2014, p. 156).

Nigeria's federalist make-up dates back to before the independence. In 1954, a federal system was adopted with a national government and three regional governments: Eastern,

Northern, and Western. After the independence, this federal system stayed in place regardless of many constitutional changes, notably an increase in the number of subnational units or “states” (Adamolekun, 1991, p. 1-3). The last structural changes to the system date back to 1996, when there were six new states created, bringing the total to 36, with 774 local governments as part of the federation. The states are designed to have nearly equal population sizes and to have at least five states for each of the major ethnic groups residing in the country (Suberu, 2009, p. 73).

The financial side of the federalist system of Nigeria, the fiscal federalism, is facing many problems, especially when looking at the revenue allocation. There is a discrepancy between the responsibilities of the different government levels and the financial scope that they get allocated in (Dang, 2013, p. 1).

Public taxes and revenues, including from oil, are collected by the federal government, and end up in the federation account. The money in this account is relocated and distributed in two directions: vertically to the center, states, and localities, and horizontally across the different states (Suberu, 2009, p. 80). The allocation is based on a formula mandating that 56% of the federation account goes to the center, 24% to the states, and 20% to the localities. Internal revenue generation is weak as the sub-units gain 80% of their revenue from central transfers. The states that are resource rich get to divide at least 13% of the revenues collected from the natural resources (Suberu, 2009, p. 80).

The Buhari administration

Muhammadu Buhari, an army general and former military ruler, was sworn in as president of Nigeria on 29 May 2015. At the time, Nigeria was facing economic hardship as a result of the decrease in crude petroleum prices, rising unemployment, and internal conflicts at the hands of insurgent groups like Boko Haram, militias in the Niger Delta, and farmer-herder clashes (Onuoha, Ichite & George, 2015; Lewis & Kew, 2015, p. 94,99).

Buhari had a long track record as a successful military man and has previously ruled Nigeria from January 1984 until August 1985, after seizing power through a coup. During this time he was known for his efforts against corruption, but also for his contempt of human rights (Onuoha et al., 2015). After this short reign, Buhari disappeared from the spotlights, only to return to politics in 1999. He unsuccessfully ran for president in multiple elections, as a candidate for the All Nigeria Peoples Party (ANPP), before eventually being elected in 2015, after merging several opposition parties into the All Progressives Congress (APC)

(Onuoha et al., 2015). His rule got off to an optimistic start, as his installation was the first-ever transition of power to run fully peaceful and democratic from a ruling to an opposition party (Onuoha et al., 2015).

Nigeria is highly dependent on the production of oil. Hence, any changes in international oil prices will shock the entire Nigerian economic system. This type of shock can be seen in the recession of 2015. Buhari was just elected president and global oil prices dropped drastically causing turmoil for the entire Nigerian economy (Kemi, 2019, p. 79).

In 2019, president Buhari got re-elected for his second term in office, with some protest from opposition parties claiming that the elections were fraudulent and corrupt. This was quickly refuted by the Presidential Elections Petitions Tribunal after the claims of fraud were deemed to be proven insufficiently (Jaiyesimi, 2019).

The Nigerian economy

Nigeria is rich in resources, like oil, and has every potential to have a strong and thriving economy. However, the problems faced by many resource rich countries, have also struck Nigeria and have prevented the consolidation of a solid economy. The country is battling the resource curse, with high inflation and unemployment rates, and Dutch disease, which is constantly putting the economy under pressure (van der Ploeg, 2011, p. 387).

This chapter will go into the Nigerian economy and its history, to explain these problems. It will also zoom in on the agricultural sector in specific to track its development and identify the challenges.

Historical perspectives on the Nigerian economy

The Nigerian economy started out as an agricultural export economy, as was the case with most colonies. Until 1954, Nigeria had national commodity marketing boards that were centrally controlled. These boards handled the majority of the agricultural exports of Nigeria and were initially meant to protect the supply chain of the United Kingdom in wartime. Later, they took on the role of stabilizing the producer prices and focused on developing the production by putting the revenues back in to the agricultural sector and farming communities (Helleiner, 1964, p. 582; Bates, 2014, p. 13). The Marketing Boards traded in products like cocoa, palm oil and kernels, groundnuts, and cotton. The boards made large revenues this way, but the United Kingdom, by the means of the Nigerian government, used

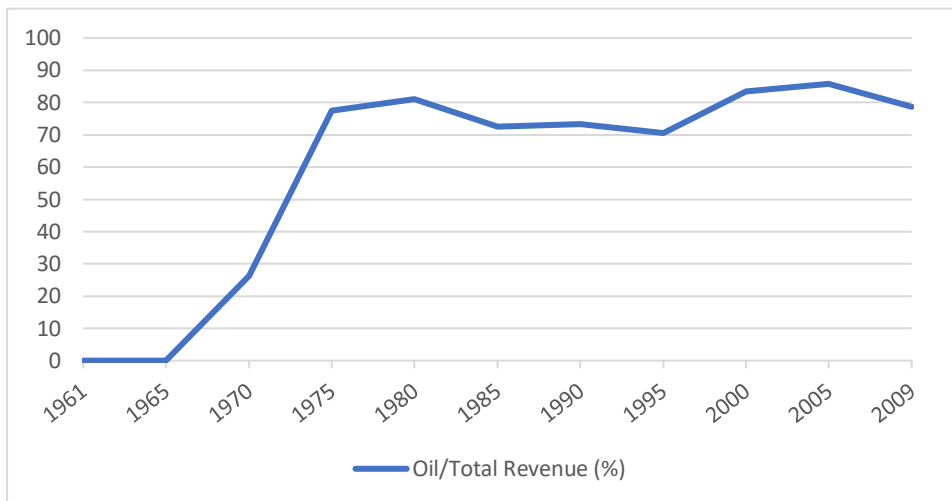
them as a surplus to lessen their deficits. They withheld the money by installing taxes on exports. As a consequence, the revenue was not put back into the agricultural sector.

In 1954, the Commodity Marketing Boards were restructured to function on a regional basis. After the independence, Nigeria tried to set up some industries to exploit the country's natural resources, with the help of the Marketing Boards (Onah, 2014, p. 157; Helleiner, 1964, p. 592). However, the newly elected politicians sought funds to reward their electorate and found this in the revenues of the marketing boards. Not only were the revenues not used as they were initially meant to, but they also passed on responsibilities, that originally belonged to the Marketing Boards, to the farmers and producers. As a result, the core goals of the Marketing Boards were no longer pursued (Bates, 2014, p. 15-17). The stabilizing of prices was supposed to be a core task of the boards, but when the prices of cocoa dropped in the early 60's, the consequences were almost only for the farmers. In fact, what happened, is that the Marketing Boards facilitated the transferring of financial resources from the farmers and producers to the government (Bates, 2014, p. 16,17). In addition, the Marketing Boards were used to generate FX for the government by taxing the producers of cash crops. Cash crops are the crops that farmers solely cultivate to sell and are to be used as industrial commodities and that are supposed to be generating the majority of a farmer's income (Bates, 2014, p. 17,18).

When Nigeria became independent, the economy was still strongly agriculturally based. Initially, the government's focus was on developing the agricultural sector. A large variety of food crops, like maize, cassava, and rice, and livestock were cultivated and bred in the north and then disbursed over the rest of the country (Onah, 2014, p. 157; Nordea Trade Portal, 2021).

Yet, this development came to an abrupt stop when large oil fields were discovered in the 1960s, quickly becoming the economy's main driver. Because of the sole focus on oil, the industry and agricultural sectors stayed behind in their development. In the first decade after the oil discovery, the national oil revenue rose up to 75% of the total federal earnings (Figure 1) (Onah, 2014, p. 157). Today, Nigeria is the 8th biggest oil exporter in the world, and besides crude oil, the country is also a large exporter of liquefied natural gas (Nordea Trade Portal, 2021).

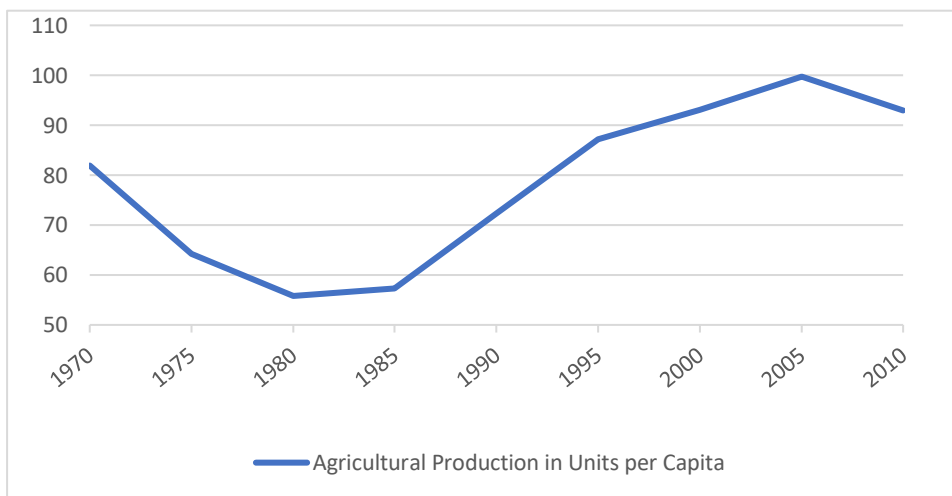
Figure 1. Nigerian Oil Revenues (as % of the Total Government Revenue)



Source: Akinlo, 2012, p. 175

In the 1970's the country got hit by a drastic decrease of agricultural production, visible in Figure 2, as a result of the oil discovery, and Nigeria's food security fell far below the WHO minimum (Akinyoade et. al., 2013, p. 6).

Figure 2. Agricultural Production Index (per Capita)



Source: AFDB, 2020

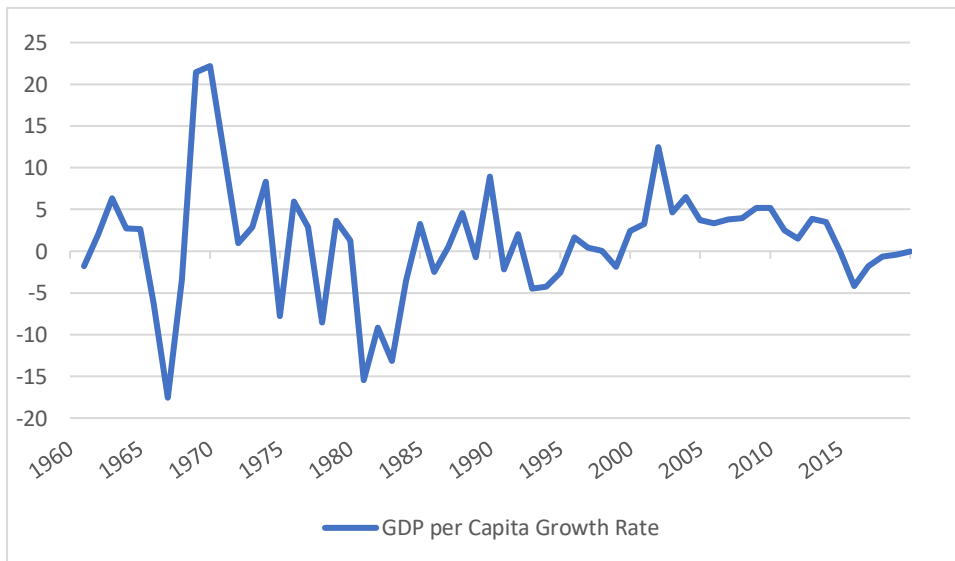
By the 1980s, the Nigerian economy suffered from the Dutch disease, meaning that a country suddenly generates a lot of extra income by exploiting a newly found natural resource. The extra income from the exports leads to an over evaluation of the currency, making importing attractive. Simultaneously, exporting produce, from other sectors, will become more difficult as it is relatively more expensive for foreign buyers (Anjande & Aor, 2017, p. 1). In the Nigerian case it meant: a sole focus on oil leading to a decline in

agriculture and manufacturing and an increase of imports. In essence, this became a vicious cycle when the agriculture declines led to increasing imports of food and agriculture commodities. And when those, on their turn, became more expensive, Nigeria became even more dependent on oil exports, which was used to fund those food and agriculture commodities imports (Anjande & Aor, 2017, p. 2,3).

Current economic situation

The Nigerian economy is still highly dependent on the export of oil, making the economy vulnerable to changes of the global oil price. Currently, after an oil price related recession in 2015-2018, the Nigerian GDP per capita is slowly coming back up, as can be seen in Figure 3. Although it is not back at the 2014 level (3,098.98 US\$) yet, it is recovering from the 2017 low (1,968.56 US\$) and showing steady growth in 2019 (2,229.85 US\$) (World Bank, 2019a).

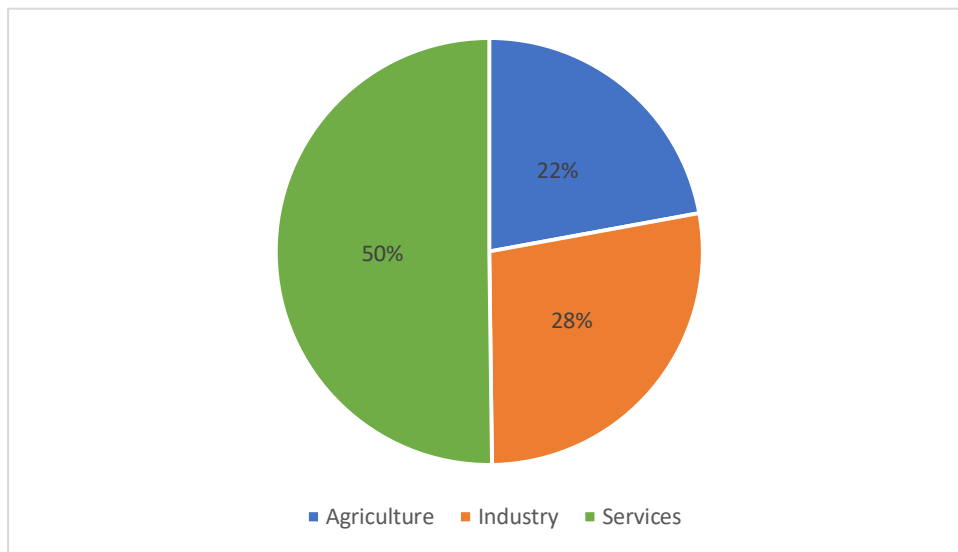
Figure 3. Nigeria GDP per Capita Growth Rates (in %)



Source: World Bank, 2019a

Today, the agricultural sector accounts for roughly 20% of the Nigerian Gross Domestic Product (GDP). Approximately 30% of the GDP is produced by the industry sector (Figure 4). Petroleum and mining are fundamental to this share. However, the continuous power shortage and inadequate infrastructure are keeping the industry small and prevent it from developing. Furthermore, frequent oil thefts and sabotage plague the sector, which is estimated at costing around 11 billion US\$ each year (Nordea Trade Portal, 2021).

