

Policy Dialogue

The role of governments in developing agriculture value chains

2019



Case study
2

**Rice and cassava
value chains**

#MoreThanJustCrops



CONNECT • SHARE • REFORM

Acknowledgements

This publication was prepared by the Collaborative Africa Budget Reform Initiative.

It was written by Kit Nicholson with guidance and inputs from Joana Bento and Shanaz Broermann from the CABRI Secretariat.

For information on the Collaborative Africa Budget Reform Initiative, or to obtain copies of this publication, please contact:

CABRI Secretariat
Cnr John Vorster & Nellmapius Drive
Centurion, 0062
South Africa
www.cabri-sbo.org

Design and layout by Leith Davis
Editing by Laurie Rose-Innes

This publication was funded by the African Development Bank. The findings and conclusions do not necessarily reflect their positions or policies.



AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE
DE DEVELOPEMENT

Contents

1 Introduction	5
2 Value-chain maps for rice and cassava	7
3 Demand for staple crops	9
4 Markets and prices for rice and cassava	11
5 Production of rice and cassava	15
6 Co-ordination	19
7 Lessons and key issues for Dialogue	21
<i>References</i>	23

Tables, figures and boxes

Tables

Table 1: Constraints and opportunities for cassava processing and marketing in Nigeria	13
Table 2: Constraints and coping strategies for cassava producers in Nigeria	16

Figures

Figure 1a: Cassava and rice value-chain maps for Nigeria	7
Figure 1b: Rice value-chain maps for Nigeria	8
Figure 2: Major food crop consumption (kcal per capita), 2007–2009	9
Figure 3: Cassava demand	10
Figure 4: Rice production, imports, consumption and producer prices	10
Figure 5: Producer prices of cassava and rice (USD/ton) in West African countries	11
Figure 6: Nominal rates of protection for rice, 2005–2016	12
Figure 7: Cassava and rice production in Nigeria	15

Boxes

Box 1: Methods used for the case study	6
Box 2: The ERGP and Anchor Borrowers' Programme	14
Box 3: ATASP-1	17
Box 4: VCDP	18
Box 5: APPEALS	20

Acronyms and abbreviations

APP	Agricultural Promotion Policy
APPEALS	Agro-Processing, Productivity Enhancement and Livelihood Improvement Support Project
ATA	Agricultural Transformation Agenda
ATASP	ATA Support Programme
CAADP	Comprehensive Africa Agriculture Development Programme
ERGP	Economic Recovery and Growth Programme
FMARD	Federal Ministry of Agriculture and Rural Development
HQCF	high quality cassava flour
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture
PFM	public financial management
VC	value chain
VCA	value-chain approach
VCD	value-chain development
VCDP	Value-Chain Development Programme
VCD	value-chain development



Africa has abundant arable land and labour which with sound policies could be translated into increased production, incomes and food security. This has not materialized because of lack of consistent policies and/or effective implementation strategies.

(Memfi 2015: 71)



1 Introduction



Objective of the Dialogue. This case study has been prepared for the CABRI Dialogue on Value for Money in Agricultural Spending.¹ The dialogue focuses on the implications for public financial management (PFM) of taking a value-chain approach (VCA). As with other CABRI dialogues, the objective is to bring together officials from ministries of finance and relevant government institutions to share their country's experience in an environment of peer learning and exchange. This case study considers rice and cassava, as examples of domestically consumed crops. A second case study considers cashews as an example of an export crop. A third considers the PFM issues arising from a VCA.

Importance of agriculture. Agriculture provides the majority of employment in most African countries and is often given a high priority in development strategies. Most models of development expect growth in other sectors to be faster than in agriculture, but growth in agricultural productivity in Africa has been disappointing and below what is found in other regions. The reasons for this include: small farm size; limited access to input supplies; crop market failure; challenges with rural financial services; government bureaucratic red tape; poor roads and irrigation infrastructure; emigration of rural labour; and difficult soils and climate, exacerbated by climate change.

Role of government. The role of the government in African agriculture is complex. Research, extension, information services, quality control, public infrastructure and trade policy are managed mostly by the government. In many countries, there is little private sector engagement in agriculture, and the government is filling the gaps in input supply, crop marketing and financial services. Providing this support while also creating space for the private sector to enter the market is a challenging task for policy-makers.

Most African countries have signed the Comprehensive Africa Agriculture Development Programme (CAADP), which provides a common framework for agricultural transformation. There are, however, constraints in budget allocation and challenges in executing the indicative budget allocations that have been agreed upon, because of a lack of revenue, capacity constraints and issues of co-ordination amongst funders. These challenges are often severe in agriculture

because of issues of seasonality and uncertainty and the large number of small-scale market actors, including farmers.

Value-chain approach. The importance of taking an integrated approach to agriculture has been recognised for over 50 years. Using a VCA has become increasingly popular in recent decades. The VCA builds on experience with integrated approaches and adds a specific focus on the profitability of all actors in the chain and the need to respond dynamically to changes in the market. One popular version of a VCA is the 'Making Markets Work for the Poor' (M4P) approach.

Advantages of a VCA. A VCA takes a comprehensive view of the whole chain and ensures that any blockages in it are resolved and do not limit growth. It reviews the full range of policy and investment needed and the prioritisation of each intervention. The requirement of assessing incentives involves methods that are similar to those used by the private sector and, consequently, builds partnerships.

Challenges of a VCA. Using a VCA involves a range of policies and investments that need to be carefully prioritised and sequenced. It requires collaboration amongst several public institutions and with the private sector. Parastatal institutions may also be involved. These institutions often have overlapping interests and are reluctant to relinquish responsibilities. While the analysis used in a VCA diagnosis bridges the public and private sector, the objectives, decision-making and language of the public and private sectors are different and also need to be traversed. VCAs are often applied to specific crops, and governments, thus, must take great care in selecting successful crops.

Objectives of the case study. This case study describes the rice and cassava value chains in Nigeria. It aims to identify the main constraints and provides examples of programmes for value-chain development (VCD). It aims to compare the broader lessons for policy and programmes in respect of domestic staple crops, with particular emphasis on productivity, processing, distribution and marketing. The study also considers the difference between the rice and cassava VCs, and the implications of this for the policy response, thereby illustrating the importance of country-specific factors and VC context.

1 This introduction provides a brief summary of the background paper prepared for the dialogue.

Box 1: Methods used for the case study

The study reviews the available literature on VCA for rice and cassava, with particular reference to work in Nigeria. Secondary data sources are used for production and prices. Primary data was collected through semi-structured interviews.

The study interviewed eight key informants in Abuja in late February 2019.² The interviews followed a semi-structured format starting with two introductory questions on the VCA. Interviews then covered seven targeted policy responses, with the option of discussing four standard aspects of each policy (i.e. constraints, policies, effectiveness and institutions).

In addition, the case study considers project documents for four large agricultural programmes that have adopted a VCA, each with a budget of at least USD150 million. There are many smaller programmes, some of which adopt innovative approaches to VCD.



Agriculture provides the majority of employment in most African countries and is often given a high priority in development strategies. Most models of development expect growth in other sectors to be faster than in agriculture, but growth in agricultural productivity in Africa has been disappointing and below what is found in other regions.

2 Deputy Director, Agro Processing Support Services, Federal Ministry of Agriculture and Rural Development (FMARD); a smallholder farmer and micro-processor; President, Nigeria Cassava Association; Technical Adviser to the Minister, FMARD; Cassava Desk Officer, FMARD; International Institute of Tropical Agriculture (IITA) Country Manager; International Fund for Agricultural Development (IFAD) Value Chain Development Programme (VCDP) Manager; Senior Special Assistant to the President, Economic Recovery and Growth Plan (ERGP).