Figure 4. Value Added (in % of GDP)



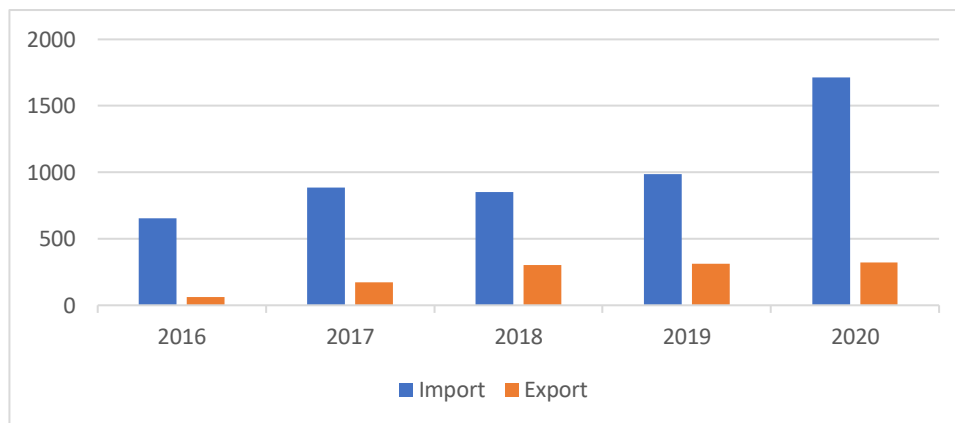
Source: Nordea Trade Portal, 2021

In the services sector (responsible for approximately 50% of the GDP), the financial, telecommunications, and retail sectors are on the rise. In an attempt to boost the tourism sector, the government has set up the Ministry of Culture, Tourism, and National Orientation. Unfortunately, like in the industry sector, the services sector faces the consequences of power shortage and lack of infrastructure that have a negative effect on its development (Nordea Trade Portal, 2021).

Nigeria's economy may be largely dependent on oil revenues; the agricultural sector is the largest employer of the economic sectors (36.4% of total employment) (World Bank, 2019d). Although the society is highly agrarian, it is not agriculturally advanced; most farmers in Nigeria are Smallholder Farmers (SHFs) that live peasant-farming lifestyles (Attah, 2012, p. 177; Indexmundi, 2019). Nigeria's top agricultural products exported are sesame seeds, cashew, and, both fermented and raw cocoa beans, while the top imported agricultural products are wheat, sugar, fish, and milk (PWC, 2019, p. 3; PWC, 2020a, p. 6).

Due to the meager agricultural productivity, Nigeria imports five times more agricultural products than it exports, as is visible in Figure 5, and is considered import-dependent for food security. The importing of staple crops can undermine a country's food security, when international price shocks make certain crops or products unaffordable (PWC, 2020a, p. 1; Nigerian Foreign Trade Statistics, 2016 - 2020). This vulnerability, when it comes to food security, is also the case for Nigeria.

Figure 5. Value of Agricultural Goods Exported and Imported by Nigeria (in N'bn)



Source: Nigerian Foreign Trade Statistics, 2016-2020

From this chapter it becomes clear that the export-oriented set up of the Nigerian economy is causing the country to be vulnerable when it comes to food security. However, the concept of food security is a broad one and there are several ways to achieve food security. In the next chapter, the concept of food security will be explained and analyzed in the context of Nigeria. It will discuss different perspectives on achieving food security and also several factors that threaten the Nigerian food security.

Food security

The concept of food security: a definition

In 2020, over 800 million people worldwide were food insecure, meaning that they go to bed hungry and cannot provide or do not have access to an amount of food that is sufficient to meet their daily needs (USAID, 2020). The majority of these people are SHFs that rely on agriculture for their income and daily food. In developing countries, approximately 75% of all poor people live in rural areas and are dependent on agriculture (USAID, 2020).

Since the signing of the United Nations (UN) Declaration of Rome, food security is internationally defined as:

“Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (UN Declaration of Rome, 1996).

According to the Food and Agriculture Organization (FAO) (2006), there are four dimensions of food security: food availability, food accessibility, food stability, and food utilization. In order to be considered food secure, a country must be able to provide all four. Although all four dimensions are in some way a national, and therefore a government matter, food accessibility and food utilization mainly play a role at the household level. Technically, a country could have sufficient food to feed all of its population, but if uneven distribution is cutting off the accessibility for some households, the population still is not food secure (FAO, 2006, p. 1). This is especially the case in Nigeria where, as a result of the focus on oil, the distribution of wealth is particularly uneven, causing some people to have better or more access than others (Matemilola & Elegbede, 2017, p. 1). When it comes to food utilization, the insecurity arises when the food available is not providing the needed nutrients to live. In a case like this, there might seem to be food security, but at the household level it is still not meeting daily demands (FAO, 2006, p. 1).

The consequences of food insecurity are enormous; not only is it affecting a person's health, but it can also cause human and economic development interruptions. Malnourishment has a long lasting effect on people: children who are underfed tend to be less productive, both physically and intellectually, when they become adults and are seriously hindered in their personal development (Attah, 2012, p. 175).

The FAO (2008a) defined three categories of food insecurity: chronic food insecurity, transitory food insecurity, and seasonal food insecurity. Chronic food insecurity is long-term or persistent and means that people cannot meet their daily demands over a longer period of time. It is often caused by an ongoing period of poverty or a lack of access to financial or productive means (FAO, 2008a, p. 1).

Transitory food insecurity is short-term and temporary, it occurs when suddenly production goes down or when access to food is unexpectedly cut off. It can be caused by year-to-year variations in production or prices, unexpected natural or human disasters, or large changes in the household (FAO, 2008a, p. 1).

Seasonal food insecurity occurs when the insecurity of food is cyclical, and it overlaps with chronic food insecurity because it often is predictable. However, it is also temporary in its duration, which makes it similar to transitory food insecurity. This type of food insecurity is a result of seasonal fluctuations in factors such as climate, cropping cycles, and labor demand (FAO, 2008a, p.1).

Nigeria experiences two types of food insecurity: chronic and transitory food insecurity. Nigeria has been dealing with food insecurity for a long time, and therefore it can

be considered chronically food insecure. Shocks on the global oil market cause transitory food insecurity in Nigeria as the imported goods suddenly become more expensive and this cuts off the access to food for the Nigerian people. However, the importing of food does help the country to overcome seasonal food insecurity as the seasons with low harvests are simply compensated by importing more. Sudden issues like conflicts and natural disasters also cause transitory food insecurity.

Dealing with different sorts and multiple causes of food insecurity also means that there are different ways to potentially become food secure. In the next section, different perspectives on achieving food security will be discussed.

Perspectives on achieving food security

In food security, there are several stakeholders: corporations, civil society groups (like NGO's), government bodies, and multilateral agencies (Legwegoh & Sneyd, 2015, p. 142,143). These stakeholders differ in perspective on how to achieve food security. However, albeit for different reasons, all of them see the biggest challenge in the availability aspect of food security because of growing populations and the increasing effects of climate change (Legwegoh & Sneyd, 2015, p. 145-152).

Although the essence remains the same: to provide more food, there are multiple ways to achieve food security. The core concept in Nigeria's quest for food security is food self-sufficiency.

Food security and food self-sufficiency are two different things; where food security is about meeting demands in any way, food self-sufficiency is the capacity to meet these demands by producing domestically instead of buying or importing (Minot & Pelijor, 2010, p. xiii). The debate on whether or not self-sufficiency is a sound strategy to achieve food security is an ongoing one. As stressed earlier in this paper, the reliance and dependency on imports is making Nigeria vulnerable. Both price volatility and disturbances of supplies can have serious consequences for the Nigerian people because the country is so dependent on imports and trade for its food security (Minot & Pelijor, 2010, p. xiii). However, striving for food self-sufficiency means focusing on many different crops and therefore losing any comparative advantages, leading to higher costs (Minot & Pelijor, 2010, p. xiii; Clapp, 2017, p. 88). The concept of comparative advantages entails that, some countries can better and cheaper produce one product and other countries other products, making the total production cheaper for both products (FAO, 2015, p. 6).

In addition, implanting policies to support food self-sufficiency, like tariffs, taxes, subsidies, etc., might undermine a country's food security when the production of food decreases causing the food prices to rise as a result of a competition between efficiency and self-sufficiency (FAO, 2015, p. 6).

According to Von Braun and Paulino (1990), governments have, consciously or not, let the aim for food self-sufficiency at the national level, divert the attention from the household level urgent food security concerns and this has allowed them to avoid their responsibilities.

The traditional view on food self-sufficiency, that knew its heydays in the 70's, is one of a highly isolationistic system that is very inefficient. Nowadays, the countries that follow this strategy, aim at realizing the full potential of the domestic food production, while importing and exporting food commodities.

While facing large inequalities in the division of global food security, there is also the fact that we are more and more confronted with the fact that a lot of the natural resources we use to achieve food security are limited and increasingly awareness rises of the fact that a switch to more sustainable food security is inevitable (Garnett, 2014, p. 10). According to Garnett (2014), in this debate there are three large approaches to achieve sustainable food security that focus on efficiency, demand restraining, and a transformation of the food system. The efficiency approach is based on the assumption that food insecurity stems from the supply side. In order to achieve food security, more food needs to be produced and the food that is being produced must be done in a more efficient way. The approach of restraining demand places the challenges of food security with the consumer: excessive consumption in the end of the supply chain leads to shortages. The food system transformation approach has a more holistic view of the challenges of food security, focusing on relationships amongst players in the food system. In the case of Nigeria, the government is working on both the efficiency and transformation of the food system (Garnett, 2014, p. 11-13).

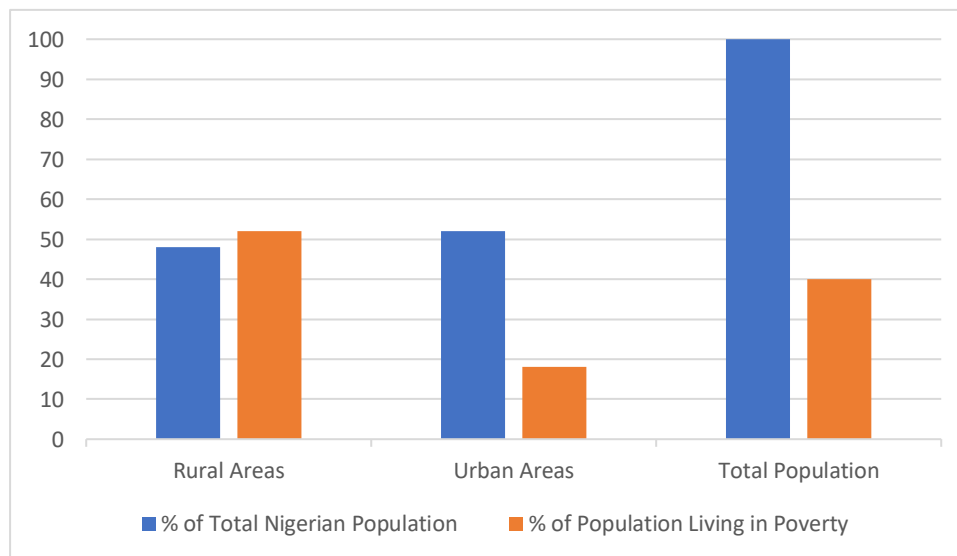
The Nigerian government is clearly striving for a higher self-sufficiency and, although the sustainability side is less of a priority compared to food security, the Garnett approaches do apply to the Nigerian strategy. To further illustrate the food security situation in Nigeria, the next chapter will give an overview of the specifics of the Nigerian case.

Facts and figures on the current food security situation in Nigeria

According to the *Cadre Harmonise* report (2020), by the Food and Agriculture Organization (FAO), the World Food Programme, the National Programme for Food Security and other donor agencies, almost 10 million Nigerians are at risk of not being able to provide sufficient food and falling into hunger, in 15 states and the Federal Capital Territory (FCT) (Mu'azu, Wategire & Anthony, 2020, p. 1). Over 80 million Nigerians live in extreme poverty, another 53 million are vulnerable, and there are millions of people dependent on the urban informal economy (World Bank, 2020a; World Bank, 2020b).

Nigeria's poverty line is set at 137,430 Nigerian Naira per year (2019), which 82.9 million people do not meet, placing them in absolute poverty. The majority of these people live in the rural areas of the country, where 52% of the population is considered poor (Figure 6). In the urban areas, 18% of the people live below the poverty line, as is visible in Figure 6 (NBS, 2020, p. 5).

Figure 6. Rural-Urban Poverty and Population Distribution Nigeria (in %)

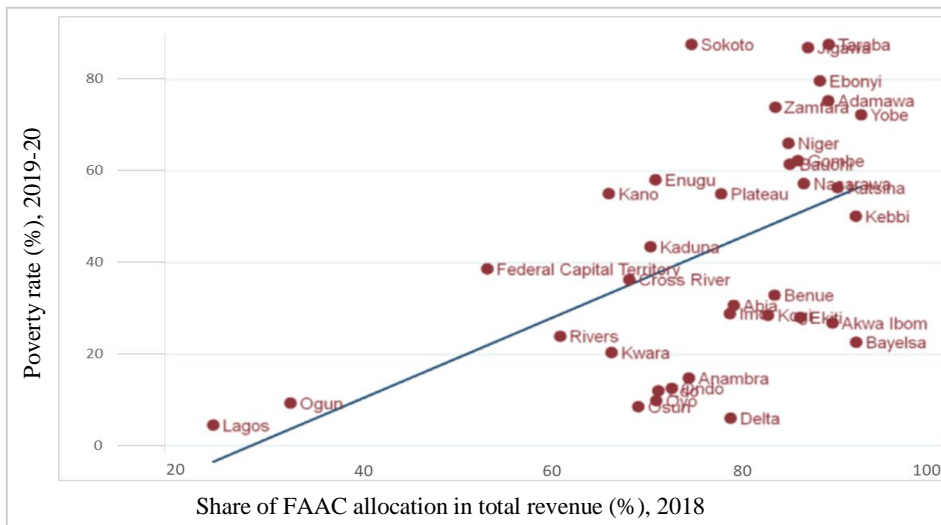


Source: NBS, 2020, p.5; World Bank, 2019e

In states like Sokoto, Jigawa, and Taraba, between 81% and 100% of the population lives in poverty, whereas in the southwestern states like Lagos and Ogun these percentages are between 1% and 20% of the population, as can be seen in Figure 7 (NBS, 2020, p. 7).¹

¹ Disclaimer: Nigerian demographic statistics are notoriously unreliable. Therefore, the statistics used in this paragraph should be approached with caution. In the next section, this issue will be further discussed.