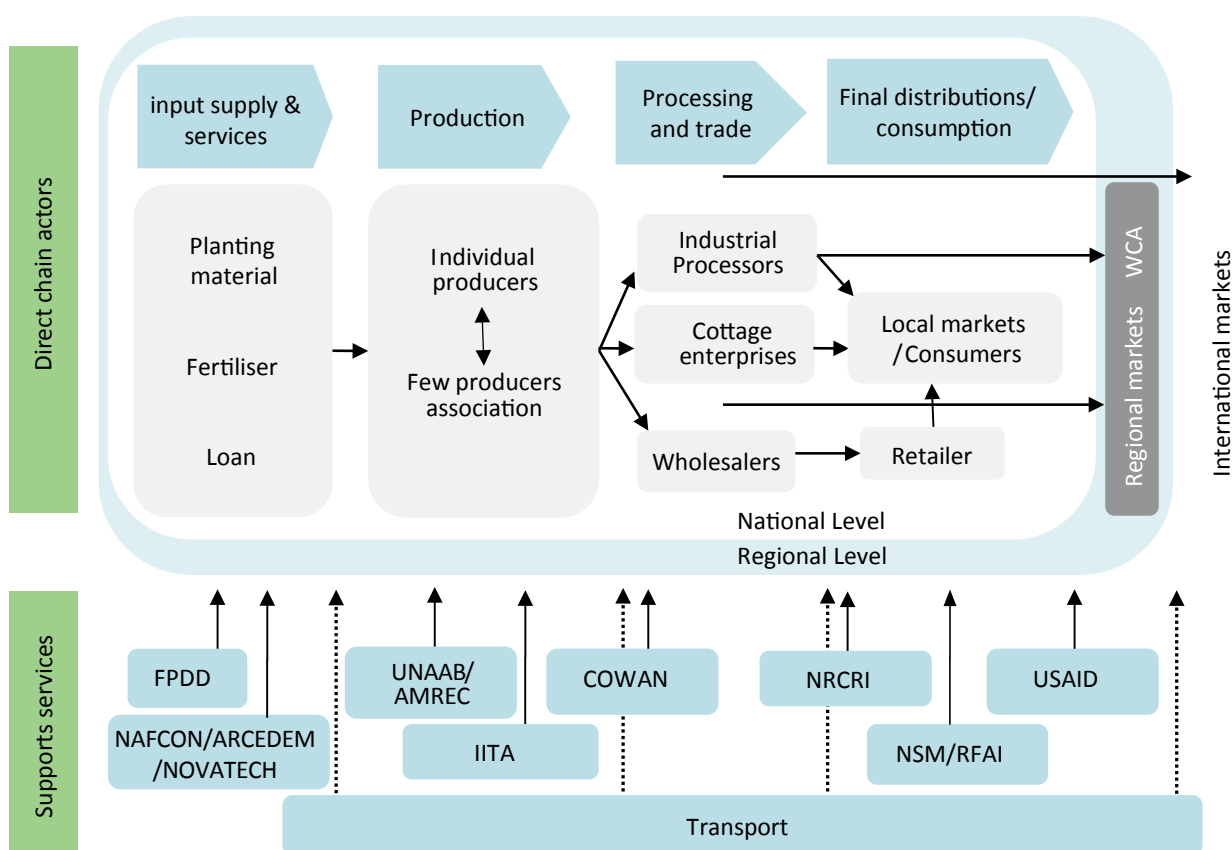
2 Value-chain maps for rice and cassava



There is no standard approach to the scope of VC maps. Two studies of the same VC maps may produce different results, depending on the focus and scope of the study. Figure 1a and

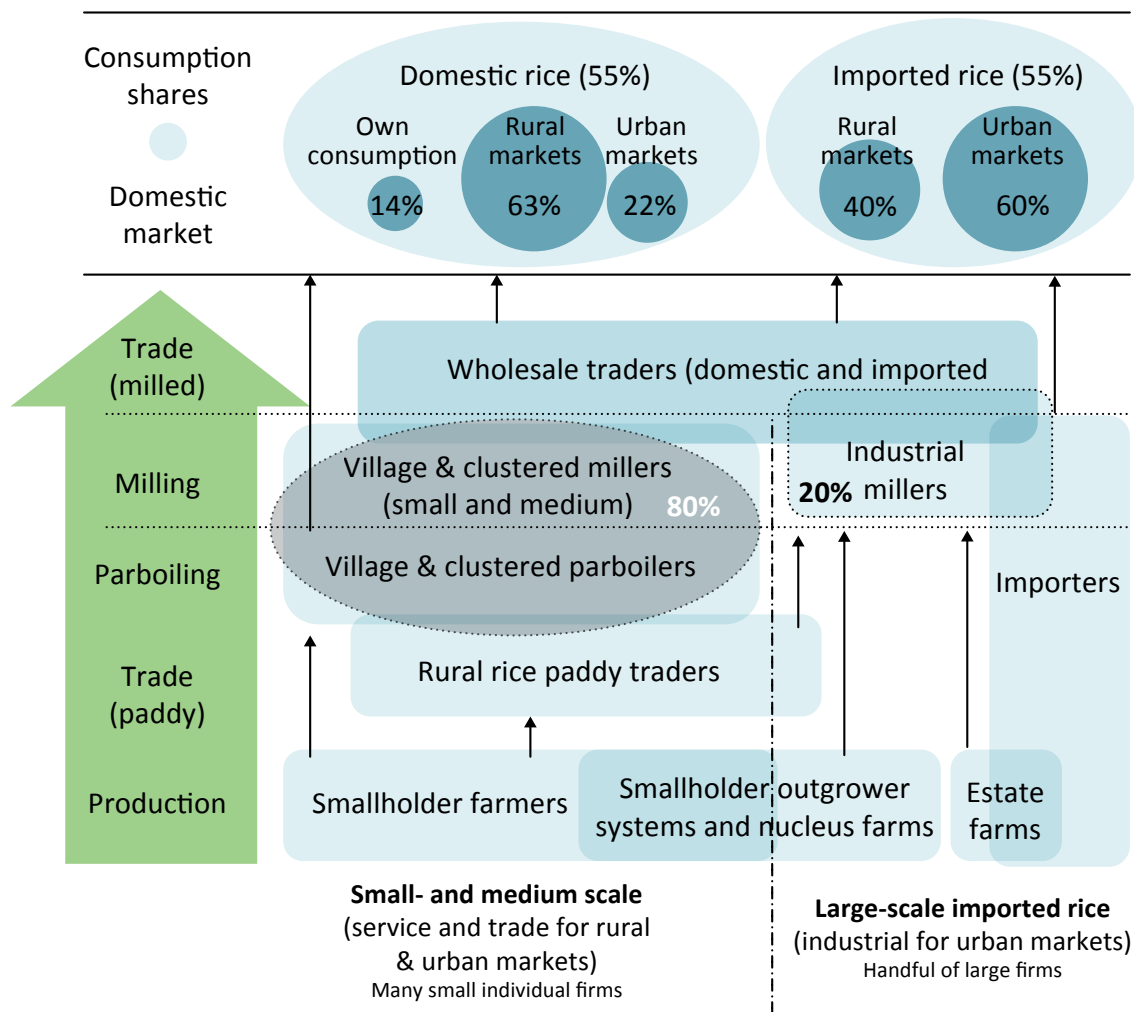
1b present examples of cassava and rice VC maps in Nigeria, taken from two recent studies.

Figure 1a: Cassava value-chain maps for Nigeria



Source: Coulibaly et al. (2014); Johnson, Takeshima & Gyimah-Brempong (2013)

Figure 1b: Rice value-chain maps for Nigeria



Source: Coulibaly et al. (2014); Johnson, Takeshima & Gyimah-Brempong (2013)

Both VC maps include smallholder farmers, processors (both small- and large-scale), wholesalers and retailers. Estate farms are active in rice, but are not mentioned explicitly in the cassava VC map, although some large producers do exist. The cassava VC map includes input suppliers, which are also present in the rice VC, but have not been included in the rice VC map. For cassava, farmers sell some crop direct to processors and some unprocessed crop goes to market through wholesalers and retailers. All rice goes through millers before being sold in consumer markets. Outgrowers are mentioned in the rice VC map and not in the cassava map, although there is some vertical integration of cassava and processors that is not explicitly referred to in the map. The VC maps suggest that a few farmer associations are active in cassava but associations are not mentioned in the rice VC map. Both VC maps include trade, with exports for processed cassava and imports for rice, most of which is already milled.