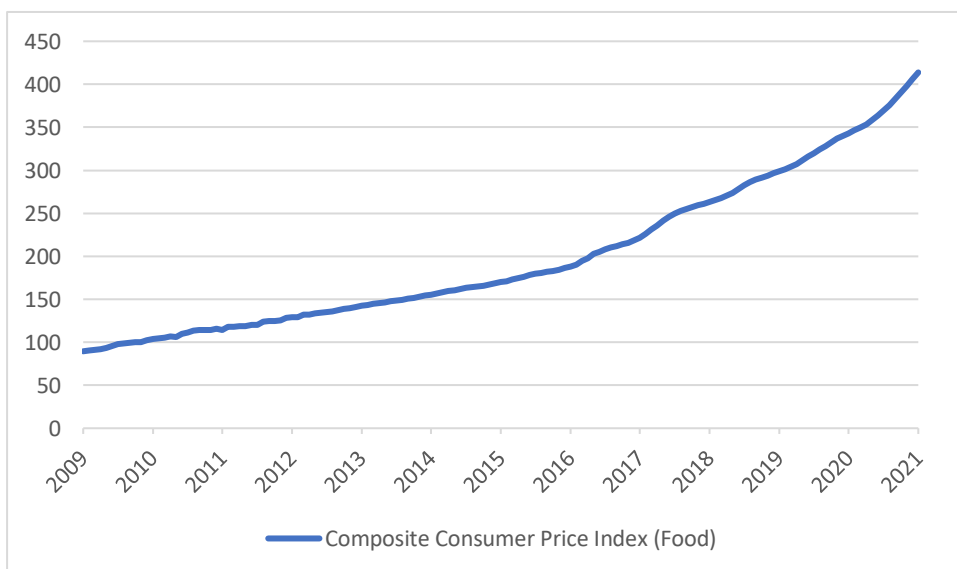
Figure 7. Poverty amongst the Nigerian Population per State



Source: NBS, 2020, p. 7

The Economist (2020) published their Global Food Security Index ranking Nigeria 100th (out of 113, with 1 being most food secure). On this ranking, Nigeria scores particularly low on the Affordability of food (32.9/100), even lower than countries such as Yemen (40.3/100) and Sierra Leona (35.3/100), who are far below Nigeria on the global ranking. The Consumer Price Index for Food in Nigeria shows a strong increase of the food inflation, since 2015, as visible in Figure 8. This confirms the image of decreasing affordability of food in Nigeria (NBS, 2021, p.18). The increasing food inflation and the high poverty rates combined, clearly shows that Nigeria is facing serious trouble when it comes to food security.

Figure 8. Composite Consumer Price Index (Food) Nigeria



Source: NBS, 2021, p. 18

Threats to the Nigerian food security

The already fragile food security situation of Nigeria further faces threats that come from multiple directions at the same time. This keeps undermining Buhari's rule and puts the administration in a difficult position. The Nigerian government sees the increase in domestic agricultural production and development of the agriculture sector as, not only the path to a future of sustainable prosperity, but also as a way to create food security for all Nigerians (SB Morgen, 2019b). Here, the six main threats are discussed to give a clear overview of how diverse and multi-disciplinary the problems are that the Nigerian government is facing.

Population growth

Nigeria has no reliable statistics on population size; the main source for population counts and other demographic data is census. Not only is this form of data collection easily flawed but, in the Nigerian case, it is often used as a political measure.

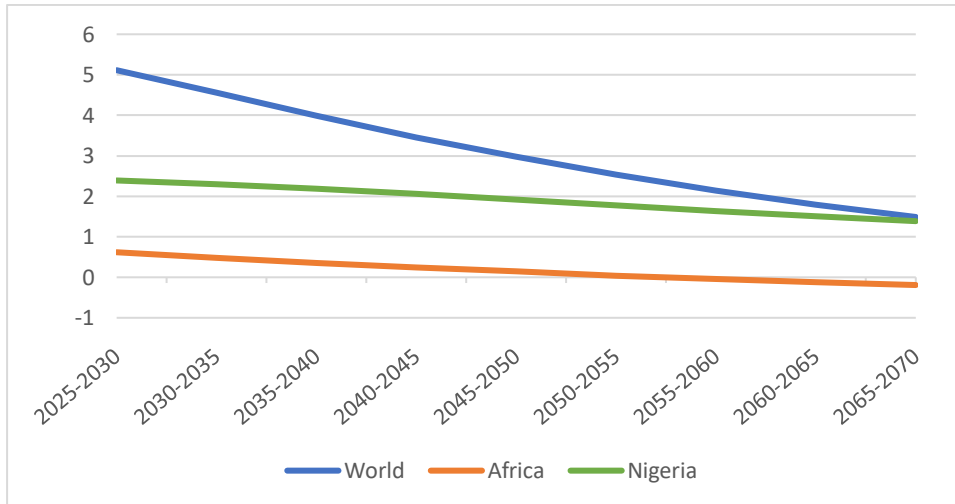
According to Okolo (1999), multiple aspects play a role in why the Nigerian statistics are unreliable and serve as incentives to manipulate the census. First, there is no solid system on registering demographic data. Historically, officially registering life events such as deaths, birth, and marriages was voluntary. Registry offices are located in the bigger cities and the concept of registering is still fairly uncommon in rural areas of the country (Ogunjuyigbe & Bamiwuye, 2013, p. 263; Okolo, 1999, p. 324). Second, the contribution states get out of the national account, but also the distribution of parliamentary seats, is largely dependent on the population, (Ogunjuyigbe & Bamiwuye, 2013, p. 263; Okolo, 1999, p. 324).

Without knowing the demographic statistics, it is very difficult to assess the level of food (in)security, as it is not clear over how many people the food should be distributed and how many are unable to meet their daily demand.

Nevertheless, the United Nations' estimates project the Nigerian population to double up to 400 million people by 2050, adding to the, already high, demand for increased food production. Figure 9 shows the projections for the population growth rate. From this figure it becomes clear, that not only is Nigeria's population expected to grow faster than in the rest of the continent, the decline of the growth is also going slower (PWC, 2020a, p. 11). Hypothetically, with the current population size and higher yields, as well as better governance, food security could potentially be met. The trend of an exponentially increasing

population could become an even heavier burden on Nigeria's food security in the future, as the gap between the population size and agricultural production further widens.

Figure 9. Projection of Population Growth in %



Source: UN Department of Economic and Social Affairs, 2019

The discussion on population control is a sensitive one in Nigeria, both from religious and cultural perspective. Many Nigerians still consider many children to equal prosperity and wealth, and religious groups, Muslim and Christian, are, based on their beliefs, against controlling the population by means of birth control. Senator Ben Murray-Bruce brought up the topic in 2019 in a debate in the Senate plenary stating that policy on population control is necessary to stabilize the economy, starting a heated debate between supporters and opponents (Busari, 2019). However, according to Nyma Akasha Zibiri, a Nigerian lawyer, the enormous young population of Nigeria could be an opportunity if the government manages to regulate the economy and create sufficient jobs (Onyekwere, 2020).

If the production of food in Nigeria or the capacity to import does not increase with the population growth rate, the country will get even more food insecure.

Climate

Climate change is more and more becoming a problem for Nigeria's food security. Countries in sub-Saharan Africa tend to be more vulnerable to climate change because of their location and weak institutions, that are not capable of responding adequately to this crisis (Okoli & Ifeakor, 2014, p. 14). However, the vulnerability to climate change within

Nigeria differs from region to region; some regions will be heavily affected by floods or the rising sea levels, while others will struggle with drought (Okoli &Ifeakor, 2014, p. 14).

This climate change induced fragility of the Nigerian food security is well illustrated by the immense problems that emerged after the 2018 floods, creating difficulties for nearly the entire population. The floods affected farmlands all-across the country and seriously reduced the production of the major Nigerian crops. The Nigerian government did not respond adequately and this resulted in transitory food insecurity for millions (SB Morgen, 2018).

As only 2% of cropped land is under irrigation, meaning that farmers are almost fully dependent of rainfall, which has been increasing unreliable as a result of climate change, this really is a problem for food security. Especially in combination with extended periods of drought, that occur more frequently (FAO, 2018). Unfortunately, this is not only an issue for the growing of crops, but has also led to a rise in conflicts between farmers and Fulani herders, seeking sufficient grazing lands for their livestock.

Conflict

In parts of Nigeria, violent clashes between Fulani herders and farmers take place regularly. These attacks once were spontaneous or reactions on confrontations, but according to the International Crisis Group, they are now structural campaigns to install fear and gain control over the best (grazing) land. In 2018 these attacks were six times more deadly than the infamous Boko Haram attacks (International Crisis Group, 2018, p. i).

The conflict stretches out along the Middle Belt of Nigeria and can be linked directly to climate change, but also to state government actions, such as the anti-grazing laws of Benue state (International Crisis Group, 2018, p. 8). Drought in the North is forcing the Fulani herders to move more south in search for greener pastures. However, this is where the settled farmers are investing and expanding their farming businesses. The herdsmen invade the fields of the farmers and the cattle feed on the crops. Not only has settled farming limited the grazing lands, the farms also block traditional migration routes, keeping the Fulani from carrying out their traditional lifestyle of nomadic herding. The wrecked crops and fields on the other hand, are causing major problems for the settled farmers, who are unable to feed their families and repay they loans they might have taken out to sow their crops (International Crisis Group, 2018, p. i).

Besides the significant impact on the humanitarian side, the conflict also has economic consequences. According to the International Crisis Group (2018), Nigeria might face a nationwide problem, on top of the already meager food security situation, because the situation is seriously disrupting agriculture in parts of Adamawa, Benue, Nasarawa, and Plateau states. The destroying of farm fields and human displacement as a result of the attacks have caused the production of food to drop somewhere between 33% and 65% in 2018.

Corruption

Politically, the biggest challenge for Buhari is probably corruption. It is considered to be the root cause of many of Nigeria's struggles and is to be found in the public sphere. On the Corruption Perceptions Index (CPI) Nigeria ranked 149 out 180 (with 1 being the least corrupt) in 2020, dropping from spot 136 in 2014, before Buhari came to power (Transparency International, 2021, p. 2; Onuoha et al., 2015). According to the Global Corruption Barometer survey, 43% of Nigerian respondent thought that the corruption increased within the last 12 months and 44% admitted to having used a bribe to get something done in the public service within the last 12 months (Transparency International, 2019).

When Buhari took office after the 2015 elections, he vowed to actively battle corruption. Since then, Nigeria has worked together with other countries to secure funds and assets of persons who are suspected of having participated in corruption or who have gained these assets through corrupt activities. The Economic and Financial Crimes Commission (EFCC), charged with the task to discover and investigate corruption, has been investigating officials of all levels of government, from both the current and previous administrations. By implementing the 'Treasury Single Account', which decreases the fragmentation of the financial structure of the government, Buhari's administration managed to prevent several illicit transactions from the national treasury to individuals (Abosedo, 2018; McWilliams & Vincent, 2016, p. 78; Tade, 2021). Although this sounds quite promising, critics, even from within his own APC, have accused Buhari of using the anti corruption campaign to take out political opponents and critics (Abosedo, 2018; Tade, 2021). On top of this, as also discussed earlier, Nigeria has dropped significantly on the Corruption Perceptions Index since Buhari came to power, indicating the situation has worsened despite his anti-corruption agenda. According to Tade (2021), corruption in Nigerian is being maintained because of the fact that

the government has not set up independent bodies or institutions to fight the corruption, but has kept this responsibility within the corrupt system.

Good governance is a key factor for achieving food security and when every part, every institution is as corrupted as in Nigeria, this is a very large threat to the country (Suberu, 2009, p. 82). Especially, when looking at how the Nigerian government is aware of the predicament they are in, when it comes to food security, but still seems unable to do something about it. This makes one wonder whether or not adequate implementation of the policies is being hindered by corruption, and perhaps, if Buhari manages to effectively take on corruption, actual change could be achieved?

Production by SHFs/Economies of scale

The majority of Nigerian farmers are SHFs. These farmers have infrequent harvests (1-2 a year) and lack the facilities to adequately store their harvests. Low literacy levels amongst the farmers prevent them from accessing information on efficient farming and guidance to commercial production (FAO, 2018). The biggest part of their harvests (87%) is consumed by the households of the farmers themselves and what remains is often sold directly to the public at local markets. Access to credit forms a constant barrier for farmers to increase their productivity, with only 6% of Nigerian SHFs having this access (FAO, 2018). This is because SHFs do not have adequate financial administrations to base their requests upon; banks are reluctant to give out loans to SHFs out of fear that they might not be able to repay, because of risks like spoiled harvests. Because of the amount of SHFs and their very limited scale, banks often consider the individual farmers not worth the trouble. And even if SHFs could increase their yields, the average distance of 14 km from their farms to the nearest road is a huge obstacle in trying to get their produce to the markets (FAO, 2018). With an average of 0.5 hectares of land per farmer (for comparison: in the U.S. a farmer has, on average, 179 hectares and in the Netherlands 50 hectares of land), farmers face serious trouble with scale (FAO, 2018).

SHFs lack the advantages of economies of scale. These advantages arise when the production scale expands, and the process becomes more efficient. As a result, the cost-per-unit goes down, making a product, or in this case the producing country, more competitive. In the case of Nigeria, the scale of farming is determined by the scale and needs of the family.

In 2019 the World Economic Forum (WEF) published their *Global Competitiveness*² Ranking, placing Nigeria 116th in the world. This ranking of economic achievements is looking beyond growth alone, and focuses on the areas of the economy where productivity can be enhanced and where the economy can be more resilient. Nigeria moved down the list since 2018, and the report was not very positive, scoring amongst the lowest in the world for *Macroeconomic Stability* (130th), *Infrastructure* (130th), and *Financial System* (131st) (Schwab, 2019, p. 430; World Economic Forum, 2020, p. 2). However, considering that in 2017, Nigeria ranked 125th and the macroeconomic conditions worsened, inflation was at a high, the budget deficit went up and the institutions were assessed to appear “*more fragile*”, which creates additional uncertainty with (potential) investors, the 116th place in 2019 might still be a result of some positive changes (SB Morgen, 2017; Schwab, 2019, p. 430).

Nigeria is scoring badly on global competitiveness because the production process is not reaching the scale where it will be competitive, especially in the agricultural sector. Besides low global competitiveness, small-scale production is also potentially threatening the food security. When it is not profitable to produce more, the country will not be able to reach the increased production or make enough money from selling products, to import more food, what, in the end, is needed to become food secure.

If Nigeria does manage to reach these economies of scale, this could mean a tremendous contribution to food security. Yet, in order to achieve this, large investments are necessary. This could either be done by agricultural companies, which merge several small farms of SHFs into large farms, or by *agricultural service companies*, who unite SHFs and provide them, as a whole, with services they need to run their farming businesses successfully, while remaining independent farmers. However, in 2019, Nigeria ranked 131st out of 190 countries on the *Ease of Doing Business* ranking by the World Bank, meaning that it is very difficult to start a business or do business in Nigeria, compared to other countries world wide (World Bank, 2019c). Interestingly, compared to the regional scores of Sub-Saharan Africa (51.8/100), Nigeria (56.9/100) is performing above average when it comes to the ease of doing business (World Bank, 2019c).

In line with this: in August 2020, South African supermarket chain *Shoprite* announced their withdrawal from the Nigerian market. Although the official statement points at decreasing numbers due to the Covid-pandemic, other indicators show an in-direct result of

² Although there is a more recent publication on this topic, for this research, the 2019 report was used. The 2020 version is a “*Special Edition*” and might give a distorted image as not all data could be collected due to the Covid-19 pandemic.

the Nigerian government policies (Olaqoyin, 2020). The currency disclosure detail, of the 2020 annual report, shows that the company was heavily affected by the currency fluctuations caused by the bans on FX and the weak Naira. Other issues for Shoprite are the inadequate infrastructure and weak institutions, causing problems for the company's logistics department. In this case, the biggest trouble comes from corruption and bureaucracy in the Nigerian ports, where the company has to deal with unnecessary delays and large costs (Olawoyin, 2020). This confirms the image that Nigeria is a tough environment for investors to work in.