Both VCs have supporting services. These are listed explicitly in the cassava VC map but are not included in the rice VC map. Although the rice VC map does not mention input suppliers of supporting services, it does include some indication of the relative size of small and large millers and of the different consumer markets, which is not included in the cassava VC map.

The study interviews suggest that the way in which key stakeholders interpret VCAs is mixed. In several cases, a VCA was viewed from a project perspective, as a means for mobilising funding and delivering effective support (e.g. in VCDP, ATASP, ERGP). Several respondents mentioned that the Agriculture Promotion Policy (APP) takes a VCA and that this effectively encourages mainstreaming of the VCA across the whole agriculture sector, including in the routine services and investment undertaken by government departments and agencies and in projects.

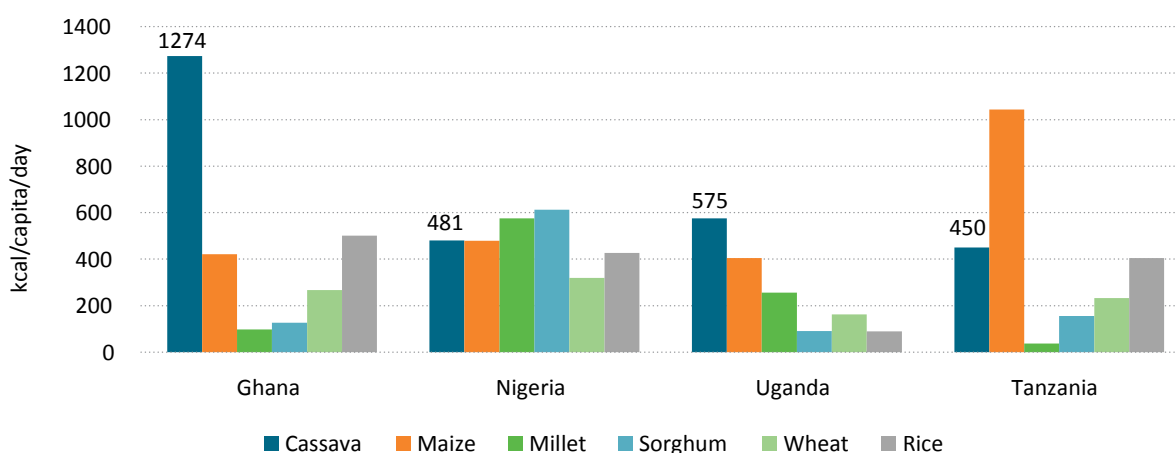
3 Demand for staple crops



While conventional agricultural development is founded on an understanding of production, a VCA considers that demand is at least as important as supply.³ Figure 2 shows estimates of consumption of major food crops in four African countries and suggests that, in Nigeria, the demand for the

six staple food crops is spread more evenly than in other countries. The extent to which crops act as substitutes for each other is unclear and the figure hides the fact that there are strong differences in preference within Nigeria.

Figure 2: Major food crop consumption (kcal per capita), 2007–2009



Source: Gaffney et al. (2012)

Cassava demand. The main demand for cassava is as a food crop in three main forms (see Figure 3).

Cassava is produced mainly for the domestic market, but there are some exports, mainly of gari and chips to West Africa and Asia. Urban markets account for about 60 per cent of total demand for cassava, with 20 per cent going to rural markets and 10 per cent for export, with the remaining 10 per cent used for flour (Kormawa in PIND 2011).

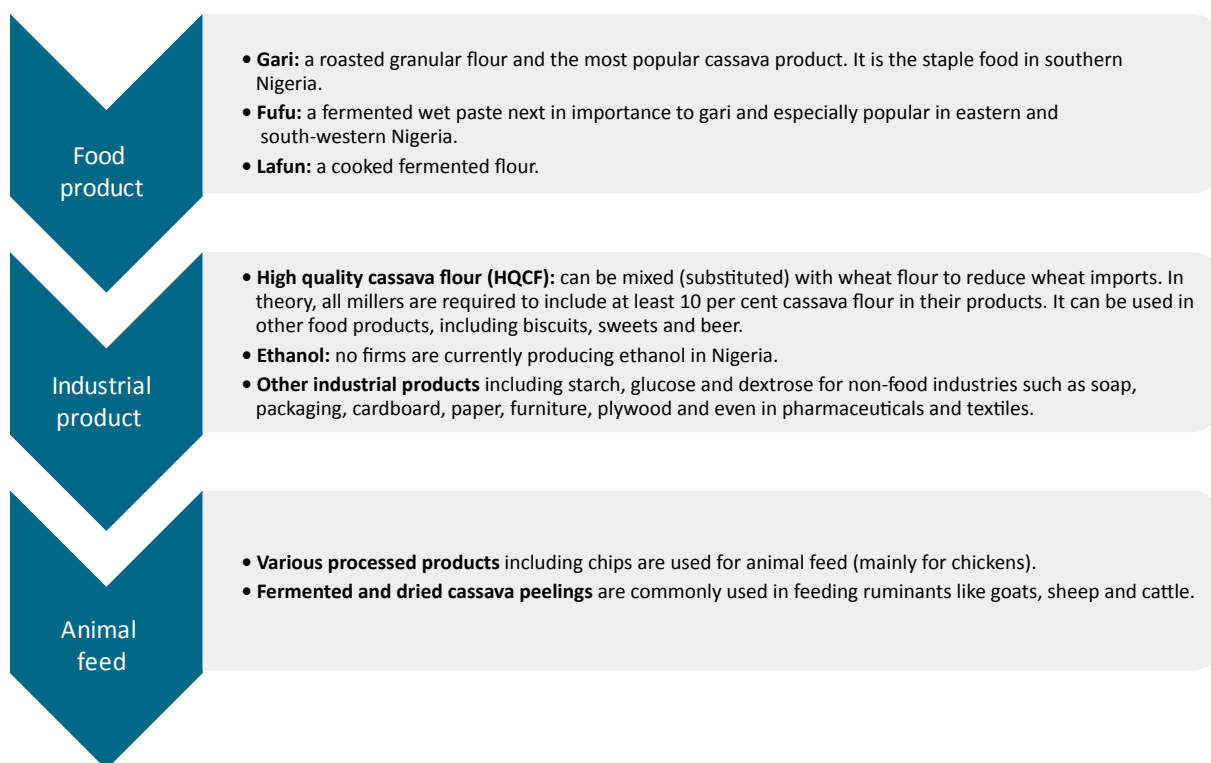
Rice demand. Statistics for rice consumption in West African countries are problematic. The national household surveys collect data on rice consumption and could be used to provide data on the geographical variation in demand for rice in one year. However, this case study was unable to find any published reports using this data. A few research studies have conducted their own surveys, but these are usually focused in one area and aim to explain demand behaviour, rather than

to describe the broad trends in national demand. For example, one study suggested that households with higher incomes and education status tended to demand more rice and have a higher preference for imported rice and that this behaviour was not significantly affected by the price of local rice (Fukayode, Omotesho & Omoniwa 2010).

In theory, the easiest way of estimating consumption is to add domestic production and imports. However, there are several sources of data on imports and large variations between these sources (Dorosh & Malek 2016). For example, average according to Nigerian customs; 517 000 tons in the data entered by Nigeria onto the UN Commodity Trade Statistics Database (COMTRADE); 1.9 million tons in the COMTRADE data entered by exporting countries; 2.1 million tons in United States Department of Agriculture (USDA) estimates; and 1.7 million tons in FAOSTAT.

³ Unfortunately, figures for consumption are more difficult to obtain than figures for production, and depend on estimates of both production and trade, some of which are highly varied, depending on the source of the statistics.