Covid-19

Despite the economic hardships and Covid-pandemic Nigeria was facing in 2020, the agricultural sector did fairly well, showing a growth of 1.7% in Q1-Q3. The growth of the agricultural industry relies for 90% on the production of crops like rice, maize, and cassava. The agriculture seems to be less affected by the pandemic than other sectors (World Bank, 2020a, p. 8). However, this growth was still lower than the same quarters in 2019, when agriculture grew with 2.4%. Covid is expected to have a relatively long-term and significant impact on Nigeria, with a financial crisis looming in the second half of 2021. Like in many other countries, the poorest, most vulnerable are hit especially hard by these effects (World Bank, 2020a, p. 8).

The Nigerian federal government used to have large grain reserves for emergency situations, in the form of the National Strategic Food Reserve (NSFR). In the beginning of 2020 these reserves consisted of about 100,000 MT, but Buhari decided to use 70,000 MT to soften the effects of the first Covid-induced lockdown (SB Morgen, 2020a). Another 30,000 MT was used earlier this year to fight the food shortage among the internally displaced persons (IDP) living in numerous camps across the country (PWC, 2020a, p. 14). Despite storage replacements, the NSFR only had 30,000 MT left in August 2020. The fear is that the government might not succeed in replacing the reserves as fast as they run out, with disastrous consequences for the Nigerians depending on this for their food supply (SB Morgen, 2020a; PWC, 2020a, p. 14).

The fragile food security situation and the threats that are imminent, are a constant worry for the Buhari administration. The country's food importer status is continuously straining the national budget and the dependency of oil causes insecurities. Therefore, the Nigerian government has decided to take on action and started to define several goals for the

agricultural sector, so that eventually this sector can make a larger contribution to food security.

The policies of the Nigerian federal government

As the threats to the food security are generally recognized by the Buhari administration, the government has formulated several goals and installed countless policies to help the agricultural sector takeoff and make a contribution to food security. However, this does not necessarily mean that the policies are working. This chapter takes a closer look at the role that the Nigerian government has taken on in trying to make the country more food secure, by analyzing the goals set and the policies installed.

Goals and challenges of the Nigerian government

The 2016 recession, caused by a decline in crude oil prices and the lack of diversification of FX earning sources in the economy, led the Nigerian government to take action on the economic state of the country. Because Nigeria did not have financial buffers to fall back on, and the national budget suffered under the effects of corruption and inefficient spending, the government was very limited in its capability to act. Nevertheless, a series of programs and policies were installed to better the economy (Ministry of Budget & National Planning, 2017, p. 10).

Buhari and his predecessors consider agriculture to be the way to make Nigeria food secure, and therefore focus on trying to launch the agricultural sector into development. To do this, the Nigerian Ministry of Agriculture and Rural Development has identified four goals for the Nigerian agriculture sector: Food Security, Import Substitution, Job Creation, and Economic Diversification. These objectives may have been defined at a federal level but in practice, it is considered an ongoing partnership with the state governments (Ministry of Agriculture and Rural Development, 2016, p. 12).

In addition, the Ministry of Agriculture and Rural Development has defined several challenges they see most important for Nigeria to resolve in order to achieve the four goals (Table 1). For every challenge, the Buhari administration has also defined mitigation. The agricultural policies installed are based on these principles defined in the mitigation to address the challenges and, eventually, achieve the goals.

Table 1. Challenges for Achieving the Government Goals for the Agricultural Sector

Challenges	Features	Mitigation
Policy Framework	The agricultural sector is unpredictable and unattractive for investors as a result of policy instability and a high turnover of programs and personnel.	The government should create a stable policy framework with a clear long-term vision.
Political Commitment	The government has not been committed to the implementation of international protocols and conventions.	In order to reform the agricultural sector, commitment at the federal and state level is crucial.
Agricultural Technology	The National Agricultural Research System (NARS) is failing in the generation and commercialization of new agricultural technologies in order to meet the needs of the market.	To address these shortcomings the NARS will need better coordination among their extension delivery system, the national agricultural research system and both the public and private sector agricultural input suppliers.
Infrastructure Deficit	Nigeria's infrastructure is often insufficient and not cost competitive, leading to added costs on the product prices for agricultural goods.	The country has a large need for the reconsidering of the business and operating model for the infrastructure used by the agriculture industry.
Finance and Risk Management	It is difficult for the agricultural sector to take on new technologies, improve market linkages, and protect itself against market and economic fluctuations, because of the little access to financial services.	In order to resolve this problem, the Nigerian government must focus on the innovation of financing systems.

<p>Institutional Reform and Realignment</p>	<p>The Nigerian system is not using the full potential of the federal and state agricultural institutions. Many of these institutions only exist on paper, but do not function in reality and the local governments are systematically overlooked.</p>	<p>Besides the streamlining of these mandate problems there is also a need for accountability for results.</p>
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Source: FMARD, 2016, p. 10,11

Translation of the federal goals into policy

Already in 1966, the Nigerian government started the Federal Ministry of Agriculture and Natural Resources, now known as the Federal Ministry of Agriculture and Rural Development (FMARD), with the aim to stimulate and support the agricultural sector (FMARD.gov/who-we-are). Since then, many policies, programs, and projects were initiated to help the struggling agricultural sector, with aims ranging from simply increasing the food production to introducing improved root varieties, to the support of rural women (Love, 2020).

In 2010 the Nigerian Government, under the rule of president Jonathan Goodluck, started the Agriculture Transformation Agenda (ATA) to reform the agriculture sector. The main idea was that agriculture is a business, that the policies should aim at the support of these businesses, and that the private sector should be the main driver of agriculture in order to make the agriculture sector sustainable. The goals were to create 3.5 million jobs, to increase FX revenue, and to decrease the imports of food by 2015 (FMARD, 2016, p. 5).

Because the ATA did not meet the goals and failed at making Nigeria food secure and decreasing the food imports, the Buhari administration decided to restructure the agriculture policies to achieve the goal of making Nigeria food secure (FMARD, 2016, p. 8).

The restructured agricultural policies mainly focus on the financial side of developing the agricultural sector. Table 2 gives an overview of the main policies aimed at agriculture, food security and food production of the Buhari administration.

Table 2. Agricultural Policies at the Federal Level

Policy	Goals/Aim	Features
Bank of Industry ³ (BOI), 2002	<ul style="list-style-type: none"> • Supporting the expansion and development of the Nigerian agricultural sector • Focus on development of SHFs 	<ul style="list-style-type: none"> - Supporting projects with a clear development aim (job creation, poverty reduction, etc.) - Providing access to funds for SHFs - Managing of foreign grants and aids - Setting up offices in all geo-political zones of Nigeria
Anchor Borrowers' Programme (ABP) ⁴ , 2016	<ul style="list-style-type: none"> • Boosting the production by SHFs • Creating a more stable and continuous supply for anchor companies • Lifting Nigeria's negative balance of payments on food 	<p>Paid for by the Micro, Small, and Medium Enterprise Development Fund (MSMEDF), which holds N220 billion. The included financial institutions can receive loans at 2% interest, while giving out loans to the agricultural partners at a maximum rate of 9%</p>

³ Bank of Industry, 2020

⁴ CBN, 2016; PWC, 2020b

<p>Agricultural Promotion Policy (APP)⁵, 2016</p>	<ul style="list-style-type: none"> • Meeting domestic food demand • Moving up the <i>Global Competitiveness</i> ranking 	<p><i>Productivity enhancement</i></p> <ul style="list-style-type: none"> - Access to land - Soil fertility - Storage - Marketing - Trading <p><i>Private sector investment</i></p> <ul style="list-style-type: none"> - Access to finance - Agribusiness investment development <p><i>FMARD institutional realignment</i></p> <ul style="list-style-type: none"> - Focus on youth and women - Infrastructure - Innovation - Climate smart agriculture
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⁵ PWC, 2020a; PWC, 2020b; FMARD, 2016

<p>Strategic Implementation Plan (SIP)⁶, 2016</p>	<ul style="list-style-type: none"> • Reducing corruption • Improving (national) security • Restoring and diversifying the economy • Moving up 20 places on the <i>Ease of Doing Business</i> ranking 	<ul style="list-style-type: none"> - Increasing transparency by reinforcing law and order and Integrity Campaigns - Extra attention and budget for the Fight Against Insurgency - Launch of the <i>Made in Nigeria</i> campaign to promote domestically produced goods - Implementation of a <i>Road Map</i> to promote private sector investments in tourism - Reforms of the oil and gas sector - Easing visa and license applications
<p>Government Enterprise and Empowerment Programme (GEEP)⁷, 2016</p> <ul style="list-style-type: none"> - Farmermoni - Tradermoni - Marketmoni 	<p>Farmermoni:</p> <ul style="list-style-type: none"> • Helping SHFs to overcome difficulties • Supporting SHFs during planting season <p>Tradermoni:</p> <ul style="list-style-type: none"> • Supporting small or market traders to make a living <p>Marketmoni:</p> <ul style="list-style-type: none"> • Helping small business owners to scale business 	<p><i>Farmermoni:</i></p> <ul style="list-style-type: none"> - Loan (interest free for 6-9 months) for SHFs in farming clusters or cooperatives - A guaranteed buyer of harvests that come from the loan - Long repayment period <p><i>Tradermoni:</i></p> <ul style="list-style-type: none"> - Loan (interest free for 6 months) for small traders (inventory max. worth: N2.000 – N5.000) - Long repayment period <p><i>Marketmoni:</i></p> <ul style="list-style-type: none"> - Loan (interest free for 6 months) for small businesses or market associations - Long repayment period

⁶ Ministry of Budget and National Planning; Budget Minister, Udoma, 2016

⁷ GEEP, 2016

<p>Economic Recovery and Growth Plan (ERGP)⁸, 2017</p>	<ul style="list-style-type: none"> • Establishing a knowledge-based economy with special attention to Science, Technology, and Innovation (STI) in line with the Sustainable Development Goals (SDG's) • Being self sufficient for tomato paste (in 2017), rice (in 2018), and wheat (2019/2020) • Making Nigeria net exporter of key agricultural commodities (cashew, cassava, rice) (in 2020) • Building on SIP 	<ul style="list-style-type: none"> - Enhancing and developing of the agricultural sector by promoting knowledge - Reforming of the tax system and fiscal policies to benefit the non-oil sectors - Saving FX for food imports - Investing to improve infrastructure - Focus on attracting private sector investments - Implementation of Special Economic Zones (SEZs) to support Small and Medium Enterprises (SMEs)
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⁸ Ministry of Budget and National Planning; PWC, 2020a; The State House, 2018

Presidential Economic Diversification Initiative (PEDI)* ⁹ , 2017	<ul style="list-style-type: none"> • Enhancing trade in agriculture 	<ul style="list-style-type: none"> - Supporting investments in the agricultural sector - Removing regulatory obstacles - Providing access to credit <p><i>*On this policy very little information can be found, therefore the discussion is limited to mentioning here only.</i></p>
Nigeria-Africa Trade and Investment Promotion Programme (NATIPP) ¹⁰ , 2018	<ul style="list-style-type: none"> • Facilitating the expansion of Nigeria-Africa trade and investment • Promoting economic integration of the African continent • By the Nigerian Export-Import Bank (NEXIM) 	<ul style="list-style-type: none"> - Providing financing and guarantees for trading between Nigeria and African countries - Instate the Country Export Programme (COEXPRO) to promote export - Supporting Nigerian multinationals operating in other African countries - Facilitating expansion of Export Trading Companies (ETCs) in Nigeria
Zero Reject Initiative ¹¹ , 2019	<ul style="list-style-type: none"> • Promoting “<i>Best Practices</i>” in food handling • Expanding export • Linking stakeholders and SHFs 	<ul style="list-style-type: none"> - Installing overseeing committee - Instating Nigerian Agricultural Export Control Plan (according to recommendations of the European Union (EU)) - Standardization of agricultural quality control nationwide - Raising awareness on chemical usage in agricultural production - Focus on reducing post-harvest losses

⁹ PWC, 2020b

¹⁰ NEXIM, 2019

¹¹ PWC, 2020b; FMARD, 2020

<p>Nigerian Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL)¹², 2019</p>	<ul style="list-style-type: none"> • Facilitating the flow of cheap and affordable financing for the agricultural sector • Redefining, measuring, re-pricing, and sharing the credit risks, related to agribusiness • Working with actors from the agricultural industry 	<p>A 500 million US\$ entity installed by the Nigerian Central Bank.</p> <p><i>Credit Risk Guarantee (CRG)</i></p> <ul style="list-style-type: none"> - Protection of financiers and investors in agriculture <p><i>Interest Drawback Scheme (IDB)</i></p> <ul style="list-style-type: none"> - Interest payment support scheme to lift some of the interest burden for borrowers <p><i>Agribusiness Modelling Service</i></p> <ul style="list-style-type: none"> - Optimizing value chains - Stabilizing cash flow - Maximizing financial returns of SHFs <p><i>Financing Frameworks</i></p> <ul style="list-style-type: none"> - Informing potential investors - Facilitating finance <p><i>Innovative Index-based Insurance Product Development</i></p> <ul style="list-style-type: none"> - Insurance products to cover farmers' yields - Life insurance - Support with practical liabilities <p><i>Comprehensive Field Monitoring</i></p> <ul style="list-style-type: none"> - Monitoring projects to help implementing - Tracking of farming results
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¹² NIRSAL-FMO, internal document; NIRSAL, 2020

<p>Bans on Foreign Exchange¹³, 2019 + 2020</p>	<p>In 2019:</p> <ul style="list-style-type: none"> • Improving food security • Stimulating domestic agricultural production <p>In 2020:</p> <ul style="list-style-type: none"> • Decreasing unemployment • Improving food security • Stimulating domestic agricultural production 	<p><i>In 2019:</i></p> <p>CBN no longer provides FX for the import of food</p> <p>Instead using the available FX for diversification of the economy</p> <p><i>In 2020:</i></p> <p>CBN no longer provides FX for the import of food and fertilizer</p>
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¹³ SB Morgen, 2019a; SB Morgen 2020b

From this list it becomes clear that the Buhari administration, in 2016 started off with quite an ambitious plan for the coming years. The government and the Ministry of Agriculture and Rural Development acknowledged in their report that this “transformation of the agriculture sector” is a long-term project embedded into the country’s economic growth trajectory (Ministry of Agriculture and Rural Development, 2016, p. 11).

Although the goals of the government are set up to serve diverse purposes: food security, import substitution, job creation, and economic diversification, the policies are mainly focused on import substitution. The drive to increase domestic production and the protective measures, like the bans on FX, both serve this goal. The idea might be that in practice this will lead to higher food security and in that way it will serve the goal, but the job creation and economic diversification goals are not well-represented in the structures of the policies.

As visible in the table, the policies follow each other in rapid succession and often they touch upon the same subjects. Time wise, it is remarkable that many of the policies are being installed in the year directly after, or coinciding with general elections: in 2016, after the 2015 elections, the ABP, the APP, the SIP, and GEEP, and in 2019 the Zero Reject Initiative, NIRSAL, and the bans of FX.

The policies often aim at providing access to finance, but at the same time, the policies often do not go into details on how they should function in reality and remain very vague, even when researched thoroughly. It is also striking that the policies are mainly focusing on SHFs, instead of trying to reach the advantages of economies of scale by convincing larger agricultural companies to step in. Perhaps this is linked to the goal of job creation, as the enlargement of agricultural actors might force some SHFs to move to different sectors or even out of a job. However, installing rural development policies could mitigate issues like these. By developing the rural areas of the country, SHFs can have alternative ways of generating income, other than farming. This will not only contribute to diversifying the economy, but also create space for the larger agricultural companies to step in, which, in its turn, will lead to the increasing of agricultural production.

However, It is problematic to adequately evaluate the effectiveness of many policies because they have large, vague, and long-term goals, such as “supporting SHFs” or “enhancing trade” and little measurable metrics. In addition, there is a lack of neutral sources and objective data, as the government itself presents most of the results and it is very hard to check these. This naturally leads to very diverse perspectives amongst the reporting actors.

The ERGP does have measurable metrics: “being self sufficient for tomato paste (in 2017), rice (in 2018), and wheat (2019/2020)” and “making Nigeria net exporter of key agricultural commodities (cashew, cassava, rice) (in 2020)”, but these goals have not been reached. In 2019, Nigeria was still importing tomato paste, rice, and wheat and, although the cashew exports have gone up, cassava (<0.1% total exports) and rice (0.03% of total exports) are not worth mentioning amongst Nigeria’s export products (OEC, 2019c; OEC, 2019d).

A frequently hear point of criticism is that the Buhari administration is acting sudden and sometimes even erratic with their agricultural policies. However, any form of critique is quickly eliminated or covered up. Some banks and economic experts disagreed openly with the bans on FX. In response to this, three CEOs of Nigerian banks (UBA, First Bank, and Sterling Bank), were pressured into giving up their seats in the Nigerian Economic Summit Group (NESG), as they were considered “*too critical*” and their banks were facing “severe consequences” if they did not resign (SB Morgen, 2020b).

Nonetheless, there are some positive results and actual contributions. Because of the ABP, multiple rice mills were put up in Kebbi State and more than one million (in)direct jobs were created (PWC, 2020a, p. 8). These results were confirmed by (independent) research by Tinuke and Joseph (2018) of the Macrothink Institute.

Due to the BOI, already over N193 billion has been invested into agricultural businesses and projects, with an estimated tripling of this number in the next few years, and around 73,000 Metric Tonnes (MT) in key crops were funded with its smallholder cluster financing initiative (PWC, 2020a, p. 9). Although the percentage of loans to the agricultural sector still is just a fraction of the other sectors, because of the involvement of the BOI even commercial banks are getting into the development of the domestic agriculture (PWC, 2020a, p. 9).

According to the NIRSAL project itself; their achievements have been tremendous. Training over 700,000 farmers and 2.600 employees of commercial banks, paying out 1.4 billion Naira in interest drawbacks to stimulate good borrower behavior, and creating over 590,000 direct jobs, by Q3 of 2020, are named as results of the NIRSAL program (NIRSAL, 2020, p. 13). The Guardian confirms that by the beginning of 2020, over 400,000 jobs were created, and N1.2 billion was paid out in interest drawbacks by the means of NIRSAL (Akeregha, 2020). These results are interesting, since NIRSAL is one of the most concrete policies that Buhari has carried out.

State level agricultural policies

Various Nigerian states are creating their own agricultural and food security policies within the framework of the Buhari administration's vision. Kebbi and Lagos state have entered into an “*interstate agricultural partnership*”. Supported by the ABP, the state governments managed to advance the varieties of rice, fertilizer applications and the development of the agricultural sector, leading to a tripling of the rice yield from 2.5 MT to almost 6 MT per hectare of rice paddy (PWC, 2020a, p. 10).

Another example of these state-led agricultural policies, is the Edo State Agripreneur Programme (EAP), supported by the CBN through the ABP. The goal of the EAP is to promote and develop the mechanization of the cultivation of grains by the agricultural sector in the state. The program is doing especially well since NIRSAL joined to lower the risk, making the Edo agricultural sector attractive to local and foreign investors. Through the EAP 17.000 jobs have been created for the citizens of Edo state (PWC, 2020a, p. 10; Edo State Government, 2019).

Interestingly enough, a state like Kano, where 61% of the economic activities is agriculture related, has no ongoing agriculture projects or programs according to the state government's website, which was last updated in 2018 (Kano State Government, 2018). However, Kano state does participate in the Dutch-Nigerian cooperation on agricultural education in Nigeria. In this project, the states of Lagos, Kano and Kaduna work with Dutch agencies to increase the levels of education with regards to agriculture (Hawkins & Sobukola, 2020, p. VIII).

What stands out, is that in nearly all of the policy briefings the perspectives of the producers seem to be missing. There are very positive experiences mentioned from farmers, who supposedly have benefitted from the specific policy, but nowhere does it state that the producers have been involved in the policymaking process. To fill this gap, this research will give a stage to the producers' perspectives.

Producers' perspectives: evidence from interviews

The Nigerian government has recognized the problems in the agricultural sector and surrounding the food security situation. Yet, hardly any improvements seem to have seen the light of day in the past few years. In this chapter therefore, the challenges of the agricultural sector and the food security situation are analyzed from the perspective of producers.

The interviewed companies (Table 3) were selected based on their varying experiences in varying sectors, so that several perspectives are represented and a complete overview can be given of the entire agricultural sector of Nigeria.

All of the interviewed companies were contacted through the FMO internship. They are all existing contacts of FMO, but do not have direct interests in participating in this research, nor were they obliged to cooperate because of their standing relationships with FMO. The literature used, besides books and articles, also consists of internal documents of FMO, reports obtained through FMO, and other materials that were part of the internship at FMO.

The respondents are being kept anonymous in the thesis version of this research to ensure the liberty to freely discuss government functioning during the interviews. Their names and information are known to the researcher and the thesis and internship supervisors.

The questions for the interviews were sent in advance, to give the interviewees an opportunity to prepare for the conversation. All interviews were done online via Microsoft Teams, Zoom, or via phone. Some interviews were recorded after asking for permission from the interviewee. Before publication, the interviewees will receive a copy of the final thesis to get their approval of the display of their responses.

Table 3. Overview of the Interviewed Companies

Company	Date of interview	Main Sector	Characteristics
Company 1	18-03-2021	Cassava	<ul style="list-style-type: none"> • Agricultural Service Company • Founded in the beginning of the 00's • Works with: SHFs • Oyo State • Extension services, technical services and consultancy and training. • Goal: improving the complete value chain of cassava by working with the newest techniques
Company 2	22-04-2021	Cassava	<ul style="list-style-type: none"> • Making global value chains sustainable, according to the Sustainable Development Goals • Works with: investors, governments,

			<p>banks, businesses, and SHFs</p> <ul style="list-style-type: none"> • Multiple states • Technical support to businesses that work with cassava, like training and supply of inputs • Goal: bringing SHFs together with cassava producers to integrate them into the supply chains
Company 3	17-03-2021	Rice	<ul style="list-style-type: none"> • Agricultural service company • Nigeria and other African countries • Works with: SHFs and small farming businesses • Training, inputs and access to markets • Focus on irrigation and digital solutions • SHFs stay in control over their harvests • Goal: contributing to food security and better life standards for the rural population
Company 4	14-04-2021	Horticulture - Tomato	<ul style="list-style-type: none"> • Agricultural services to farmers • Production plant for final product • Works with SHFs • Guaranteeing a fair and consistent price at harvest • Reducing waste and spoilage throughout the entire value chain • Goal: making tomato farming profitable and sustainable
Company 5	18-03-2021	Dairy	<ul style="list-style-type: none"> • Dairy company with roots as a cooperative of farmers • Multiple states • Works with SHFs, herders, businesses

			<p>and government</p> <ul style="list-style-type: none"> • Production, processing, packaging, marketing and distribution of its products in Nigeria
Company 6	11-05-2021	Maize	<ul style="list-style-type: none"> • Works with: SHFs, local cooperatives and buyers • Active in 5 Nigerian states • Supplying agricultural inputs, training and development to educate, access to market services, good storage, and increased profits • Goal: breaking the cycles of poverty and unemployment

What is interesting, is that a lot of the challenges that were mentioned by the interviewees overlap with the challenges identified by the Nigerian government. This again, raises the question of how it is possible that the sector has not taken off into development yet. One thing that all interviewees bring forward as a big hurdle is the implementation of the policies. In their eyes, the policies exactly address the challenges they face everyday, and when implemented right, the policies should support their sectors tremendously. Especially access to finance, land, and agricultural inputs are very much needed.

Next to the overlap however, there are also crop-specific lessons here. To analyze these in more detail, the discussion is structured around the major crops: cassava, rice, maize, dairy, and horticulture (tomato). To introduce each crop, every section will have an introduction on the specifics regarding the crop.

Cassava

Nigeria is the biggest producer of cassava in the world and with a yearly production of over 60 million tonnes, the country produces twice as much as the two runners-up: Thailand and the Democratic Republic of Congo (DRC) (Onoja, 2019, p. 61).

Cassava is a very suitable crop for Nigeria because it is drought-resistant and does well in nutrient-poor soils. Cassava is a crop that gives farmers a certain level of flexibility,

as the roots can be harvested at any moment in two years after six to 12 months after the planting (Kolawole, Agbetoye & Ogunlowo, 2010, p. 3681-3683). Although Nigeria has invested in the necessary infrastructure and increase of harvest areas, the average cassava production has been steady for decades, while other countries, like Thailand, have managed to increase their yields significantly over the years. This difference could be explained by the fact that, in Nigeria, cassava is mostly produced by SHFs, who have lower yields. The Cassava is grown for the roots and leaves and is used for human consumption, animal feed, fuel for cooking, and building materials. A lot of the cassava farming in Nigeria is meant solely for the household food security instead of being used for commercial ends (Onoja, 2019, p. 61-63). According to Kolawole et. al (2010, p. 3684) cassava could potentially form the solution for food insecurity in Nigeria, when the agricultural sector manages to improve the crop into one variety with multiple economic applications. In order to increase the production levels for cassava, improvements are needed in the harvesting and processing parts of the production process.

When doing an interview (Interview 1, 2021) with a cassava company in Oyo state, these things came to light as well. This company is working with SHFs and has their factory very close to the land their farmers work on. Because the business is so closely located to the suppliers, the SHFs can bring in their crop quickly after harvesting. This way it can be processed before it spoils. With the local government as well as with the state government, the company has warm relations. It is recognized as an important player and is considered a way to create development for Oyo state. The interviewee described their relationship as a symbiosis, where the company and the local government help each other develop. For example, when the company just started, and land was made available to them quickly by the local government (Interview 1, 2021).

However, growing cassava requires vast amounts of land, and, according to the interviewee, the company had to work hard and go back and forth a lot to get credit from the CBN, in order to expand the area of cultivated land, although the federal government is actively promoting the cassava sector. There seems to be an implementation gap between the government's goal to promote cassava and the CBN facilitating the credit to help the sector grow (Interview 1, 2021).

At the same time does practically all of the land, surrounding the factory, belong to the Nigerian government, but the current land policy prevents the company from acquiring this land to use it for their cassava production. Here the constraining issue seems to be the government itself (Interview 1, 2021).

Another challenge that the company is facing, is the fact that there is no long-term policy or vision on land clearance, making it very insecure whether or not they can keep expanding their production to meet demand (Interview 1, 2021).

The fact that cassava is a staple food in Nigeria, further poses a challenge. The competition between cassava as a food and as a raw material for industrial uses, is turning out negatively for the industry, as the food argument wins. This leaves non-food processors with unreliable supplies, forcing them to look for more reliable sources of cassava, which mostly ends in importing (Interview 2, 2021).

In the cassava sector, a lot of the labor is being done manually. According to the interviewee, this needs to change in order to increase, or even double, the yields. His focus is on mechanization and better agronomic practices, like fertilizer use (Interview 2, 2021).

From the second interview, another thing became clear: companies in Nigeria are not looking for the cassava itself, they are investing in derivatives of cassava, like ethanol, syrup, and starch, that are seen as apart from cassava and are imported on a large scale. However, because of several initiatives these companies are starting to try to focus on the cassava from Nigeria in order to get these derivatives, instead of importing (Interview 2, 2021).

Additionally, the government ban on FX in Nigeria is really affecting the sector. This strain of FX forces companies to look inwards for their cassava (derivatives) supply, because even if they have the money to import, there is no FX with which to pay for it. According to the interviewee, this is a great opportunity for Nigeria; if the country manages to work on the local supply, these companies will not have to go back to importing when FX becomes available again, but will stick with Nigerian produced cassava (derivatives) (Interview 2, 2021).

The fact that cassava is such a resilient crop makes it very suitable for Nigeria, and, where in countries like Tanzania, South Africa, and Mozambique, the cassava yields are negatively affected by climate change, this is not the case for Nigeria (yet). This creates an opportunity for Nigeria, when it manages to increase the yields, to fill the gap, created by climate change-induced decreasing yields from other cassava producing countries (Interview 2, 2021).

The interviewee described the relationship with both, the federal and local government, as practically non-existent: their focus is on trying to commercialize a sustainable business without the government, and although they are accountable to the federal government, they are not dependent on them and the whole operation is completely market-led (Interview 2, 2021).

Both interviewees considered the ban on exports of cassava and cassava products, by the federal government to support local consumption and production, to be very positive. It has helped to increase their businesses. For interviewee 1, the ban on FX has also enhanced the business and interviewee 2 sees a substantial opportunity in this, as has been discussed previously (Interview 1, 2021; Interview 2, 2021).

Interviewee 2 is aware of the standing government policies but sees that they are not being enforced. However, according to the interviewee, it is not only the lack of implementation that is a problem of the policies, also the fact that they are not commercially driven is a weakness. If the policies were commercially driven, they would be focusing on the competitiveness of the sector, because in competitive sector, a company that sees a business opportunity will grab it and in that way the sector will launch itself into development (Interview 2, 2021).

According to interviewee 1, in order to support the cassava sector, it is very important to make more land available, but also to introduce farmers to fertilizer use so that they can farm all-year round, even in the dry season. With the help of fertilizers, the interviewee believes that the yields in Nigeria can increase to a level where Nigerian farmers can compete with other cassava producing countries (Interview 1, 2021). However, according to interviewee 2, this is not enough, because if the farmers do not have access to finance, they will remain unable to buy this fertilizer, or make use of the mechanization possibilities, or any other development in agriculture. And, although the government has many policies on creating and providing access to finance, because of a lack of implementation, the farmers still cannot make use of this to increase their production and launch the cassava sector (Interview 2, 2021).

Rice

After maize and cassava, rice is the third most consumed staple good in Nigeria. The crop is cultivated all over the country in different agri-ecological zones, but the majority of production comes from the northwest of Nigeria. During the harvest season of 2018-2019, approximately 3.2 million hectares of farmland were cultivated for rice production (KPMG, 2019, p. 13). Globally, rice is produced with an average yield of 3 tonnes per hectare, but in Nigeria this is about 1.8 tonnes per hectare. In countries with highly developed rice sectors, even yields of up to 12 tonnes per hectare are seen (KPMG, 2019, p. 7, 14).