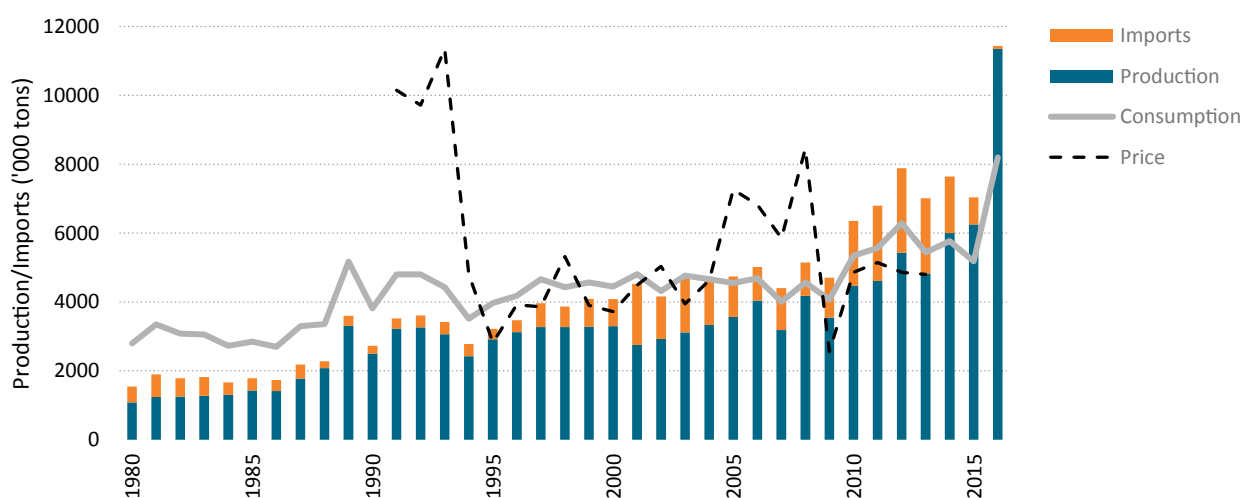
Figure 3: Cassava demand



The figures for production and imports using FAOSTAT data are presented in Figure 4, which also shows consumption per head and producer price. However, these figures should be treated with caution because other sources of data suggest that imports have continued at over 2 million tons since 2015. The figure suggests that total consumption has grown

strongly over the past 35 years, and per capita consumption has also grown steadily. The influence of price on consumption requires more detailed data. For example, the high prices in 2008 occurred mainly in the later part of the year and this may have led to reduced production in 2009, rather than in 2008.

Figure 4: Rice production, imports, consumption and producer prices



Source: FAOSTAT

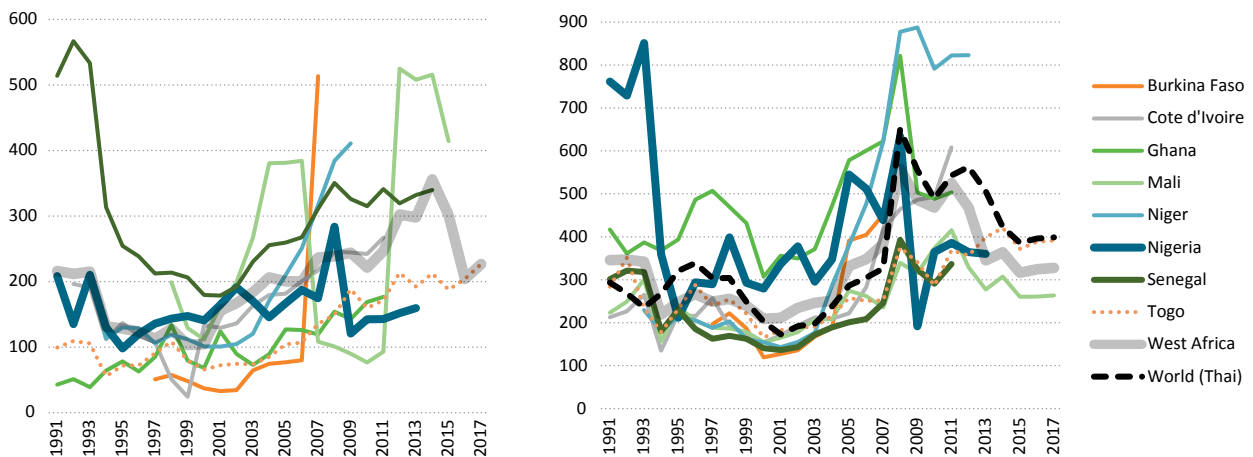
4 Markets and prices for rice and cassava



Prices provide the link between demand and supply, and a good understanding of how prices are established is critical to a VCA. The price behaviour for cassava and rice is presented in Figure 5, which shows how Nigerian producer prices have

compared with other West African prices and with the unweighted average of the West African country prices, plus the fob ('free on board') price of rice from Thailand, which is usually used as a proxy for world prices.

Figure 5: Producer prices of cassava and rice (USD/ton) in West African countries



Sources: FAOSTAT for West Africa Prices and World Bank Pink Sheet for World Rice Price

Note: domestic producer prices are converted at market exchange rates; the West Africa price is the unweighted average of all the West African countries included in the figures

Rice prices. The behaviour of rice prices is strongly influenced by competition from imported rice, but the influence of world prices varies by country, depending on the relative importance of imports and the influence of public policy affecting domestic markets, trade and exchange rates. Most West African countries experienced a major increase in producer prices in 2008, as a result of the large increase in world prices, followed by a large reduction in 2009. In Nigeria, the producer prices followed world prices quite closely in 2008, but fell more dramatically in 2009, before aligning again in 2013. The key factors affecting producer prices for rice include: import parity prices; import duties; the costs of each actor in the VC; and the way in which profits are distributed amongst actors in the VC. Figure 5 suggests that producer prices in Nigeria were quite strongly affected by import prices in the decade up to 2013, which is to be

expected given the relatively high share of imports in consumption during this period, as shown in Figure 4. When the FAOSTAT price series is extended beyond 2013, it will be interesting to see whether the influence of import prices weakened as the share of imports declined. This case study was unable to find any research on the rice VC in Nigeria that explored the costs of all the actors in the chain and the way in which total profits in the chain were distributed amongst the actors.

Cassava prices. Cassava matures in 6 to 9 months and can then be left in the ground for up to a year. This gives farmers some control over the date of harvest, although they are constrained by the fact that it is best harvested when the soil is damp. In theory, this should reduce the variation in prices within years, but the stakeholder interviews suggested that

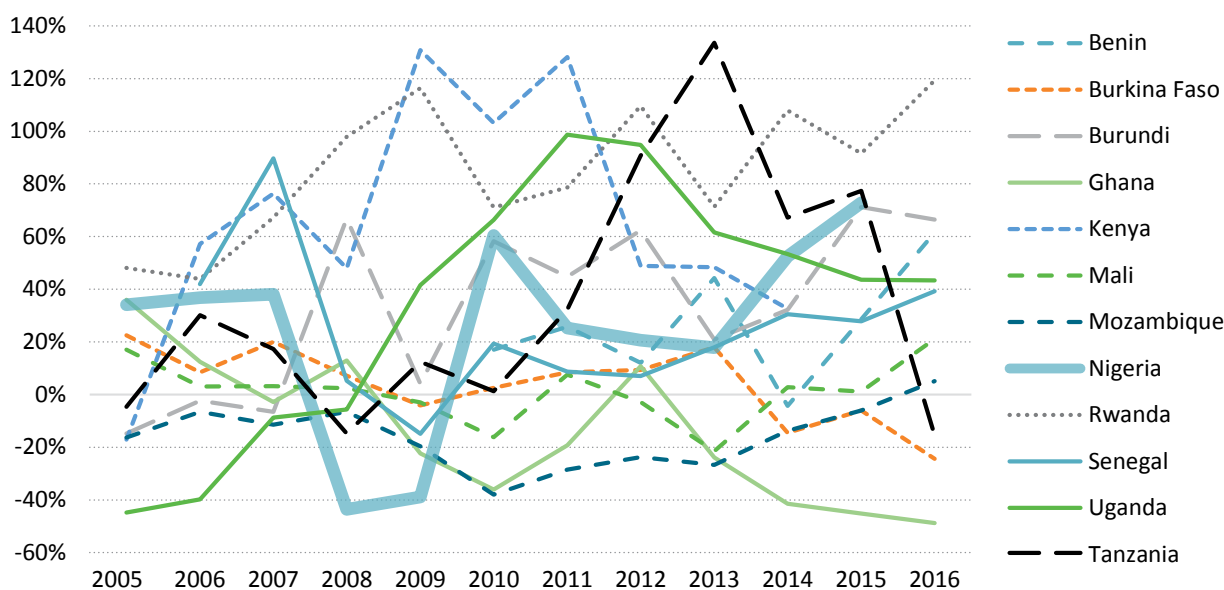
there are three-year 'glut cycles' in prices, and that these may be associated with cycles in harvesting and planting decisions. Once harvested, fresh cassava deteriorates rapidly. There are very limited exports of fresh cassava and producer prices, therefore are determined mainly by domestic supply and demand. Figure 5 shows that the unweighted country average producer price for cassava in West Africa grew fairly steadily between 2000 and 2014, after which it has dropped sharply. Nigerian prices grew steadily from 1995 to 2008, but then fell and have remained at below 200 USD/ton since then.