Although Nigeria is the second largest rice producer of the continent, the consumption exceeds the domestic production with roughly 2.4 million tonnes. To meet national demand, the country imports large amounts of rice from other rice producing countries, like Thailand, India, and the USA, costing nearly 1.3 billion US\$ per year (KPMG, 2019, p. 14).

Rice does not only function as a food security crop, where it feeds the farmers, but is also a large cash crop for them. An average Nigerian farmer sells approximately 80% of their rice harvest, while keeping the remaining 20% for their own consumption, making it the highest income generating crop for Nigerian farmers (KPMG, 2019, p. 13).

80% of Nigeria's rice is produced by SHFs, but large-scale players are upcoming. Large players could increase domestic production significantly because they produce at a larger scale and therefore can reduce costs, like irrigation (KPMG, 2019, p. 30). The fact that they only produce 20% of the total is due to several challenges the sector is facing. The inconsistent government policies on rice are slowing down the development of the sector. Frequent changes, like tariffs, are being made to the policies by the government. As was stated earlier, this volatility creates a rough investment climate and scares off any potential investors, who fear that their investments are not secure, making their returns uncertain (KPMG, 2019, p. 30).

The absence of adequate infrastructure, like roads and railways, is another key factor in explaining why the rice sector knows few large actors. Large-scale farms absolutely need this infrastructure to make their operations viable. When they have to invest large sums of money to be able to start up their value chain, this will lead to price increases, which makes them non-competitive (KPMG, 2019, p. 30).

As rice production requires a fair amount of capital and it takes a while to produce revenue, the access to capital is vital for the development of the sector. Financial service providers are hesitant with giving out credit for rice farming because of the low Nigerian yields and widespread lack of trust in the sector. Those who are willing to provide credit, do this at high interests and set unworkable conditions. The government policies to address the funding side of rice production are aimed at SHFs and not larger players (KPMG, 2019, p. 30).

According to interviewee 3, the biggest opportunities for the Nigerian rice sector lay in the increasing of yields and dry season farming. Even within Nigeria, there are large differences in yields; in Adamawa State, farmers have higher yields than in other parts of the country. These higher yields must be within reach for the rest of Nigeria as well, when the agronomic practices from Adamawa State are transferred. Dry season farming will help boost

the sector, not only because it will increase yields, but it will also create continuous revenues for farmers, as they will have two seasons to create this revenue. However, dry season farming will require an improvement of the agronomic practices, like fertilizer use and irrigation (Interview 3, 2021).

Where climate change was little to no concern for the interviewees in the cassava sector, it is a challenge for interviewee 3. It is affecting the business a great deal, but on the other hand, is also bringing an awareness to the farmers that rainy season farming is not as viable as dry season farming. The periods of prolonged drought between the beginning of the rainy season and the end, but also unexpected floods, cause the farmers to turn to the more predictable dry season farming. The way to control these factors, is by using irrigation (Interview 3, 2021).

In contrary to what people often think, irrigation does not necessarily has to be a capital-intensive operation. With modern techniques, like solar panels, tube wells, and industrial boreholes, affordable irrigation is within reach. The biggest cost of irrigation is petrol, but with the help of solar energy, this is no longer an issue. The panels and pumps can be paid off in two years, according to interviewee 3. Not only is this making farmers more resilient to climate change and clearing the path for dry season farming, it is also an opportunity for Nigeria to focus on green energy (Interview 3, 2021).

Probably the biggest challenge for the sector is the fact that the domestic rice production is not very competitive, both in price and in quality. And although the Nigerian borders have been closed to the import of rice for a long time, this is not solving the problem of competitiveness. And this is also where the dry season farming is coming in again: in order to be competitive, Nigerian farmers have to farm all year round, like their competitors in other countries. These competing countries also produce most of their inputs themselves, while Nigeria is importing most of the inputs needed for rice farming. To produce these inputs domestically, will have a direct impact on the price of rice (Interview 3, 2021).

According to interviewee 3, the major strength of the federal agricultural policies lays in the efforts of the CBN to provide access to finance the sector. However, the business community is not taking the full advantage of the government incentives and policies. Agricultural service companies should try to fill the gap between the government and the farmers, by using the federal policies and incentives to provide services to farmers. Because Nigeria is so dependent on SHFs, the advantages of economies of scale do not directly apply. Be that as it may, when agricultural service companies get in, the economies of scale can be

achieved. Therefore, a large part of the implementation of the government policies lies with these agricultural service companies (Interview 3, 2021).

In the opinion of interviewee 3, a practical thing that the Nigerian rice sector could really use from the federal government, is a stabilization of the FX policies. The federal government should do a lot more to demonstrate to foreign investors that the rice sector is a good investment and that it possible to take out your investment quietly. The volatility of the current FX policies is discouraging for foreign investors, who consider the Nigerian policies too unstable to rely on (Interview 3, 2021).

Dairy

Annually, Nigeria consumes approximately 1.3 billion tons of dairy products. Because of insufficient and low domestic production Nigeria is unable to meet this demand. Most of the domestically produced milk in Nigeria is meant for own-consumption by the farmers and their families, instead of for the market. Therefore, roughly 60% of the dairy products are imported and not produced in Nigeria, costing the country between 1.2 and 1.5 billion US\$ every year (Agrilinks, 2019; FAO, 2008b).

According to the Center for Nigerian Dutch Dairy Development (CNDDD), where farmers, Friesland Campina WAMCO, Dairy specialized scholars and government officials work together to further the development of the Nigerian dairy sector, the main challenges for the dairy sector are: the climate, the pastoral way of farming, the productivity per cow, a lack of infrastructure, and the unreliability of the power system (CNDDD, 2020).

Because of the hot and humid climate, there is very little grass for the cows to feed on, and the cows need this grass to produce milk. The Nigerian cattle breeds are very inefficient for milk production. For highly productive breeds of cows, like Dutch cows, this climate is too tough, and they would not survive very long. This, in combination with the pastoral way of farming, where cows have to walk long distances, causes the milk production in Nigeria to be stuck at 1-2 kg per cow per day, whereas in the Netherlands a cow produces an average of 24 kg per day (CNDDD, 2020; van Gelder, 2020).

After the cows have been milked, it is essential to transport the milk to a chilled facility as soon as possible. Because of the lack of adequate infrastructure in Nigeria, this is very difficult. Since milk has to be stored in a chilled facility, the unreliable power system is an enormous obstacle for the development of the dairy sector. If the power goes down once again, the entire store will spoil (CNDDD, 2020).

An additional problem with the dairy sector in Nigeria, is that it leads to conflicts and tensions. When the dry season starts, herders move to the south, because pasture becomes scarce in the north. They have done this for centuries, but nowadays they often run into settled farmers and their cultivated farmland. The herds feed on the farmland and this leads to conflict with the local farmers and their communities (Agrilinks, 2019). So far, the government seems to be unable to put a hold to this.

In an effort to support domestic production and to limit FX spending, the Central Bank of Nigeria (CBN) has added milk imports to the list of restricted goods for FX sales.

Interviewee 5 emphasizes the longstanding relation between the company and the Nigerian federal government. Nowadays, the company is in constant contact with both federal and local government and the relationship is considered warm. The company has several projects, for which the cooperation with the federal government is crucial. In these projects the government is responsible for providing practical elements of the value chain, like infrastructure, while the company takes on the training of farmers. Although the partnership now runs fairly smooth, initially this was not the case. The interviewee described struggles with getting the “*right*” person at the table, taking up valuable time from the company (Interview 5, 2021).

Because the Nigerian federal government has expressed a clear ambition to boost the takeoff of the domestic dairy production, the CNDDD is very important. In this platform, universities, dairy companies, and the federal government work together to realize the ambitions for the dairy sector (Interview 5, 2021).

The Nigerian government is specifically focusing on *backwards integration*, meaning that foreign dairy companies that are active in Nigeria are welcome, but those cannot solely run on imports; they are obliged to source part of their dairy locally. According to the interviewee, the Nigerian ambitions can be very high, while not always being realistic. Especially the government’s timeframe seems to be too optimistic (Interview 5, 2021).

The interviewee sees the biggest challenge for the sector in the milk production itself. Traditional milk cow varieties do not do well under the Nigerian circumstances and the majority of Nigerian cows are meat cows, therefore the production of milk is very low. The supply is not steady enough to keep the production lines running and that is why imports of milk powder are necessary. The hope is that with the help of the CNDDD, new cow varieties can be bred, in order to get the milk production in Nigeria going (Interview 5, 2021).

Besides the cow breeds, the interviewee identified the lack of knowledge and organization amongst farmers, as well as access to finance for farmers, as key challenges for

the Nigerian dairy sector. In order to tackle these issues, the company tries to set up cooperatives in which farmers are united. This way trainings and finance can be organized per group, instead of per farmer (Interview 5, 2021).

Additionally, the company is doing a pilot with farmers who have settled dairy farms after the European model, as opposed to the traditional Nigerian Fulani herdsman. However, the scale of this, within the full supply chain of the company remains small (Interview 5, 2021).

In order for the company to work well and contribute to the Nigerian dairy sector, security and safety is a big concern. The unrests in Nigeria make it difficult for the company to get the experts to where they are needed the most, in a safe way (Interview 5, 2021).

The bans on FX by the Nigerian government, have had a large impact on the company. Because the domestic supply is insufficient for the production line, the company is reliant on the import of milk from the world market. Due to the ban on FX, this was very difficult and costly. It has caused the company to slim down their Nigerian operations (Interview 5, 2021).

Instead of policies, this company would like to see the Nigerian government come up with practical solutions for their challenges, like infrastructure, safety, organization, and stability (Interview 5, 2021).

Horticulture – Tomato specialization

Horticulture is a subdivision of agriculture, which focuses on garden crops like fruits, vegetables, and plants. Often it is considered a hybrid form of domestic gardening and field agriculture at a commercial level (Synge, 2019). For this sector breakdown, the focus will be on the tomato industry in Nigeria, because of the large amounts of tomato paste consumed in Nigeria.

In Nigeria, tomatoes are mainly used for tomato paste for food. Nigeria is the second largest producer of tomato paste in Africa, but at the same time also the third largest importer of the continent. Every year 2.3 million tonnes of tomatoes are produced by roughly 200.000 farmers in Nigeria (PWC, 2018, p. 2). The Nigerian imports of tomatoes and tomato paste costs the country approximately 360 million US\$ every year (PWC, 2018, p. 7).

Large producers of tomatoes, with high yields, are countries like the Netherlands and Belgium, where yields are over 507 tonnes per hectare. In Nigeria farmers have extremely low yields of 3.91 tonnes per hectare (PWC, 2018, p. 4). Despite the fact that the area

cultivated for tomato production has increased drastically over the last decade, the yields remained low. Because the sector is not really developing and working with modern techniques, farmers often have to work with old seed varieties and are plagued by weeds and low soil fertility, causing the low yields (PWC, 2018, p. 6).

Tomatoes are very fragile goods and spoil quickly. Therefore a strong value chain is of vital importance, meaning that infrastructure must be of good quality as well as storage facilities. The dependency on imported tomato products makes Nigeria vulnerable to international price increases and threatens the national food security. In 2016, the outbreak of a major pest caused 80% of Nigerian tomatoes to go to waste and led to large troubles pricewise (PWC, 2018, p. 7).

When the tomatoes are harvested, there is a surplus in the market and farmers are unable to sell all of their tomatoes. So they start drying the tomatoes, out in the sun and everywhere, even along the side of the road. This leads to the high levels of wastage and therefore, causing a big challenge for the farmers who lose a lot of revenue (Interview 4, 2021).

According to interviewee 4, Kaduna State is the best state to grow tomatoes. Not only are the farmers very experienced with tomato farming, and the length of the dry season is optimal, but also the state government is very supportive. For this company, the state government of Kaduna has facilitated 500 hectares of land, helped with the relocation of the inhabitants of the farmland, and built a road for the transportation of the produce (Interview 4, 2021).

With a market that is as big as the Nigerian tomato market, where prices have gone up a 100% within the last five months, the potential of the sector is huge. However, because the Nigerian tomato paste is not price competitive with, for instance, the Chinese paste, it is very difficult to exploit this potential with domestically produced tomato paste. In the opinion of interviewee 4, in order to tackle this, the yields have to go up, to bring down the costs of farming per hectare (Interview 4, 2021). The federal government is restricting imports and has put high taxes on the imported tomato products. However, if the cost of production of Nigerian tomato does not go down, the domestically produced tomato paste will never become competitive (Interview 4, 2021).

One of the biggest challenges for the sector is the shortage of quality farmers, who have adopted new techniques, like irrigation. Most Nigerian tomato farmers use outdated irrigation systems that are inefficient. Nearly 50% of the irrigation water flows straight back into the water source, instead of into the fields. A modern and efficient irrigation

infrastructure is critical for the yield of tomato. In the eyes of interviewee 4, this is still a highly capital intensive operation, in contrary to what interviewee 3 said about irrigation in the rice sector (Interview 4, 2021; Interview 3, 2021). This is something where the federal government could come in, with policies directed at creating adequate irrigation infrastructure for farmers. The challenges of irrigation also form a constraint for farmers to scale up their farms and reach the advantages of economies of scale (Interview 4, 2021).

Interviewee 4 described the contact with the federal government as little, as the company is mostly in contact with state government, and this functions well. For instance, when the company needed a road to smoothen their value chain, the local government provided them with this, almost instantly (Interview 4, 2021).

To really boost the tomato sector, the interviewee would like to see the federal government focus on education. The knowledge of the academia does not translate to the farmer and therefore goes to waste, instead of supporting the farmers in increasing their yields with the knowledge of research institutes, universities, and pharmacies.

Additionally, there is a large implementation gap between the government policies and the reality of the farmers. The federal budget for agriculture is massive, but this is invisible in practice (Interview 4, 2021).

Maize

Maize is considered one of Nigeria's most important food crops and due to its resilient characteristics, is grown throughout the entire country. With 11.5 million tonnes produced in 2020, it is the largest produced cereal in Nigeria, of which 80% is produced by SHFs (FAO, 2021). At the same time, Nigeria has been importing 5 million tonnes of maize in 2020, showing that the domestic production lies far below the consumption levels (Indexmundi, 2021). The imported maize comes from countries like India, China, Argentina, Brazil, and the United States. The crop is very diverse in its use; and is used for food, animal feed, alcoholic beverages, cooking, fuel, soaps, and cosmetics (OEC, 2019a; OEC, 2019b). Drought and high rates of crop loss (15-20% of total production is lost due to poor quality input, humid storage conditions, manual deshelling, cleaning, and sorting) combined, has left Nigeria with one of the highest maize prices in sub-Saharan Africa. The price of maize rises steadily during the 12 months after harvest, until the next major harvest comes in the following year. The price will increase by 25% - 50% over the course of 12 months (FAO, 2021; Tam, 2021).

According to interviewee 6, the main challenges of the maize sector in Nigeria are the lack of access to finance for farmers, the difficulty of getting quality inputs, the insufficient knowledge of farmers, and the gap between farmer and market because of the lack of infrastructure, but also the fact that the SHFs have trouble getting their harvests to big, stable clients because they do not have the means, like marketing strategies or trade representatives (Interview 6, 2021).

To tackle the fact that many Nigerian farmers do not have access to adequate storage facilities, major marketing budgets, or the markets, company 6 takes on this part of the process. By doing this for large groups of farmers, company 6 is able to reach the advantage of economies of scale, making the process cheaper per farmer. In addition, the storage facilities of company 6 reduce the spoiling of the harvests significantly, making maize farming even more lucrative for SHFs.

According to interviewee 6, one of the biggest problems for Nigerian farmers is access to finance. Not only for SHFs to invest in their farms and to expand their business, but also for them overcome the period during harvest, when the cash flow pressure is most urgent. Since the Nigerian government (seemingly) is unable to support the farmers through these times, company 6 has set up a system of financial facilitation that provides farmers with the financial support that they need.

Although interviewee 6 sees climate change as a threat, it is also considered a problem that can be mitigated and adapted to. Options to mitigate climate change are to reduce crop burning and deforestation and to create an optimization of input use to move to more sustainable farming methods to reduce carbon emissions.

Besides the optimizing of farm businesses, interviewee 6 sees many opportunities to achieve food security and poverty reduction amongst SHF households in Nigeria, in increasing the income generating potentials of the family members of the SHFs, with a particular focus on women. This not only has a developing impact on the other members of the households, it makes the households less dependent on farming, so that if bad yields happen, they are not as catastrophic (Interview 6, 2021).

Conclusion

This research shows that the Nigerian government is trying to further develop the Nigerian agricultural sector and to address food insecurity in Nigeria. Many policy programs

have been instated and large budgets are being made available. These policies are based on the set goals of the federal government and seem to address the problems the country is facing.

However, from the literature research and the interviews, it becomes clear that these policies lack adequate implementation and do not always meet the (practical) needs of the sectors. The challenges defined by the Nigerian government and the challenges that emerge from the interviews share the same bases. Thus, the Buhari administration has seemingly grasped the right idea of what is going on and what is needed for the Nigerian agricultural sector, but somehow does not manage to adequately address these needs and challenges. The fact that the government has policy programs for the entirety of the agricultural sector, instead of per crop, leads to a general approach for specific sectors with specific needs. Therefore, all the good that they do in some sectors, is almost directly cancelled out by the negative effects that they have in others. Furthermore, the policies are too broad, vague and lack measurable metrics. This is what is making the evaluation of the efficiency of the policies difficult. However, the policies that do have measurable goals, have mixed results: the ERGP could be considered unsuccessful, whereas NIRSAL clearly has positive accomplishments.

The bans on FX have also seen mixed outcomes; for certain sectors it has been a blessing, but for others it has caused a lot of hardship. Additionally, the fact that these bans were installed and lifted quite sudden, created a very hostile and unstable environment for foreign investors.

In nearly all of the literature and interviews, the inaccessibility of finance for SHFs is described as a key element as to why the agricultural sector in Nigeria is not taking off. The problem of the Nigerian agricultural sector can be seen as a vicious cycle: because the farmers do not have access to credit, they cannot buy quality inputs, machinery, and knowledge. Because they are unable to afford these things, they cannot increase their yields and grow quality crops. Because they cannot increase their yields and grow quality crops, they are not competitive to foreign producers. Because they are not competitive, there is no room for growth, making them unattractive for financiers. This is remarkable, considering the fact that the majority of agricultural policies is focused on creating access to finance for farmers. This further strengthens the observation that the implementation of policy is a problem for the Buhari administration.

The interviewees all described similar challenges for their sectors and similar solutions, with some differences in the sector specific details. However, for the dairy sector

the case is somewhat diverse: there a radical change of the sector is needed. The industry needs to go from mobile herdsmen, to settled farmers who use new cow breeds, that are adapted to the Nigerian climate and are meant for dairy farming instead of meat. Besides this, the areas must be safe for the dairy companies to have their personnel transport the milk from the collection centers to the production facility. In the meantime, these dairy companies need access to FX to fill the shortage in their supply with imported milk to maintain their production lines. In short: the dairy sector needs a complete make-over, whereas the other sectors, like cassava and maize, mainly need practical support, such as fertilizer, or access to finance, to increase scale and yields, rather than a restructuring of the whole sector.

Given these evaluations, there are several recommendations to be made: more sector specific and targeted policies are needed in order to give the agricultural sector of Nigeria a push where and when it is necessary. These policies should not only target SHFs, but also emerging farmers, commercial farmers, cooperatives, and SMEs.

Besides targeted agricultural policies, the country could also benefit from policies with a focus on rural development. These policies should aim at developing rural areas by helping SHFs diversify into different sectors, including sectors outside the agriculture. In order to make room for land consolidation, the government could use the policies to give farmers an incentive to get out by creating social schemes or pensions or by giving them alternatives, like the opportunity to go into the manufacturing industry.

According to the interviewees, the best way to cooperate with government is to do so with local governments, who are, in some cases, able to provide support adjusted and adapted to the specific case in a specific sector. However, some interviewees pointed out that land policies and ownership can get in the way of expansion. The local or state governments should more actively try to support the federal policies by making land available.

In addition, as was put forward by interviewee 1, the problems with the land-ownership systems are also causing high levels of fragmentation and low productivity. The main issue with land ownership is that is a very sensitive topic, with sometimes many stakeholders involved. If farmers can acquire enforceable land titles, making sustainable investments in their land becomes more sensible. In addition, it would make it possible for farmers to sell their land to other farmers who want to scale up to reach the advantages of scale, to participate in land consolidation, or they could put up the land as collateral for a loan to invest in their farms.

Moreover, the need for practical support for the sector is high. Farmers need fertilizers, inputs, irrigation systems, infrastructure, and land, but also things like safety, knowledge, and stability in order to increase their yields. Investing in companies that provide these kinds of services or products will help the agricultural sector develop.

Finally, the Nigerian agricultural sector could really benefit from blended finance partnerships where several agencies and stakeholders work together. In this case Development Finance Institutions (DFI's) can get more actively involved by financing emerging agricultural SMEs, who have in-depth knowledge of their sector and the local situation, and whose company structures overcome many of the challenges Nigeria's agricultural sector faces.

Therefore, to answer the research question: *“How have Buhari's agricultural policies been received in the agricultural sector and what are the perceived challenges?”*, it can be said that the agricultural policies of the Buhari administration have been received in mixed ways. It is clear, that they do not sort sufficient effect and that the challenges for the Nigerian food security situation and the agricultural sector remain urgent and tough as before. The perceived challenges do, largely, align with the challenges identified by the Buhari administration. Hence, the main challenge should be identified as the implementation. If implemented correctly, the policies should address the challenges that all actors have mentioned and thus, it must be possible to address the food insecurity that Nigeria is facing, by increasing domestic agricultural production.

Since this research has focused on the perspective of increasing food security by the means of improvements in the agricultural sector, it did not go into depth on topics such as socio-demographic solutions. For future research, it would be recommended to take this into account as to be able to make an assessment of the food security challenges for Nigeria in its entirety.

Bibliography

- Abosedo, G. (2018, October 11). *Buhari's Fight against Corruption*. Control Risks.
<https://www.controlrisks.com/our-thinking/insights/buharis-fight-against-corruption>
- Adamolekun, L. (1991). Introduction: Federalism in Nigeria. *Publicus*, 21(4), 1–11.
<https://www.jstor.org/stable/3330307>
- African Development Bank Group (AFDB). (2020). *AFDB Socio Economic Database, 1960–2021 - Africa Information Highway Portal*.
<https://dataportal.opendataforafrica.org/nbyenxf/afdb-socio-economic-database-1960-2021?country=1000560-nigeria>
- Agrilinks. (2019, November 8). *Making a case for the development of the Nigerian dairy sector*. <https://www.agrilinks.org/post/making-case-development-nigerian-dairy-sector>
- Akeregha, I. (2020, February 21). *NIRSAL Facilitates N102b to Stimulate Agric, Creates 400,000 Jobs*. The Guardian Nigeria News - Nigeria and World News.
<https://guardian.ng/news/nirsal-facilitates-n102b-to-stimulate-agric-creates-400000-jobs/>
- Akinlo, A. E. (2012). How Important is Oil in Nigeria's Economic Growth? *Journal of Sustainable Development*, 5(4), 165–179. <https://doi.org/10.5539/jsd.v5n4p165>
- Akinyele, I. O. (2009, November). *Ensuring Food and Nutrition Security in Rural Nigeria: an Assessment of the Challenges, Information Needs, and Analytical Capacity* (No. NSSP007). International Food Policy Research Institute.
<http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/22824/filename/22825.pdf>
- Akinyoade, A., Dietz, T., & Foeken, D. (2013, November). *Agricultural dynamics and food security trends in Nigeria*. Overseas Development Institute, London.
<https://openaccess.leidenuniv.nl/bitstream/handle/1887/22942/ASC-075287668-3404-01.pdf?sequence=1>
- Anjande, G., & Aor, R. (2017). An Economic Analysis of Dutch Disease in Nigeria. *CARD International Journal of Management Studies, Business & Entrepreneurship*

- Research*, 2(1), 7590. https://www.researchgate.net/publication/328042388_An_Economic_Analysis_of_Dutch_Disease_in_Nigeria
- Attah, A. W. (2012). Food Security in Nigeria: the Role of Peasant Farmers in Nigeria. *African Research Review*, 6(4), 173–190. <https://doi.org/10.4314/afrrrev.v6i4.12>
- Bank of Industry. (2020). *Bank of Industry - About US*. <https://www.boi.ng/about-us/>
- Bates, R. H. (2014). *Markets and States in Tropical Africa: The Political Basis of Agricultural Policies* (1st ed.). University of California Press.
- Budget Minister, Udoma, U. (2016, May 12). *Overview and Strategic Implementation Plan of Nigeria 2016 Budget*. Via African Examiner. <https://www.africanexaminer.com/overview-and-strategic-implementation-plan-of-nigeria-2016-budget-by-budget-minister-udo-udoma/>
- Busari, K. (2019, May 15). Senator Calls for Population Control to Reduce Poverty in Nigeria. *Premium Times Nigeria*. <https://www.premiumtimesng.com/news/top-news/330100-senator-calls-for-population-control-to-reduce-poverty-in-nigeria.html>
- Center for Nigerian Dutch Dairy Development (CNDDD). (2020). *Dairy webinar* [Slides].
- Central Bank of Nigeria, Development Finance Department. (2016, December). *Anchor Borrowers' Programme Guidelines*. <https://www.cbn.gov.ng/out/2017/dfd/anchor%20borrowers%20programme%20guidelines%20-dec%20%202016.pdf>
- Clapp, J. (2017). Food Self-Sufficiency: making sense of it, and when it makes sense. *Journal of Food Policy*, 66, 88–96. <https://doi.org/10.1016/j.foodpol.2016.12.001>
- Dang, D. Y. (2013). Revenue Allocation and Economic Development in Nigeria: an Empirical Study. *SAGE Open*, 1–7. <https://doi.org/10.1177/2158244013505602>
- Diamond, L. (1982). Cleavage, Conflict, and Anxiety in the Second Nigerian Republic. *The Journal of Modern African Studies*, 20(4), 629–668. <https://www.jstor.org/stable/160342>
- Diamond, L. (1983). Class, Ethnicity, and the Democratic State: Nigeria, 1950 - 1966. *Comparative Studies in Society and History*, 25(3), 457–489. <https://www.jstor.org/stable/178624>

- Edo State Government. (2019, December). *Edo, NIRSAL target 17,000 jobs*.
<http://invest.edostate.gov.ng/2019/12/20/edo-nirsal-target-17000-jobs/>
- Federal Ministry of Agriculture and Rural Development (FMARD) -
<https://fmard.gov.ng/who-we-are/>
- Federal Ministry of Agriculture and Rural Development (FMARD). (2016, June). *The Agriculture Promotion Policy (2016-2020); Building on the Successes of the ATA, Closing Key Gaps*. https://fscluster.org/sites/default/files/documents/2016-nigeria-agric-sector-policy-roadmap_june-15-2016_final1.pdf
- Federal Ministry of Agriculture & Rural Development (FMARD). (2020). *The “Zero Reject” Initiative*. <https://fmard.gov.ng/zero-reject/>
- Food and Agriculture Organization of the United Nations (FAO). (1996). *Rome Declaration and Plan of Action*. <http://www.fao.org/3/w3613e/w3613e00.htm>
- Food and Agriculture Organization of the United Nations (FAO). (2006, June). *Policy Brief: Food Security*. http://www.fao.org/fileadmin/templates/faoitally/documents/pdf/pdf_Food_Security_Cocept_Note.pdf
- Food and Agriculture Organization of the United Nations (FAO). (2008a). *An Introduction to the Basic Concepts of Food Security*. <http://www.fao.org/3/al936e/al936e.pdf>
- Food and Agriculture Organization of the United Nations (FAO). (2008b). *Global Dairy Sector Status and Trends*. <http://www.fao.org/3/i1522e/i1522e02.pdf>
- Food and Agricultural Organization of the United Nations (FAO). (2015). *The State of Agricultural Commodity Markets. Food Self-Sufficiency and International Trade: a False Dichotomy?* <http://www.fao.org/3/i5222e/i5222e.pdf>
- Food and Agriculture Organization of the United Nations (FAO). (2018). *Small Family Farms Country Factsheet - Nigeria*. <http://www.fao.org/3/i9930en/I9930EN.pdf>
- Food and Agriculture Organization of the United Nations (FAO). (2020). *Nigeria at a glance*.
 FAO. <http://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/#:%7E:text=The%20sector%20faces%20many%20challenges,cost%20of%20farm%20inputs%20C%20poor>

- Food and Agriculture Organization of the United Nations (FAO). (2021, January). *FAO GIEWS Country Brief on Nigeria*.
<http://www.fao.org/giews/countrybrief/country.jsp?code=NGA>
- Garnett, T. (2014). Three Perspectives on Sustainable Food Security: Efficiency, Demand Restraint, Food System Transformation. What Role for Life Cycle Assessment? *Journal of Cleaner Production*, 73, 10–18.
- Government Enterprise and Empowerment Programme (GEEP). (2020). *GEEP / Marketmoni*. <https://www.geep.ng/marketmoni.html>
- Government Enterprise and Empowerment Programme (GEEP). (2020a). *GEEP / Farmermoni*. <https://www.geep.ng/farmermoni.html>
- Government Enterprise and Empowerment Programme (GEEP). (2020b). *GEEP / Tradermoni*. <https://www.geep.ng/tradermoni.html>
- Hawkins, R., & Sobukola, O. (2020, June). *Insight into Agricultural Education in Nigeria: a Scoping Study to Identify Potential Areas of NL Support*. Ministry of Foreign Affairs - The Netherlands. <https://www.rvo.nl/sites/default/files/2020/10/Insight-into-agricultural-education-in-Nigeria.pdf>
- Helleiner, G. K. (1964). The Fiscal Role of the Marketing Boards in Nigerian Economic Development, 1947–61. *The Economic Journal*, 74(295), 582–610.
<https://www.jstor.org/stable/2228298>
- Indexmundi. (2019, September). *Nigeria - Employment in agriculture (% of total employment) (modeled ILO estimate)*.
[https://www.indexmundi.com/facts/nigeria/indicator/SL.AGR.EMPL.ZS#:text=modeled%20ILO%20estimate\),Employment%20in%20agriculture%20\(%25%20of%20total%20employment\)%20\(modeled%20ILO%20estimate,value%20was%2036.38%20in%202019](https://www.indexmundi.com/facts/nigeria/indicator/SL.AGR.EMPL.ZS#:text=modeled%20ILO%20estimate),Employment%20in%20agriculture%20(%25%20of%20total%20employment)%20(modeled%20ILO%20estimate,value%20was%2036.38%20in%202019)
- Indexmundi. (2021). *Nigeria Corn Imports by Year (1000 MT)*.
<https://www.indexmundi.com/agriculture/?country=ng&commodity=corn&graph=imports>