The Federal Ministry of Agriculture and Rural Development (FMARD) Agricultural Performance Survey for Nigeria shows that there are large variations in prices amongst states and between seasons, with prices varying by up to 50 per cent above and below the national average. The stakeholder interviews indicated that poor rural transport is often a problem, especially in the case of cassava, which is harvested in the wet season when roads are frequently impassable. Cassava also suffers from gluts and shortages in different

locations, and market information is especially critical, given the high rate of deterioration.

Import parity prices and competitiveness. The nominal rate of protection (NRP) captures the combined effect of all policies, including import duties, exchange rates, domestic price intervention and other direct incentives to all actors in the VC. It is normally calculated for farmers but can also be calculated for other actors in the chain, if sufficient data is available. Figure 6 shows the NRP for rice producer prices from 2005 to 2016 for 12 African countries. The figures suggest that, between 2010 and 2015, the NRP in Nigeria was between 20 per cent and 70 per cent. The figures also show that there is very significant volatility in the NRP from year to year in Nigeria and in most of the other countries. Nigeria's NRP is roughly in the middle of the range of countries, although by 2015 it was exceeded only by Rwanda and was in a position similar to Tanzania and Burundi. The NRP in Nigeria may now be higher, given recent increases in import duties, but it is also affected by other policies so this is unclear.

Figure 6: Nominal rates of protection for rice, 2005–2016



Source: Pernechele, Balie & Ghins (2018)

Cassava processing. The literature and the stakeholder interviews suggested that investment in cassava processing and marketing is currently limited because of a lack of confidence in the profitability of the cassava VC. There are no equivalent concerns about the growth of processing in the rice VC, and several programmes are having success with the support of parboiling and rice milling (e.g. ATASP-1 and APPEALS). Constraints for cassava processors are summarised in Table 1, according to a study from 2014 that conducted extensive interviews with cassava processors. Stakeholder interviews suggested that the biggest constraint at present is

that market prices are so low, as a result of the over-supply of cassava, that the value of sales is not sufficient to justify the cost of harvesting. In terms of the 'glut price cycle', referred to above, it is not yet apparent whether the current low prices reflect a longer-term trend, as well as the price cycle.

The government attempted to introduce a regulation requiring all millers to make their flour with at least 10 per cent high quality cassava flour (HQCF). The stakeholder interviews reported that this regulation is not operational, because HQCF is more expensive than imported wheat.

Table 1: Constraints and opportunities for cassava processing and marketing in Nigeria

	Constraints	Opportunities
	Processing	
Supply	Lack of products	Existence of a market
	Lack of finance	Proximity of town centre
	High cost of transport	Guarantee of profit
Demand	Existence of too many sellers	Existence of faithful customers
	Unavailability of some products	High demand of some products
	Existence of clandestine products on the market	
Access to market	Non-Satisfaction of some customers	Location of market
	Expensiveness of local products	High number of markets
Storage	Lack of place for storing	Chemicals can be stored over a long period
	Expensiveness of stores	
Taxes	Existence of too many taxes	Recognition by the government
Access to credit	Lack reliable finance institutions	Opportunity to get credit since in co-operative
	Difficulty to get credit	
Marketing		
Demand	Difficulty in getting good gari to satisfy customers	Encouragement from customers
	Loss of customers because of scarcity of products	More customers because of quality of products
	Transport risk for long distance	More customers to buy other food materials
Road network	Bad road network in rural area	Help of government to repair the major roads
	Long distance to the market	
	High transportation fare	
	Road accident	
Access to credit	Lack of credit facilities	
	High interest rate of loan from money lender	

Source: Coulibaly et al. (2014)

Exchange rate policies. Exchange rates have a large impact on the competitiveness of traded products. Potential policies include fixed exchange rates, controls on capital flows and policies in the oil sector. In the 1970s and 1980s, Nigeria pursued policies that aimed to control devaluation pressures and resulted in imports being cheaper than they would otherwise have been. Macroeconomic reforms in the 1980s led to some devaluation, but this was complicated by the existence of a major gap between official and parallel exchange rates up to 1998, such that the effective price paid by importers who obtained dollars at the parallel rate was between 25 per cent and 100 per cent higher than the amount paid by those acquiring dollars at the official rate. During the 1990s and 2000s, oil production strengthened the exchange rate, leading to cheaper imports. Challenges in the oil sector have resulted in a weakening of the exchange rate

in the past ten years, which has made rice imports more expensive. It is possible that the growth of rice imports from 1995 to 2005 was associated with the strong exchange rates and cheap imports, but this needs further study, because exchange rate policies are only one of several powerful policies affecting trade.

Trade policies. Trade policies may include import duties and non-tariff barriers such as quality controls. In Nigeria, import tariffs were increased to 60 per cent in the 1990s, and then to 97 per cent from 1999 to 2006, then reduced to between 60 per cent and 72 per cent until 2013, when they were increased again to 110 per cent. There are widespread reports of informal imports of Asian rice from neighbouring countries by traders seeking to exploit the relatively high rice prices in Nigeria. It is difficult to estimate the net effect of

these trade policies on domestic production, without also taking into account the effects of other policies. However, production has grown strongly over the last 20 years, as shown in Figure 4, and it seems likely that trade policy has made a significant contribution to this growth.

There are no trade policies for processed cassava products, although it would be possible to provide some support for the domestic cassava price by putting higher import duties on starch products that compete with processed cassava. This does not seem to have been discussed in the literature but the stakeholder interviews did suggest that it would be a useful policy for promoting domestic investment.

Both rice and cassava benefit from some inputs, including processing equipment, being allowed to enter Nigeria duty free, or with low duty rates. The relative importance of this incentive is not clear.

Information services. Most of the main public programmes also include some support for market information systems. This support sometimes goes further than simple systems of publishing prices and extends to support for business link-ups.

Market regulation. Apart from the unenforced regulation that millers add cassava flour to the wheat flour they use (see above), there is no direct market intervention for either cassava or rice. The stakeholder interviews suggested that the government is considering creating a commodity exchange board for cassava. The exact role of such a board is obscure; direct public intervention in the price of such a widely cultivated crop, with a highly decentralised market, would be very challenging. It also seems quite unlikely that policies that simply aim to influence prices (e.g. by publishing guide prices) would have a major effect on the market.

Quality controls. There is growing debate about the need for more information about the quality of rice imports compared with locally grown rice. The government is currently running a campaign to explain to consumers that imported rice is often very old and that local rice is fresh and of superior nutritional benefit. There are some initiatives on quality certification, but these are still not widely used. No export marketing is done for cassava, despite the potential to expand the export market.

Support for market development. Many VCD projects use a range of instruments to support market development, including grants, public equity and financial services (savings and loans) provided by banks, traders and/or processors. Insurance is considered valuable by large-scale producers and processors, but smallholders are not yet convinced of the value of insurance, even though it is a condition for obtaining a loan under some schemes. Several respondents in the stakeholder interviews reported that there was potential for improving rice and cassava quality. For example, there are new varieties of cassava that have a high dry-matter content and some of these are becoming more available to farmers. The stakeholder interviews described a current programme of market promotion for rice that stresses the quality and freshness of locally produced rice, compared with Asian rice.

The stakeholder interviews reported that there are also initiatives to create 'staple crop processing zones', which are broader areas than industrial zones, but which concentrate support in one area to build sustainability. The biggest constraint is lack of equipment and difficulties with access to finance, including the high interest rates and the tough bureaucratic procedures. Borrowers often struggle to make a strong business case, given weak and unpredictable market prices, driven by imports (of rice) and 'glut cycles' (for cassava). At present, the activities are still on a relatively small scale.

Box 2: The ERGP and Anchor Borrowers' Programme

The Economic Recovery and Growth Programme (ERGP) was launched in 2017, and covers agriculture, energy, transport, and small and medium enterprises (SMEs). The Agriculture and Transportation Workstream focuses on policy collaboration between the public and private sectors, with the objective of promoting longer-term planning. The Workstream uses a 'focus labs' approach which brings together public and private sector and considers policy co-ordination and proposals for investment projects (Pemandu 2018). Focus labs aim to reduce bureaucratic problems and put enterprises in touch with the banking sector, where appropriate, thereby catalysing sector investment and creating jobs. The ERGP helped agricultural sector funding to increase by 15 per cent in 2018, which is above inflation. Specific investments include a large rice mill. A donor co-ordination group keeps partners updated on the latest experiences.

The Outgrower Support Scheme works with the Anchor Borrowers' Programme (ABP), which has a budget of USD150 million and aims to reach 250 000 farmers, with 80 per cent going to rice production (Central Bank of Nigeria 2016). Large processing enterprises act as 'anchors' and have access to funding at 9 per cent from the Central Bank of Nigeria (CBN), which is less than half the market interest rate. In addition, the CBN will guarantee half the value of any loan defaults. The anchors also have access to some grants and wavers. Anchors sign agreements with smallholder farmers in which they supply input in exchange for guaranteed sales of a proportion of the crop (usually 80 per cent) at a pre-agreed price, with the cost of inputs deducted from these sales. Farmers are expected to organise themselves into co-operatives and to engage in cross-guarantees. About 30 large enterprises have expressed their interest in the ABP. The government facilitates technical services, certification and minimisation of the risk of contracts failing to be honoured. The outgrower scheme also includes plans to facilitate land title registration in a second phase.

5

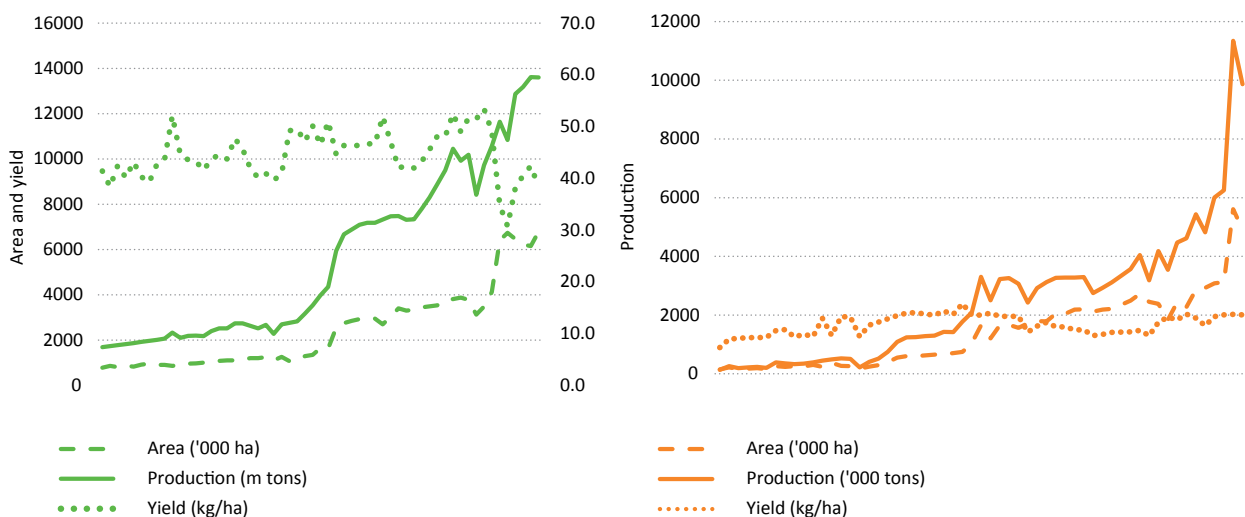
Production of rice and cassava



Production. Figure 7 presents the production, area and yield for cassava and rice in Nigeria. Rice self-sufficiency has become a cornerstone of Nigerian agricultural policy, and there is now strong confidence in the commitment to this across a range of policies affecting producers and all stages in the VC. Nigeria is the world's largest producer of cassava, with 19 per cent of global production in 2009, and growing steadily over the past 20 years.

For both cassava and rice, the growth in production has been achieved primarily by an increase in area farmed, rather than in yield, especially in the case of cassava over the past seven years. The general trend has been interrupted by occasional years of lower production, which are associated sometimes with low yields and sometimes with smaller area harvested, both of which are likely to be caused primarily by the effects of bad weather.

Figure 7: Cassava and rice production in Nigeria



Source: FAOSTAT

Farm profitability. Both rice and cassava are normally grown with relatively low levels of fertiliser and low expenditure on improved seeds or planting material. As a result, yields are low and over 80% of farm costs are labour costs for both crops (Liverpool 2006). Low yields do not necessarily mean low profitability as it can be more profitable to cultivate extensively, if land is available and the cost of inputs and labour is high. Assessing the profitability of crops is not straightforward. A simple analysis of farm margins with current prices suggests that cassava is normally profitable for

farmers engaged in an outgrower scheme with a Nestlé/IITA project in the South of Nigeria, although this is sensitive to the yields achieved and to price (Ojiako et al. 2018), although profitability is much higher in years of good prices and for farmers using improved methods. This finding suggests that the outlook for cassava production is more promising than was suggested by the stakeholder interviews, which indicated that cassava production would continue to struggle if there was not more active public support. It is possible that the current pessimism reflects particularly low prices at present

compared with those used in the paper, which highlights the importance of conducting profitability analysis in the context of the likely evolution of future crop prices.

A recent assessment of the profitability of rice cultivation in Osun state in Nigeria suggested that rice cultivation does benefit from a degree of protection but that it is not as high as might be expected, given the high import duties (Kassali & Jimoh 2018). The paper concludes that the cultivation of improved varieties of rice provides net benefits, both to farmers and to society as a whole. According to the paper, these net benefits are strong if improved rice varieties are

grown and weak in the case of local varieties. This assessment used a Policy Analysis Matrix approach, which takes account of incentives through the value chain, which helps to isolate the possible effects of public policies that temporarily alter prices.

Table 2 presents the main constraints for cassava production in Nigeria and shows that constraints are spread across a wide variety of factors. This suggests that support for cassava needs to address a wide range of issues, including the underlying profitability of the crop, given current market conditions.

Table 2: Constraints and coping strategies for cassava producers in Nigeria

Constraints	Coping Strategies
Infestation of crops by insects	Look for funds to buy enough chemicals to apply
Lack of farming machine	Hire labour at cheap rate
Lack of finance for inputs purchase	Rasie funds from sales
Low yield	Use of chemicals
	Generate income to support the equipment
Inadequate machine to proces	Local methods
High cost of processing	Processing at farm
Lack of mobility to bring out cassava	
Insufficient or lack of firewood	Go in search of enough firewood
Low price of products	Adaptation to the market prices
Bad road network	Find alternative routes which are usually longer
High cost of transportation to the market	Use of cyclist

Source: Coulibaly et al. (2014)

Research and extension. Rice and cassava feature prominently in agricultural policy and are key crops for routine research and extension. Support for research and extension is also central for each of the four major projects reviewed in this case study. ATASP-1 has the benefit of being implemented by IITA, AfricaRice and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), which are part of the CGIAR network of international research centres and, so, have access to the most recent methods. The mid-term review of ATASP-1 highlighted this as a strength of the programme (see Box 3).

The stakeholder interviews reported that there are extension programmes and farmers benefit from fertiliser subsidy, but that yields are still low in Nigeria compared with Asia, for both rice and cassava. Marketing is a problem for cassava because, once harvested, it starts to decompose after 24 hours, which means that transport constraints are critical.

Finance for farmers. Access to credit is often quoted as a constraint for smallholder farmers. To some extent, this reflects the difficulties that farmers face in providing collateral for loans and the inherent unpredictability of yields and incomes. However, especially in the case of cassava, it may also reflect underlying challenges to the profitability of smallholder agriculture, given current market conditions. The stakeholder interviews reported that experience with financial services for producers has been challenging. There have been some initiatives on farm insurance; however, it is not popular with farmers, even if the government pays the premiums. Farmers are encouraged to join co-operatives, to help with financial services, but these often have limited success. Some farmers and processors have access to finance for a limited period from projects. However, interest rates are high because small farmers have a reputation for having high levels of default, either because they have little financial training or because they are simply unable to make repayments in bad years. It is easier for larger farmers and processors to obtain formal credit.

Box 3: ATASP-1

The Agricultural Transformation Agenda Support Programme – Phase 1 (ATASP-1) started in 2015 and the total value of the programme is USD179 million (IITA 2018). The programme aims to support the ATA to increase incomes and employment through agricultural VCs and to increase domestic food supply and economic diversification. The project works mainly with 200 rural communities in four staple crop processing zones spanning seven states, focusing on cassava, rice and sorghum VCs. ATASP-1 contains three main components.

- **Infrastructure development** (69 per cent of the budget) includes irrigation, rural roads, schools and clinics, water supply and sanitation, and market and processing facilities. This is implemented by the National Programme Implementation Unit.
- **Commodity VCD** (16 per cent) includes institutional capacity, farmer capacity, training in technology and business management, financial services, extension, training in post-harvest and processing, training in hygiene and nutrition, market information systems, investment promotion and youth/women employment. This is run by the IITA for cassava, AfricaRice for rice and ICRISAT for Sorghum.
- **Programme management** (15 per cent) provides implementation and M&E.

ATASP-1 has recently received a mid-term review (MTR), which showed remarkable success of the second component on VC development. Cassava yields between 2015 and 2017 increased by 72 per cent with extra annual production worth N174 million (nearly USD0.5 million). There was also a dramatic increase in the area of rice planted and the yields, delivering rice worth an extra N12.6 billion (USD35 million) each year. Similarly, sorghum yields increased by 51 per cent, with production worth an extra N9.7 billion (USD27 million) per year. These figures suggest that ATASP is on course to meet the high economic rates of return estimated on appraisal (i.e. 29.7 per cent). There were also substantial successes, with the establishment of demonstration farms, production clusters and innovation platforms, youth training centres, improved research facilities, resuscitation of a large cassava processing factory, construction of several community-based processing facilities for all three crops, and support for workshop facilities. Nearly 16 000 people were receiving training in agribusiness and entrepreneurship skills. ATASP facilitated contacts between farmers and traders, helping farmers find markets and helping processing firms to establish reliable supply chains with farmers. Partnerships were established with other programmes, such as the ABP, funded by the CBN and supported by ERGP. The MTR concluded that the sustainability of project success required continued collaboration between infrastructure and VC activities and a strong continuing focus on business development, building confidence and partnerships amongst VC actors.

Public infrastructure. Most assessments of constraints to farmers report that poor rural transport is a major impediment for farmers looking to market crop surplus. Limited local transport means not only that direct costs are increased but that traders are less willing to visit, market information is more limited and farmers' choice of marketing channels is very limited, which greatly reduces their ability to negotiate.

From a trader's perspective, it increases the costs of contacting farmers and the risks of delays and uncertainty about the quality and scale of crop purchases. ATASP-1 and APPEALS devote significant funds to rural infrastructure. This is mostly for rural roads and improved market access, although some goes further and supports wider community infrastructure.

Box 4: VCDP

The Value Chain Development Programme (VCDP) is a partnership between the government of Nigeria and IFAD, with a total budget of USD218 million. It aims to reduce poverty using a business and market-led approach for smallholder farmers and processors, emphasising profitability, access to reliable markets, value addition through processing and a cluster arrangement among producers to respond better to market demand (IFAD 2012). VCDP focuses on market linkages and partnerships, especially with Olam International, a large private enterprise working in processing and exporting agricultural products.

The VCDP works on rice and cassava in six states, with three more states soon to be added. For cassava, the VCDP focuses on helping farmers access market opportunities. It works with 53 000 farmers and covers production, processing and marketing. It adopts a public-private-producer partnership (4P) approach with cost-sharing amongst all partners and use of a community alliance forum (CAF) for all partners that focuses on market information, shared knowledge and business negotiations.

The MTR found that the VCDP was on track and, based on this positive performance, there are plans to expand and include other private sector partners, and discussions are ongoing to co-ordinate with the AfDB. The MTR also identified a number of challenges, including weak farmer organisations, over-dependence of farmers on matching grants, limited market opportunities for cassava, patchy knowledge sharing, high demand for land development, farmer-herdsmen conflicts in some areas and delays in government counterpart funding (IFAD 2018). These challenges will be addressed in the future management of the project.

6

Co-ordination



Strategy. The two main strategy documents affecting agricultural development are the Economic Recovery and Growth Plan (ERGP) and the Agriculture Promotion Policy (APP) 2016–2020, which built on the previous Agriculture Transformation Agenda (ATA). Rice and cassava are priority crops in both strategies.

Phasing policies. A well-coordinated VCD programme needs to take a view on the balance and phasing of all potential policies, including research/extension, public infrastructure and the wide range of market development policies that are the distinguishing feature of VCD programmes. To some extent, all policies depend on progress being made in other policies, so that no individual constraint on the VC acts as a particular brake. However, there are lessons from VCD programmes that covering too many policies imposes

burdens on the programme and reduces effectiveness (IFAD 2014). Priority should normally be given to the policies that address the constraints that are seen to be the most serious.

The key informant interviews suggested that, although there are issues with production (e.g. access to good planting material for cassava), limited processing capacity was seen as critical for both rice and cassava. This was linked to the business environment, but also to market conditions and lack of predictability in prices. For rice, prices are influenced by competition from imports and, for cassava, a three-year ‘glut cycle’ creates instability in prices. Cassava production in Nigeria also suffers from competition with cheap imported starch, despite Nigeria being the world’s largest producer of cassava. Access to finance is a challenge because the profitability of production and processing is challenging.

Box 5: APPEALS

The Agro-Processing, Productivity Enhancement and Livelihood Improvement Support Project (APPEALS) was launched in 2017 with World Bank funding of USD200 million (World Bank 2017). The budget aims to improve productivity of small and medium-size farmers and to improve value addition through the VC. APPEALS supports a range of crops, but focuses particularly on rice, maize, cassava, wheat, cocoa and cashew, plus horticulture, poultry and aquaculture. The project contains five components, which are in line with the APP thrust areas of productivity, private investment and FMARD realignment.

- **Production and productivity** (USD40 million), including business alliances and outgrowing schemes, technology demonstration and matching grants for technology adoption.
- **Processing** (92 million), including women and youth empowerment, commodity aggregation and cottage processing, and market development and links to business services.
- **Infrastructure for agribusiness clusters** (40 million), including for access and utilities.
- **Extension** (10.5 million), including capacity building, technical assistance and communications.
- **Project management** (17.5 million)

The economic appraisal suggested that APPEALS could achieve exceptionally high economic rates of return, including 48 per cent for rice and 49 per cent for cassava. The appraisal also conducted an analysis of the financial returns to cultivation, which suggested that the full VCs for rice and cassava are strongly profitable. For rice, this reflected the high level of trade protection. It is a surprising finding for cassava, given the current prices, but perhaps reflects higher prices at the time of the appraisal. The appraisal identified several areas of ‘substantial’ risk for the project, including instability in economic and sector policies and institutional capacities.

Distribution of the benefits of incentives. Producer and processor incentives (e.g. input subsidies and support for financial services) may lead to improved margins in the domestic value chain. The extent to which the benefits of these incentives are shared amongst actors in the VC will depend on whether the policies are targeted on specific actors (e.g. farmers or processors) and the relative market power of the actors, including, in particular, the extent to which some actors may be dominant in the market. The stakeholder interviews reported that there are business

associations, but the basic problems are around the low and variable prices, for both rice and cassava, which make it difficult to justify long-term investments in production and processing. There is good co-ordination between development partners and the private sector, and projects are often successful, although only in the short term. The FMARD acts as the co-ordinator of government activities, and there is good co-ordination between federal and state levels, with ADPs playing an important role and being the main contact with farmers.



A well-coordinated VCD programme needs to take a view on the balance and phasing of all potential policies, including research/extension, public infrastructure and the wide range of market development policies that are the distinguishing feature of VCD programmes.

7 Lessons and key issues for Dialogue



Cassava market support. This case study suggests that rice and cassava VCs should be viable, but they are challenging, especially for cassava. Both are subject to price variability, with rice affected by international prices and cassava by domestic 'glut cycles'. For example, 2019 appears to be a year of especially low cassava prices and the market, apart from local consumption, therefore, is very slow.

- Are there any policies for managing cassava prices that could be effective without leading to dependency on subsidies? Is direct intervention practical?
- What would the pros and cons be charging import tariffs on starch products that compete with cassava?
- Could policies be adopted to strengthen the vertical integration between cassava producers and processors?
- Are there any options for profitable industrial-scale processing of cassava to provide a market floor?

Regional policy. Both the rice and cassava VCs are affected by cross-border trade. Rice prices are reduced by informal imports and cassava markets are strengthened by export opportunities.

- Are there opportunities for more regional collaboration to harmonise trade policies within West Africa and with the rest of the world?
- Which products would be a priority in this regard (e.g. fertiliser, rice, processed cassava)?
- Do any large agribusinesses operate across borders, and could this provide opportunities for collaboration on VCD (e.g. outgrower schemes, marketing information, business services, cottage processing)?

Outgrower schemes. Several programmes (e.g. ERGP, VCDP and APPEALS) are relying on outgrower schemes to promote the integration of smallholders into markets. Contract farming has been criticised as making smallholders vulnerable to commercial exploitation. In theory, farmer associations provide increased market power for farmers, but farmer associations have not grown into major commercial players in Nigeria.

- How can outgrower schemes ensure that smallholders receive a fair price for their crops?
- Are large agribusinesses taking a more active interest in the role of outgrowers in making their supply chains more secure?
- How can farmer associations be more commercially effective?
- Would fair trade, local-sourcing labels, corporate social responsibility and ethical investment be relevant for the Nigerian market?

Business services. There is growing experience with public support for business services, which includes training in business management, assistance with business networking and mediation over contract enforcement.

- What are the most promising models for public support to business services?

Infrastructure. Some programmes that pursue a VCA allocate the majority of funding to infrastructure, including rural roads.

- In a VCD programme, what aspects would you consider in defining the appropriate balance in funding between infrastructure and more direct support enterprise/market development?
- How is the balance estimated and protected?
- How do you ensure that investment in rural roads is targeted where it has the biggest impact on VCD?

International partners. Three of the four large VCD programmes are funded mainly by development partners and one (ERGP) by the government.

- What are the implications of development partner versus. government-funded VCD programmes for ownership and effectiveness?
- Are government projects likely to lead to self-sustaining institutional change?
- Do international projects have access to different expertise?

Partnerships. All of the programmes reviewed have methods of promoting partnerships between farmers, enterprises and governments.

- What are the essential ingredients of a successful partnership?
- What is the full extent of the activities of a partnership (e.g. market information, sharing knowledge, negotiations, lobbying)?



Both the rice and cassava VCs are affected by cross-border trade. Rice prices are reduced by informal imports and cassava markets are strengthened by export opportunities.



References

- Central Bank of Nigeria (2016) *Anchor Borrowers' Programme Guidelines*. Available at: <https://www.cbn.gov.ng/Out/2017/DFD/Anchor%20Borrowers%20Programme%20Guidelines%20-DEC%20%202016.pdf> [accessed 17 March 2019].
- Coulibaly O, Arinloye AD, Faye M & Abdoulaye T (2014) *Regional cassava value chains analysis in West Africa: Case study of Nigeria*. PPAO/WAAPP Case Study.
- Dorosh PA & Malek M (2016) Rice imports, prices and challenges for trade policy in Nigeria. In IFPRI *The Nigerian rice economy: Policy options for transforming production, marketing and trade*. Available at: <http://www.ifpri.org/publication/nigerian-rice-economy-policy-options-transforming-production-marketing-and-trade> [accessed 16 March 2019].
- Fukayode S, Omotesho O & Omoniwa AE (2010) *Economic analysis of rice consumption patterns in Nigeria*. Available at: http://jast-old.modares.ac.ir/article_4360_55e02044bfae1d7f36de6a826ed51641.pdf [accessed 16 March 2019].
- Gaffney A, Kpaka C, Slakio E & Anderson CL (2012) *Cassava integrated value chain*. Evans School Policy Analysis and Research Brief No. 223.
- IFAD (International Fund for Agricultural Development) (2012) VCDP programme design document.
- IFAD (2014) How to do commodity value chain development projects. Available at: <https://www.ifad.org/documents/38714170/40311826/Commodity+value+chain+development+projects.pdf/504a1102-7bc7-47e8-a46c-003333fe9335> [accessed 17 March 2019].
- IFAD (2018) *VCDP mid-term review*. Available at: <https://www.ifad.org/en/document-detail/asset/40784385> [accessed 17 March 2019].
- IITA (International Institute of Tropical Agriculture) (2018) *ATASP-1 Mid-term review report (July 2015–December 2017)*.
- Johnson ME, Takeshima H & Gyimah-Brempong K (2013) *Assessing the potential and policy alternatives for achieving rice competitiveness and growth in Nigeria*. IFPRI discussion papers 1301, International Food Policy Research Institute (IFPRI)
- Kassali R & Jimoh L (2018) Competitiveness in rice production in Osun State, Nigeria: The Policy Analysis Matrix approach. *Journal of Agribusiness and Rural Development* 48(2): 129–136.
- Liverpool S (2006) *A commodity value chain analysis of rice, cassava and maize production in Nigeria*. PowerPoint presentation at the 'IFPRI Stakeholder Workshop: Developing Evidence for Agricultural and Rural Development Policies Policies and Strategies Strategies in Nigeria', Abuja, 20 May.
- Memfi NM (2015) Challenges, opportunities and the way forward in the twenty-first century. In Vubo EY (ed.) *Environment, agriculture and cross-border migrations*. Dakar: Council for the Development of Social Science in Africa (CODESRIA).
- Ojiako I, Tarawali G, Okechukwu R, Chianu J, Ezedinma C & Edet M (2018) *Profitability of cassava production: Comparing the actual and potential returns on investment among smallholders in Southern Nigeria*. Available at: <https://cgspace.cgiar.org/handle/10568/97563> [accessed 17 March 2019].
- Pemandu (2018) *Agriculture and Transportation Workstream: Extract of lab report for private sector outgrower support scheme*.
- Pernechele V, Balie J & Ghins L (2018) *Agricultural policy incentives in sub-Saharan Africa in the last decade (2005–2016)*. Monitoring and Analysing Food and Agricultural Policies, Synthesis Study. Food and Agriculture Organisation. Available at: <http://www.fao.org/3/i8997EN/i8997en.pdf> [accessed 11 March 2019].
- PIND (Partnership Initiatives in the Niger Delta) (2011) *A report on cassava value chain analysis in the Niger Delta*. Available at: <https://www.ndpifoundation.org/wp-content/uploads/2018/09/Cassava-Value-Chain-Analysis.pdf> [accessed 16 March 2019]
- World Bank (2017) APPEALS project appraisal document. Available at: <http://documents.worldbank.org/curated/en/975301490493660427/pdf/Nigeria-PAD-03062017.pdf> [accessed 17 March 2019].