- International Crisis Group. (2018, June). *Stopping Nigeria's spiralling Farmer-Herder Violence* (No. 262). <https://d2071andvip0wj.cloudfront.net/262-stopping-nigerias-spiralling-farmer-herder-violence.pdf>
- International Republican Institute. (2020). *The Role of Political Parties in Nigeria's Fledgling Democracy*. https://www.iri.org/sites/default/files/iri-policybrief-nigeria_political_party.pdf
- Jaiyesimi, S. (2019, September 11). *Nigerian Tribunal upholds President Buhari's Reelection*. Deutsche Welle. <https://www.dw.com/en/nigerian-tribunal-upholds-president-buharis-reelection/a-50385411>
- Kano State Government. (2018, June 7). *Kano Economy*. Kano. <https://www.kanostate.gov.ng/?q=economy>
- Kemi, A. O. (2019). Nigeria's Economy Challenges: Causes and Way forward. *Journal of Economics and Finance*, 10(2), 78–82. <https://doi.org/10.9790/5933-1002017882>
- Kolawole, P. O., Agbetoye, L., & Ogunlowo, S. A. (2010). Sustaining World Food Security with Improved Cassava Processing Technology: The Nigeria Experience. *Sustainability*, 2(12), 3681–3694. <https://doi.org/10.3390/su2123681>
- KPMG. (2019, October). *Rice Industry Review - Nigeria*. <https://assets.kpmg/content/dam/kpmg/ng/pdf/audit/rice-industry-review.pdf>
- Legwegoh, A. F., & Sneyd, L. Q. (2015). Food Politics: Perspectives on Food Security in Central Africa. *Journal of Contemporary African Studies*, 33(1), 141–161. <https://doi.org/10.1080/02589001.2015.1021212>
- Lewis, P., & Kew, D. (2015). Nigeria's Hopeful Election. *Journal of Democracy*, 26(3), 94–109. <https://doi.org/10.1353/jod.2015.0039>
- Love, C. (2020, August 28). *Impact Of Selected Agricultural Policies And Intervention Programs In Nigeria – 1960 Till Date*. IR Global. <https://www.irglobal.com/article/impact-of-selected-agricultural-policies-and-intervention-programs-in-nigeria-1960-till-date/>
- Matemilola, S., & Elegbede, I. (2017). The Challenges of Food Security in Nigeria. *Open Access Library Journal*, 4, 1–22. <https://doi.org/10.4236/oalib.1104185>

- McWilliams, O. R. R., & Vincent, E. A. (2016). Analysis of President Buhari's Anti-Corruption Policy: a Reality or Illusion? *International Journal of Advanced Academic Research*, 2(11), 77–88.
- Ministry of Budget & Planning. (2017, February). *Economic Recovery & Growth Plan 2017-2020*. https://nigeriaembassygermany.org/mosaic/_M_userfiles/Economic-Recovery-Growth-Plan-2017-2020.pdf
- Minot, N., & Pelijor, N. (2010). *Food Security and Food Selfsufficiency in Bhutan*. Swiss Agency for Development and Cooperation (SDC).
<http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/129187/filename/129398.pdf>
- Mu'azu, A., Wategire, B., & Anthony, A. (2020, November). *Cadre Harmonize Result for Identification of Risk Areas and Vulnerable Populations in Fifteen (15) Northern States and the Federal Capital Territory (FCT) of Nigeria*. Food and Agriculture Organization of the United Nations (FAO).
https://fscluster.org/sites/default/files/documents/nigeria_ch_fiche_october-2020-final-23-11-2020.pdf
- National Bureau of Statistics (NBS). (2016 - 2020). *Nigerian Foreign Trade Statistics*.
[https://nigerianstat.gov.ng/elibrary?queries\[search\]=foreign%20trade%20statistics](https://nigerianstat.gov.ng/elibrary?queries[search]=foreign%20trade%20statistics)
- National Bureau of Statistics (NBS). (2020, May). *2019 Poverty and Inequality in Nigeria*.
- National Bureau of Statistics (NBS). (2021, February). *Consumer Price Index | January 2021*.
- Nations Online Project (2020). *Nigeria - Country Profile*. Nations Online Project.
<https://www.nationsonline.org/oneworld/nigeria.htm>
- Nigeria Export Import Bank (NEXIM). (2019, September 26). *Nigeria-Africa Trade and Investment Promotion Programme*. Nigeria Export Import Bank.
<https://neximbank.com.ng/nigeria-africa-trade-and-investment-promotion-programme/>
- NIRSAL. (2020). *Corporate Profile*. <https://nirsal.com/wp-content/uploads/2021/04/NIRSAL-PLC-COMPANY-PROFILE-min.pdf>
- NIRSAL-FMO. Internal Document.

- Nordea Trade Portal. (2021). *The economic context of Nigeria*. Nordeatrade.Com.
<https://www.nordeatrade.com/en/explore-new-market/nigeria/economical-context>
- Observatory of Economic Complexity (OEC). (2019a). *OEC - Nigeria (NGA) Exports, Imports, and Trade Partners*.
<https://oec.world/en/profile/country/nga?depthSelector1=HS6Depth&tradeScaleSelector1=tradeScale0&yearSelector1=exportGrowthYear24&yearSelector2=importGrowthYear6>
- Observatory of Economic Complexity (OEC). (2019b). *Where does Nigeria import Corn from? (2019)*.
https://oec.world/en/visualize/tree_map/hs92/import/nga/show/21005/2019/
- Observatory of Economic Complexity (OEC). (2019c). *What does Nigeria import? (2019)*.
https://oec.world/en/visualize/tree_map/hs92/import/nga/all/show/2019/
- Observatory of Economic Complexity (OEC). (2019d). *What does Nigeria export? (2019)*.
https://oec.world/en/visualize/tree_map/hs92/export/nga/all/show/2019/
- Ogunjuyigbe, P. O., & Bamiwuye, S. O. (2013). The Politics of Census in Nigeria: the Case of 2006 National Census. In Obiyan, A. S., & Amuwo, K. (Ed.), *Nigeria's Democratic Experience in the Fourth Republic since 1999* (pp. 255–266). University Press of America.
- Okoli, J. N., & Ifeakor, A. C. (2014). An Overview of Climate Change and Food Security: Adaptation Strategies and Mitigation Measures in Nigeria. *Journal of Education and Practice*, 5(32), 13–20. <https://core.ac.uk/download/pdf/234636503.pdf>
- Olawoyin, O. (2020, August 5). *EXPLAINER: Five Reasons why Shoprite is Leaving Nigeria*. Premium Times Nigeria. <https://www.premiumtimesng.com/news/top-news/406768-explainer-five-reasons-why-shoprite-is-leaving-nigeria.html>
- Onah, E. I. (2014). Nigeria: A Country Profile. *Journal of International Studies*, 10, 151–162.
<https://ir.unilag.edu.ng/jspui/bitstream/123456789/8136/1/7.pdf>
- Onoja, A.O. (2019) Economic Benefits from Cassava in Peri-Urban Multiple-Cropping Systems in Nigeria. (pp. 61-77) in Simelton, E., & Ostwald, M. (2019). *Multifunctional Land Uses in Africa: Sustainable Food Security Solutions (Earthscan Food and Agriculture)* (1st ed.). Routledge, London/New York.

- Onuoha, F. C., Ichite, C. M., & George, T. A. (2015, September 21). *Political, Economic and Security Challenges Facing President Buhari*. Al Jazeera Center for Studies. <https://studies.aljazeera.net/en/reports/2015/09/20159214572746450.html>
- Owoo, N. S. (2020). Demographic Considerations and Food Security in Nigeria. *Journal of Social and Economic Development*, 1–40. <https://doi.org/10.1007/s40847-020-00116-y>
- Pilling, D. (2020, October 28). *Nigeria at 60 has yet to reach its Potential*. Financial Times. <https://www.ft.com/content/820f9088-2ba4-446b-bcd7-eeafbdf08416>
- PWC. (2018). *X-raying the Nigerian Tomato Industry: Focus on reducing Tomato Wastage*. <https://www.pwc.com/ng/en/assets/pdf/nigeria-tomato-industry.pdf>
- PWC. (2019). *Unlocking Nigeria's Agricultural Exports*. <https://www.pwc.com/ng/en/assets/pdf/unlocking-ngr-agric-export.pdf>
- PWC. (2020a, June). *Responding to the Impact of COVID-19 on Food Security and Agriculture in Nigeria*. <https://www.pwc.com/ng/en/assets/pdf/impact-covid19-food-security-nigeria.pdf>
- PWC. (2020b, September). *Current State of Nigeria Agriculture and Agribusiness Sector*. <https://www.pwc.com/ng/en/assets/pdf/afcfta-agribusiness-current-state-nigeria-agriculture-sector.pdf>
- SB Morgen. (2017, November 6). *Daily Watch – 4.8m Nigerians face looming food crisis, Diamond to focus on home*. SBMintel.Com. <https://www.sbmintel.com/2017/11/daily-watch-4-8m-nigerians-face-looming-food-crisis-diamond-to-focus-solely-on-home/>
- SB Morgen. (2018, September 24). *Daily Watch – Floods to fuel food inflation, MTN & Telkom mull merger*. SBMintel.Com. <https://www.sbmintel.com/2018/09/daily-watch-floods-to-fuel-food-inflation-mtn-telkom-said-to-mull-merger/>
- SB Morgen. (2019a, August 14). *Daily Watch – Buhari restricts food imports, FG blames unions for delayed wage increase*. SBMintel.Com. <https://www.sbmintel.com/2019/08/daily-watch-fg-blames-unions-for-minimum-wage-delay-nigeria-siemens-deal-to-cost-more-than-%E2%82%A61-15tn/>

- SB Morgen. (2019b, August 23). *Cashew, as an example of Nigeria's unrealized potential in agriculture*. SBMintel.Com. <https://www.sbmintel.com/2016/08/cashew-as-an-example-of-nigerias-unrealised-potential-in-agriculture/>
- SB Morgen. (2020a, August 12). *Daily Watch – Food crisis looms, Ondo inaugurates Amotekun*. SBMintel.Com. <https://www.sbmintel.com/2020/08/daily-watch-food-crisis-looms-ondo-inaugurates-amotekun/>
- SB Morgen. (2020b, September 10). *Daily Watch – Buhari orders forex freeze on food imports, Azura on verge of default*. SBMintel.Com. <https://www.sbmintel.com/2020/09/daily-watch-buhari-orders-forex-freeze-on-food-imports-azura-on-verge-of-default/>
- Schwab, K. (2019). *The Global Competitiveness Report*. World Economic Forum. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf
- Suberu, R. (2009). Federalism in Africa: the Nigerian Experience in Comparative Perspective. *Ethnopolitics*, 8(1), 67–86. <https://doi.org/10.1080/17449050902738846>
- Synge, P. M. (2019). *Horticulture | Definition, Types, Techniques, & Uses*. Encyclopedia Britannica. <https://www.britannica.com/science/horticulture>
- Tade, O. (2021, March 7). *Why Buhari's Government is Losing the Anti-Corruption War*. The Conversation. <https://theconversation.com/why-buharis-government-is-losing-the-anti-corruption-war-155488>
- The Economist. (2020). *Global Food Security Index (GFSI)*. <https://foodsecurityindex.eiu.com/Country/Details#Nigeria>
- The State House. (2018, January 30). *Economic Recovery and Growth Plan*. The Statehouse, Abuja. <https://statehouse.gov.ng/policy/economy/economic-recovery-and-growth-plan/>
- Tinuke, B. B., & Joseph, A. A. (2018). The impact of Anchor Borrower Programme on Poverty Alleviation in Argungu Local Government Area of Kebbi State. *Journal of Public Administration and Governance*, 8(4), 239–249. <https://doi.org/10.5296/jpag.v8i4.14049>
- Transparency International. (2019, November 25). *Nigeria*. Transparency.Org. <https://www.transparency.org/en/countries/nigeria#>

- Transparency International. (2021). *Corruption Perceptions Index 2020*.
https://images.transparencycdn.org/images/CPI2020_Report_EN_0802-WEB-1_2021-02-08-103053.pdf
- United Nations (UN) Department of Economic and Social Affairs. (2019, August).
Probabilistic Population Projections based on the World Populations Prospects 2019. <https://population.un.org/wpp/Download/Probabilistic/Population/>
- USAID. (2020, September 22). *Agriculture and Food Security*. Usaid.Gov.
<https://www.usaid.gov/what-we-do/agriculture-and-food-security>
- van Gelder, K. (2020, September 7). *Average Milk Yield per Cow in the Netherlands 2000–2019*. Statista. <https://www.statista.com/statistics/1097599/average-milk-yield-per-cow-in-the-netherlands/>
- van der Ploeg, F. (2011). Natural Resources: Curse or Blessing? *Journal of Economic Literature*, 49(2), 366–420. <https://jstor.org/stable/23071620>
- Von Braun, J., & Paulino, L. (1990). Food in Sub-Saharan Africa: Trends and Policy Challenges for the 1990's. *Journal of Food Policy*, 15(6), 505–517.
https://pdf.usaid.gov/pdf_docs/PNABH831.pdf
- World Bank. (2019a). *GDP per capita growth (annual %) - Nigeria | Data*.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=NG>
- World Bank. (2019b). *Population, total - Nigeria | Data*.
<https://data.worldbank.org/indicator/SP.POP.TOTL?locations=NG>
- World Bank. (2019c). *Ease of Doing Business - Ranking*.
<https://www.doingbusiness.org/en/rankings>
- World Bank. (2019d). *Employment in agriculture (% of total employment) (modeled ILO estimate) - Nigeria | Data*.
<https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=NG>
- World Bank. (2019e). *Rural population (% of total population) - Nigeria | Data*.
<https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=NG>

World Bank. (2020a, December). *Rising to the Challenge: Nigeria's Covid Response*.
<http://documents1.worldbank.org/curated/en/152691607607461391/pdf/Rising-to-the-Challenge-Nigerias-COVID-Response.pdf>

World Bank. (2020b). *Nigeria - Overview*.
<https://www.worldbank.org/en/country/nigeria/overview>

World Economic Forum (WEF). (2020). *The Global Competitiveness Report - Special Edition 2020*.
http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf