STUDY ON THE COMMERCIALIZATION OF AGRICULTURE & DOMESTIC PRIVATE SECTOR INVESTMENT:

Cassava in the Republic of Congo

Final Report

SUBMITTED TO THE WORLD BANK

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Executive Summary

At US $174 million, the untapped business opportunity in the Republic of Congo's (Congo) cassava sector is enormous. Through a program to provide focused support throughout the cassava value chain (the Program), the World Bank and its partners could leverage the power of the private sector to dramatically improve Congo's food security by targeting an increase of 242,000 tons of cassava per year.

While this study provides a detailed analysis of the cassava market, including benchmarks against regional competitors, current supply and demand, it serves principally to provide the donor community with a concrete and actionable roadmap to:

- *Improve the food security situation* of Congo in the medium-term through a cassava value chain development program that aims to transform the sector from a primarily artisanal sustenance sector to a high-performing, commercially-driven industry;
- *Engage the private sector*, by putting in place clear incentives for making required investments in three key areas of the value chain; production, processing, transportation & marketing;
- *Reinforce existing efforts* of the WB, FAO and IITA in Congo through linkages and a focus on developing a robust business driven cassava cluster.

Currently, Congo's cassava value chain is disorganized and undeveloped. It is faced with many potential and existing threats, and lacks support services at almost all levels, with the exception of international research and development organizations at the production level such as FAO and IITA. In order to ensure a successful intervention program, the following strategic choices are recommended to maximize impact at all levels of the value chain (production, processing, and transportation & marketing):

1. *Strong overall approach*: A strengthening of Congo's cassava sector requires upgrades at all levels of the value chain and the establishment of effective support services. Improvements at one level without intervention in others will limit impact. A 'heavy', well-staffed, and well-funded approach is therefore recommended for the Program, ensuring simultaneous interventions at all levels of the value chain. Relying mainly or exclusively on local partners will not work given the weak capacity of the majority of institutions in Congo.
2. *Regional focus*: A collaborative approach should apply a regional focus to its strategy, ensuring regional specialization while avoiding overextension. In concrete terms, this means focusing on the top four cassava producing regions of Pool, Plateaux, Bouenza and Niari which represent 67% of total production.
3. *Micro-processing focus*: While the Program approach must aim to attract private sector investment for larger-scale processing units, it is advised that short to medium-term efforts focus on the establishment of a network of micro and small processing units at the village level. This approach ensures a broader impact in rural areas, while also establishing a new entrepreneurial class upon which the private sector can continue to invest.
4. *Stimulate the production of value-added products to ensure food security*: Currently, there is little incentive for farmers to increase production yields, as there is little access to market and insufficient signals for market demand. The Program must aim to increase value addition along the cassava value chain as a way to improve food security.
5. *Build market demand in order to drive the sector*: As market demand must be increased and "shaped" in order to incentivize increased production yields, it is important that the

Program strategy focus on building more sophisticated demand for the cassava-based products.

Implementing these guiding strategies requires five overarching activity types, at all levels of the value chain, including:

1. Providing ***access to finance*** solutions and establishing new finance mechanisms. *Programs include*: Micro-credit schemes, guarantee Fund, and support for the existing government-established agriculture loan facility, etc
2. ***Building capacity*** at all levels of the value chain, and supporting existing capacity building efforts. *Programs include*: farmer extension programs, study tours, and model farms.
3. Improving ***access to information*** as a means to stabilizing sector fluctuations, driving demand and highlighting investment opportunities. *Programs include*: establishment of a market price index, as well as campaigns to promote the cassava sector and cassava usage.
4. Engaging in and supporting existing ***advocacy*** efforts to establish an improved business environment for the cassava sector. *Initiatives include*: the establishment and strengthening of a Cassava Growers Association as well as policy shifts to encourage cassava integration into other value chains such as baking.
5. And finally, building a ***culture of entrepreneurship*** as a way to guarantee the sustainability of sector improvements, while driving private sector investment into the cassava. *Programs include*: annual business plan competitions with grant awards, and technical assistance for entrepreneurs.

Congo's cassava value chain is a huge potential opportunity for private investors to not only earn a profit, but to contribute to the important national objective of food security. Over the medium- to long-term, the Program should facilitate private investment into the sector, but in the short-term, it must put in place mechanisms to upgrade all areas of the value chain. A focused effort in the three components of the value chain and across the five areas of the comprehensive solution will create the momentum required for purely private sector investment to flow to the sector. Although this document provides a clear framework and roadmap for implementation, the Program must take the lead to ensure that Congo's private sector recognizes and seizes the opportunity to invest in the future of their country.

List of Abbreviations

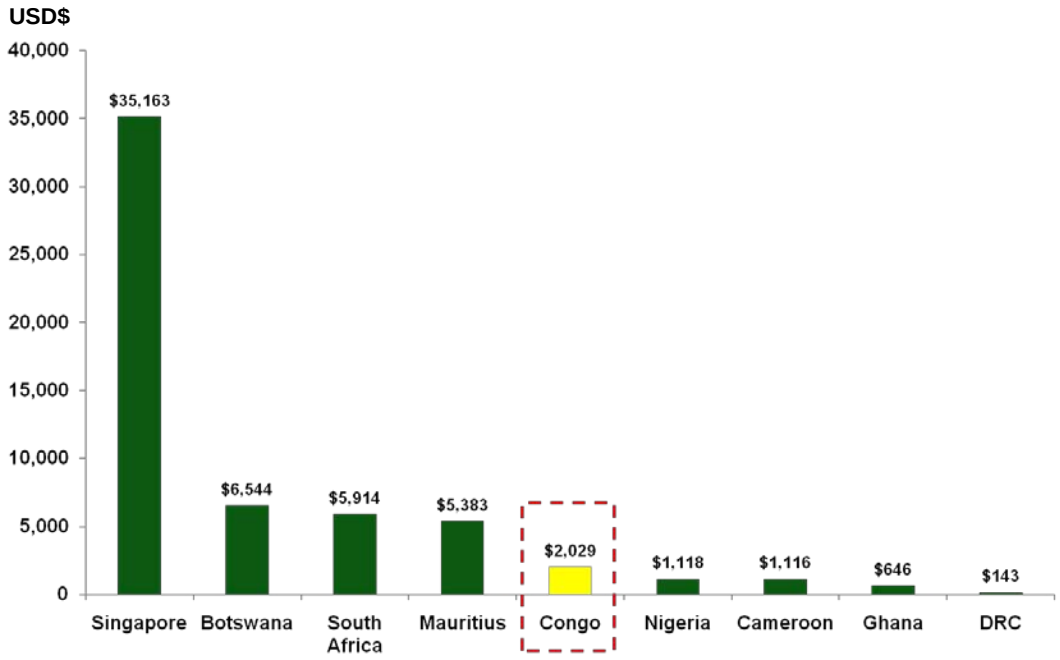
BDS	Business Development Services
CEEAC	Communauté Économique des États de l'Afrique Centrale
CNSA	Centre National des Semences Améliorées
DGRST	General Delegation of Scientific and Technical Research
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Database
GDP	Gross Domestic Product
HQCF	High Quality Cassava Flour
ICRC	International Committee of the Red Cross
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ITC	International Trade Centre
IITA	International Institute of Tropical Agriculture
LGA	Local Government Authority
MAE	Ministère de l'Agriculture et de l'Elevage
Program	Congo Multi-Donor and Local Support Institution Cassava Program
MFI	Micro-finance Institution
MUCODEC	Mutuelles Congolaises d'Epargne et de Crédit
NGO	Non-Government Organization
OTF	On The Frontier Group
PAC	Elaborat de la politique agricole commune
PDARPR	Projet de Développement Agricole et de Réhabilitation des Pistes Rurales
PRODER	Projet de Développement Rural
ROC	Republic of Congo
SWOT	Strengths, Weaknesses, Opportunities and Threats
WB	World Bank

I. Congo Brazzaville: Country Background

A. Natural resources have not translated to prosperity

The Republic of Congo, extending over 1,400 km and strategically positioned between the Atlantic Ocean and the Congo River, is endowed with numerous natural resources including minerals, forest, water and oil. These assets have propelled the country into the "lower middle-income group" with a GDP per capita of $2,029 in 2007. However, despite these assets, the country faces daunting economic and social challenges including high unemployment, increasing poverty, reduced life expectancy at birth, poor infrastructure, and deteriorating healthcare.

Figure 1: Regional Comparison of per capita GDP



Congo's economic failures stem in large part from the economy's over reliance on commodity-based natural resources. The country's petroleum resources have been administered by a state petroleum company since 1976, oil refinement has accounted for approximately 50% of export revenues. In the early 1980s, rapidly rising oil revenues enabled the government to finance large-scale development projects with GDP growth averaging 5% annually, one of the highest rates in Africa. However, the oil industry has been in decline since 1997 and starting in 2000, growth has been negative. The growth rate dropped from 4.8 % in 1999 to -1% in 2000; -7.5 % in 2001; -1.1% in 2002 and – 4.5 % in 2003. Although the Republic of Congo was once one of Africa's largest petroleum producers, this has not translated into a higher standard of living for the majority of citizens.

It is becoming increasingly clear that the model of exploiting natural resources for economic growth and prosperity is no longer working for the Congo. A large section of the population

remains engaged in subsistence farming, 33% of the population is malnourished[1] and the 2005 Human Development Report ranks Congo a mere 139 out of 177 countries.

B. Congo must increase its competitiveness

The Government is Congo has clearly stated its commitment to ensuring future generations enjoy greater opportunities and increased prosperity. For this to happen, the country must radically transform its economic model. The country's historic model has been to compete on its abundant basic natural resources or factor inputs and cheap labor. Yet, the most successful countries in today's global economy invest in developing competitive advantage, in creating wealth by exporting complex products and services created by highly skilled people. A nation's ability to build and sustain these advantages–a nation's competitiveness–is a key driver of growth and prosperity.

In order to create and distribute new wealth, Congo must build sectors and firms that can innovate in response to market demand, and begin the transition from a subsistence economy to an export economy. The country must focus on creating an environment in which the number of competitive firms, both domestic and export-oriented, can expand quickly. In the cassava industry, breaking out of the model of artisanal, low yield production is a critical first element in first achieving domestic food security and eventually moving towards the production of more sophisticated products that could be exported within in the region and beyond. Given the challenges of doing business in Congo-Brazzaville, encouraging this type of investment will be challenging.

C. Congo's "Doing Business Indicators" – in bad company

Congo's doing business environment is one of the most difficult in the world, ranking at 178 out of 181 countries on the International Finance Corporation's (IFC) Doing Business Index, as outlined in the following chart. While none of these indicators are specific to the cassava sector, all will have an impact at some level. As Congo and its partners move to upgrade the cassava sector, it will be important to consider the overarching obstacles to doing business in Congo, that are particularly relevant to the cassava sector, such as the ease of starting and closing a business (rank of 157 and 117, respectively), employing workers (170) and enforcing contracts (155), to name a few. A new Program should dedicate efforts to improving this environment, through policy shifts, and, for example, the establishment and implementation of systems and efficient procedures. Currently, foreign investors in particular might be hard-pressed to consider entering the Congolese market in cassava based solely on negative perceptions of the investment climate.

[1] United Nations Human Development Report (estimate 2002/2004)

Figure 2: IFC Doing Business Indicators 2009 for Congo

Ease of…	Doing Business 2009 Rank (out of 181)	# of Days	# of Procedures
Doing Business	***178***		
Starting a Business	157	37	10
Dealing with Construction Permits	68	169	14
Employing Workers	170	-	-
Registering Property	171	116	7
Getting Credit	131	-	-
Protecting Investors	150	-	-
Paying Taxes	179	-	-
Trading Across Borders	176	50	11
Enforcing Contracts	155	560	44
Closing a Business	117	1095	-

II. Congo's Business Environment

A 2008 survey undertaken across 151 Congolese enterprises unearths a long list of major investment constraints in Congo, with complaint levels among the highest recorded in the region (See the table below).

Table 1: Major obstacles in the Republic of Congo and in comparator countries[2]

Obstacle	Republic of Congo	DRC	Cameroon	Gabon	Azerbaijan	South Africa
Electricity	71.1	70.3	61.1	57.3	4.9	20.8
Political instability	68.8	n.a.	n.a.	n.a.	n.a.	n.a.
Corruption	65.0	20.0	52.1	40.8	21.3	16.9
Informality	54.2	40.5	58.1	36.6	..	11.3
Labor skills	51.5	13.1	8.1	42.3	1.8	8.7
Transportation	48.4	30.0	33.1	48.3	0.6	3.9
Tax Administration	47.3	39.8	76.7	34.9	24.9	2.0
Customs & Trade Regulations	45.9	15.1	34.8	35.7	8.0	1.9

[2] World Bank, Republic of Congo Investment Climate Policy Note, June 2009.

Access to Finance	44.8	60.4	68.0	26.2	8.0	15.5
Crime	44.1	22.6	33.1	32.8	2.5	38.0
Tax Rates	40.9	52.4	75.6	29.4	22.9	4.6
Courts	37.0	10.9	29.4	13.9	..	1.6
Permits And Licenses	28.7	23.1	28.5	20.9	7.7	3.0
Labor regulations	24.5	9.0	9.9	16.0	1.5	5.9
Access to Land	21.7	n.a.	n.a.	n.a.	n.a.	n.a.

Source: World Bank Enterprise Surveys website custom query; http://www.enterprisesurveys.org/ and World Bank. 2009. Republic of Congo Enterprise Indicator Survey.

Note: The statistics for countries other than the Republic of Congo are produced without sampling weights.

"n.a." means not available

The recent World Bank Investment Climate Policy Note (ICPN) identifies four pillars for economic transformation in Congo, as highlighted in the following text box:

Roadmap for Action: World Bank ICPN Four Pillars for Economic Transformation in Congo[3]

1. **Improving infrastructure**. Power cuts have cost 19 percent of firms turnover and 82 percent of firms have to rely on a generator (which is very costly). It takes 50 days to import goods and 62 days to export goods (as reported in the Doing Business report). The Government has launched important investments in the power and transport sectors. It will be important to complement these investments with regulatory and institutional reforms to ensure good management and governance and to allow private sector participation.

2. **Improving the business environment**. The vast amount of red tape coupled with poor governance and a weak judiciary translate into high cost and high risk of doing business in Congo. Firms need to make 61 payments a year amounting to 65% of their profits and requiring over 600 hours a year of a qualified staff, as highlighted in the Doing Business Report. Unfair competition from the informal sector discourages productive formal investments. Less than one third of firms trust the judiciary. More than half of the firms participating in public tenders have admitted making informal payments or making gifts to get the contract. Access to land is also problematic – 116 days are needed to register a property. In such an environment, it is not surprising that banks are reluctant to lend and charge high rates – lending rates exceed 25% forcing 71% of firms to finance themselves through internal funds. The ongoing initiative to improve Congo's performance along key Doing Business indicators need thus to be intensified and broadened.

3. **Supporting SMEs and workers.** The current set up to support firms and workers is fragmented and insufficient to meet the immense needs. The government has

[3] Excerpted from: World Bank, Republic of Congo Investment Climate Policy Note, June 2009.

developed strategies to improve access to finance and increase workers' skills. These initiatives need to be reinforced through coordinated support by the development community, possibly through a "Maison de l'Entreprise" which would regroup all the services offered to SMEs.

4. **Developing new growth poles**. Beyond developing linkages around the oil sector, Congo has the natural and human resources to develop new growth poles around wood and agricultural products transformation, tourism and ICT (information and communication technology). The economic integration with the Democratic Republic of Congo should allow the two countries to develop synergies and to reach a critical mass lowering costs and attracting investors. The goal is, for each of these poles, to undertake a critical mass of investments, as well as policy and institutional reforms in order to unleash significant private sector investments, including from strategic investors which would bring in key know how and would help achieve critical mass.

III. Methodology

The study aimed to improve understanding of the demand for, supply of and necessary investments into the cassava value chain in order to improve food security and perhaps support sustained economic growth in the Republic of Congo (ROC). The research was geared towards developing a preliminary vision, strategy and business plan for modernized and commercially driven agribusiness sector that would contribute to private sector development and food security for the country.***Figure*** 3 shows the main research questions addressed in this study, as conceived in the Terms of Reference and Inception Report.

Figure 3: Research Questions and Analysis Summary

	Question(s)	Likely Source(s)	Analysis	Presentation of findings
Demand	• What is the market for cassava in urban centres?	• FAOSTAT • IITA • Channel partners (transformers, wholesalers) • Consumers	• Benchmarking analysis (vs DRC) • Historical trends analysis	• Written summary of findings • Excel spreadsheet
	•What are the needs of consumers and are they currently being met by domestic production?	• Consumers	• Consumer interviews	• Consumer portraits
Supply	• What is the current production of cassava in Congo?	• Ministry of Agriculture • Channel partners	• Interview with Ministry of Agriculture • Cross reference with information from channel partners	• Written summary
	• What quantity & % of cassava produced is wasted? • Where does this happen along the supply chain? • What is the cause of wastage? • How much cassava currently reaches urban centres?	• Producers • Channel partners (transporters, transformers, wholesalers)	• Individual and focus group interviews with channel partners	• Chart • Written summary
	• What are the costs along the supply chain? • What value is added and by whom along the supply chain?	• Producers • Channel partners (transporters, transformers, wholesalers)	• Individual and focus group interviews with channel partners	• Build up chart • Written summary
Investment	• What public and private sector investments are necessary to optimize the value chain? • What challenges do value chain actors & investors face accessing finance?	• IITA • CIAT • Expert consultant • OTF Experience • Channel partners	• Case studies (e.g. Ghana, Nigeria) • Individual and focus group interviews with channel partners to understand financing issues	• Written recommendations • Case studies

OTF began the study in mid-April by spending ten days conducting desk research on cassava, benchmarking production, yields and consumption in Republic of Congo with that in other countries. This research drew largely from the FAO database (FAOSTAT), case studies on cassava in other countries (e.g. IITA studies in Ghana and Nigeria), and cassava value chain analyses conducted in other countries (e.g. Matchmaker Associates' cassava value chain analysis in the Lake Zone of Tanzania). Through desk research OTF also reviewed existing studies on agriculture in Republic of Congo, relying mostly on reports furnished by the World Bank.

This preliminary research was used to refine hypotheses and develop a work plan for field research in Congo. OTF spent the first two weeks of May in Congo during which the following activities were undertaken:

- Interviewing local cassava experts (see Annex I: Interviews Conducted & Field Visit Schedule)
- Visiting six markets for cassava in Brazzaville and interviewing transporters, sellers, and resellers of the major forms of cassava sold in the markets and interest in backward integration into commercial processing of cassava
- Interviewing cassava sellers in major cassava producing regions of Pool and Plateaux
- Visiting a cassava farm in Plateaux department and interviewing a farming cooperative
- Interviewing other key stakeholders in Brazzaville, including PDARPR staff and civil servants in the Ministry of Infrastructure

To enhance our understanding of the cassava market in Brazzaville, OTF engaged a local consultant from the Ministry of Agriculture and Animal Husbandry, M. Jean Isben Moukouba, and a team of research assistants to spend seven days at each of the nine markets in Brazzaville where cassava is sold. The team recorded the quantity, form (chikwangue, foufou, etc) and provenance of all cassava arriving in the markets.

To understand the market for cassava in Pointe Noire, OTF referred to a previous study conducted by M. Moukouba in 2006 (commissioned by the World Bank), where he and his research assistants observed and quantified the cassava market.

OTF combined the data from the available studies with the findings from our primary research and developed a model to estimate demand for cassava in urban markets in Congo[4]. We also analyzed the cost and value added per kilogram in a typical cassava (specifically cossettes de foufou) value chain. Finally, we synthesized the information gathered from PDARPR, stakeholders, and the Ministry of Infrastructure and Public Works to make recommendations of priority investments for the donor community and other partners.

[4] For details of this consumption model, please see Annex IV

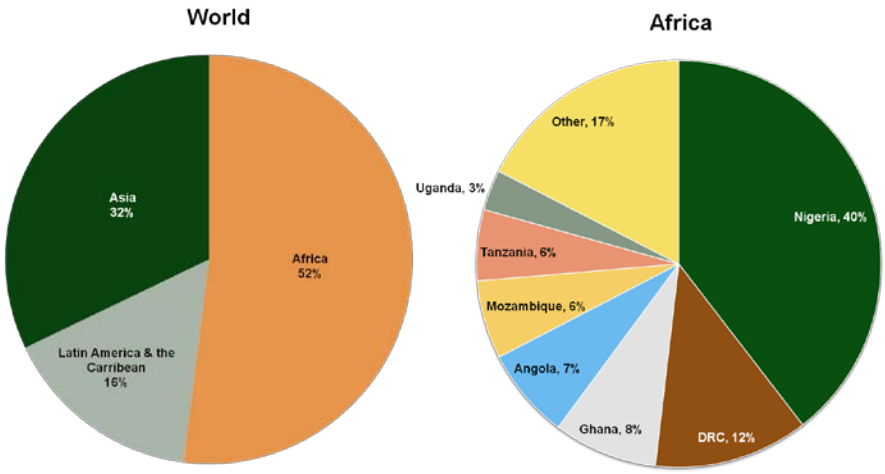
IV. Cassava and its importance in Congo

Summary: Cassava and Its Importance in Congo
• Cassava is the world's fourth most consumed staple food; it is primarily grown for human consumption in developing countries • More than half the world's cassava is produced in Africa • Cassava boasts several properties that make it an important crop for ensuring food security in developing countries (e.g. it is resilient to floods and drought) • Only a small percentage of cassava produced is traded across borders • Congo has the fourth highest per capita consumption of cassava in the world • Because of its relatively small population (< four million people), Congo produces a negligible portion of the world's cassava (it ranks 8th in the world in per capita production) • Cassava yields in Congo are average for Sub-Saharan Africa

A. World cassava overview

Cassava is the world's fourth most important staple crop after rice, maize and wheat, and is an important component in the diet of more than one billion people. Cassava is cultivated in most tropical countries within 30° N and 30°S of the equator, a testament to its adaptability to a variety of climatic conditions. Because of its high weight to value ratio and the wide availability of substitutes, most cassava is consumed locally or regionally in its most basic forms. The trend of falling commodity prices that began in mid 2008 and accelerated thereafter has not spared cassava. According to the FAO, the most heavily affected cassava products are flour and starch, which lost 30% of their value between March and September 2008. At the same time, the FAO estimates that global cassava production reached an all-time peak in 2008, which reflects many countries' increasing reliance on the crop to ensure domestic food security. The following graphic depicts the breakdown in cassava production.

Figure 4: Cassava production worldwide and within Africa[5]



[5] FAO Food Outlook: Global Market Analysis (November 2008)

Cassava is mainly processed for human consumption, where it is consumed as food almost exclusively in developing countries. In Africa, there are five common groups of cassava products consumed by humans: fresh root, dried roots, pasty products, granulated products and cassava leaves. Other common uses of cassava include animal feed, paper-making, cardboard, textiles, adhesives, high fructose syrup and alcohol. Large cassava producers such as Nigeria are actively looking at ways to move into the latter product categories as they are more sophisticated an higher value.

Cassava boasts several properties that can make it fundamental to ensuring food security in low income countries. The crop is:

- Tolerant to drought and poor soil quality, and thus can grow when other crops fail.
- An ideal food reserve, as it can be planted and harvested year round and remain fresh underground for as long as 24 months.
- An excellent source of calories and can produce more carbohydrate per unit area than is provided by other staples. Both the roots and leaves are suitable for human consumption. The former are an important source of carbohydrates and the latter of proteins and minerals.
- Cassava is not only resilient, but also relatively easy to grow. It is inexpensive and requires very little weeding relative to other crops. It thrives when intercropped with other tubers, fruits and vegetables and can be very easily propagated by stem cuttings.

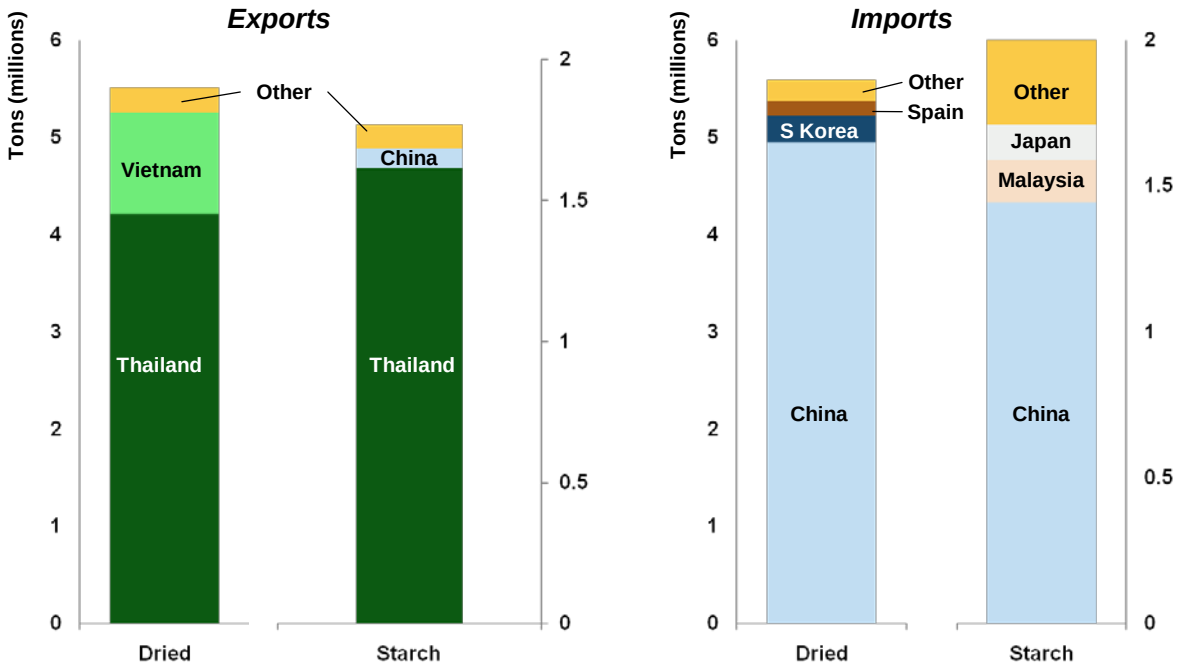
One of the greatest hindrances to attaining cassava's productive potential is the fact that it is highly perishable in raw form. Due to its high water content, cassava root spoils within four days of being pulled from the ground, and should ideally be processed within two days. In the developing countries where cassava is grown predominantly as a staple food, consumption in rural areas is much higher than in urban areas, in part because poor infrastructure makes it difficult to preserve all the way to urban markets. Cassava's tendency to perish quickly in unprocessed form has also been a constraint to business people who would like to turn the tuber into a higher value product (such as starch or beauty products). Most large-scale processing tends to take place in towns and urban centers so the cassava would have to be brought from the fields, which could take several days.

Because of cassava's high weight to value ratio and its limited shelf life in unprocessed form, only a small percentage of cassava produced worldwide is traded across borders. Cassava's properties of bulkiness and perishability make fresh cassava root a risky product to market and an inconvenient and expensive food for the urban dweller. Thus, international trade in fresh cassava roots is mostly confined to transactions between neighboring countries and is not usually recorded in the official statistics.

Nearly all of the trade that does occur consists of cassava in dried or starch form. As shown in *Figure 5*, most cassava trade occurs between Asian nations, Thailand being the biggest exporter and China the biggest importer. It would not be practical for Congo to export cassava beyond its neighboring countries unless there were major value addition within the country. Given the decrepit state of most factories and the lack of industry infrastructure, it would be difficult for Congo to successfully compete with Asian nations in cassava starch trade. Even if cassava

could be cost competitive in production (which is unlikely in the near future), the transport costs to Asia would make the end product uncompetitive on cost. The European market is fairly small, and because cassava has many substitutes (whether in dried or starch form), price volatility make exporting cassava to European markets a risky venture with a relatively small potential upside.

Figure 5: The Global Cassava Trade



B. Benchmarking Congo against other countries[6]

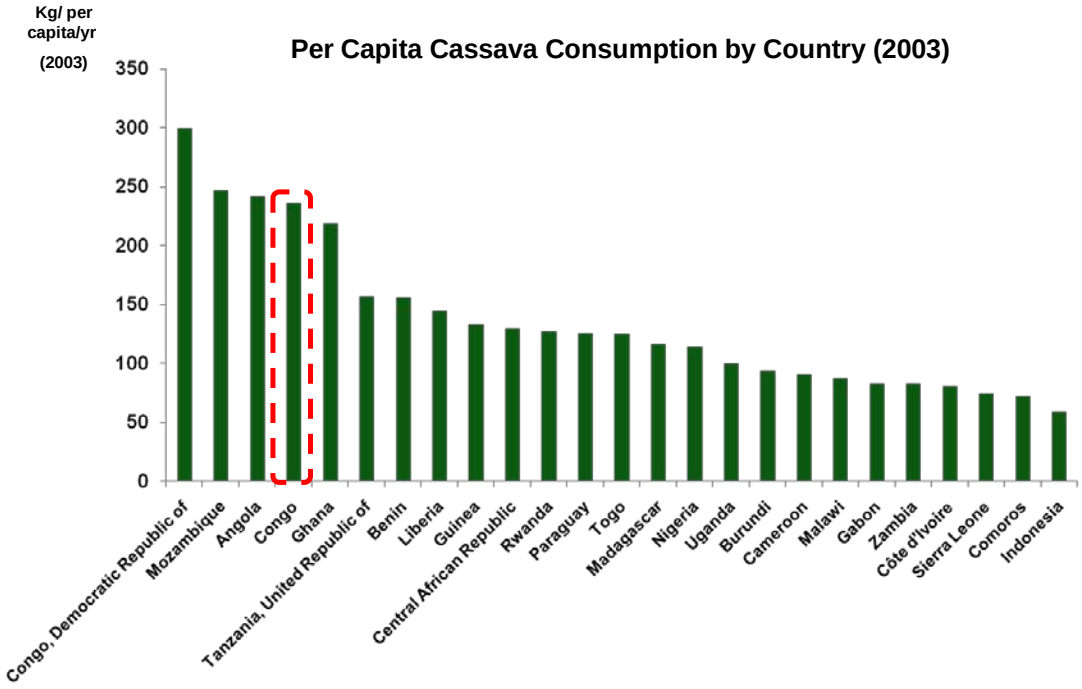
Given that one third of Congo's population is food insecure[7] and annual food imports amount to $200 million,[8] cassava's characteristics make it a key crop in reducing the volatility of food supply in the country. As shown in *Figure 6*, in 2003 (the most recent for which FAO has published consumption data) Congo had the fourth highest per capita consumption of cassava in the world, with the average Congolese consuming 236 kg of cassava per year. The three graphics below illustrate Congo's yield and per capita production and consumption relative to other countries worldwide.

[6] The data used in the benchmarking analysis is from FAOSTAT, accessed in April 2009.

[7] Comité National de Lutte Contre la Pauvreté, République du Congo. *Document Final de Stratégie de Réduction de la Pauvreté.* 31 Mars 2008.

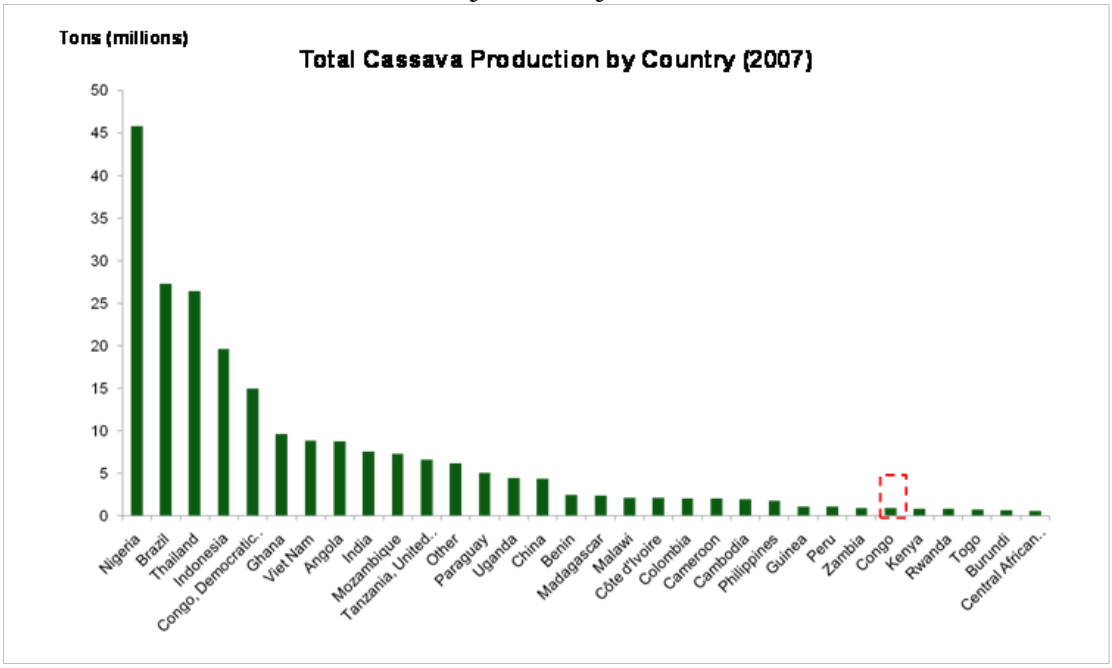
[8] Ministère de l'Agriculture et de l'Elevage, République du Congo. *Programme National Pour la Sécurité Alimentaire (PNSA) : Première phase : 2008-2012.* Juin 2006.

Figure 6: Per Capita Cassava Consumption by Country



While Congo produces only a negligible portion of the world's cassava (see *Figure 7*), *per capita* production is eighth in the world indicating strong affinity for the product.

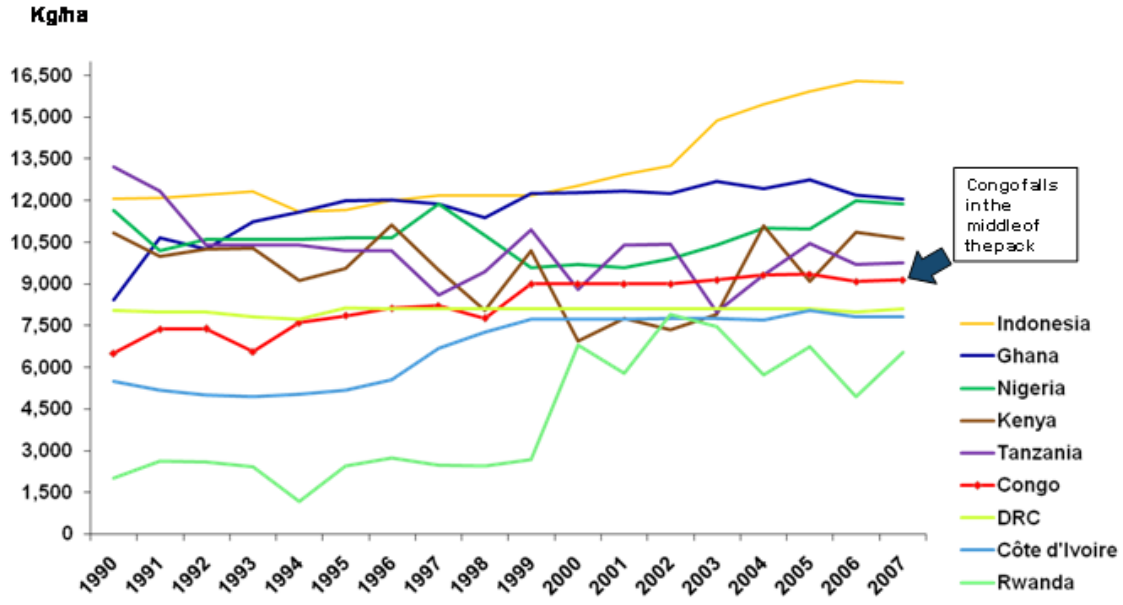
Figure 7: Total Cassava Production by Country



Congo's cassava yield (kg/hectare) falls approximately midway between that of other countries and well below other African producers, indicating there is room for improvement with improved disease and pest management and adoption of mechanized farming techniques. Within Africa, it can look to Ghana and Nigeria as examples where improved techniques and

disease and pest control have raised yields. A few examples of these techniques are discussed later in the document under the strategy and solution sections.

Figure 8: Cassava Yield by Country



V. Historical Trends and Commercialization of Cassava in Congo

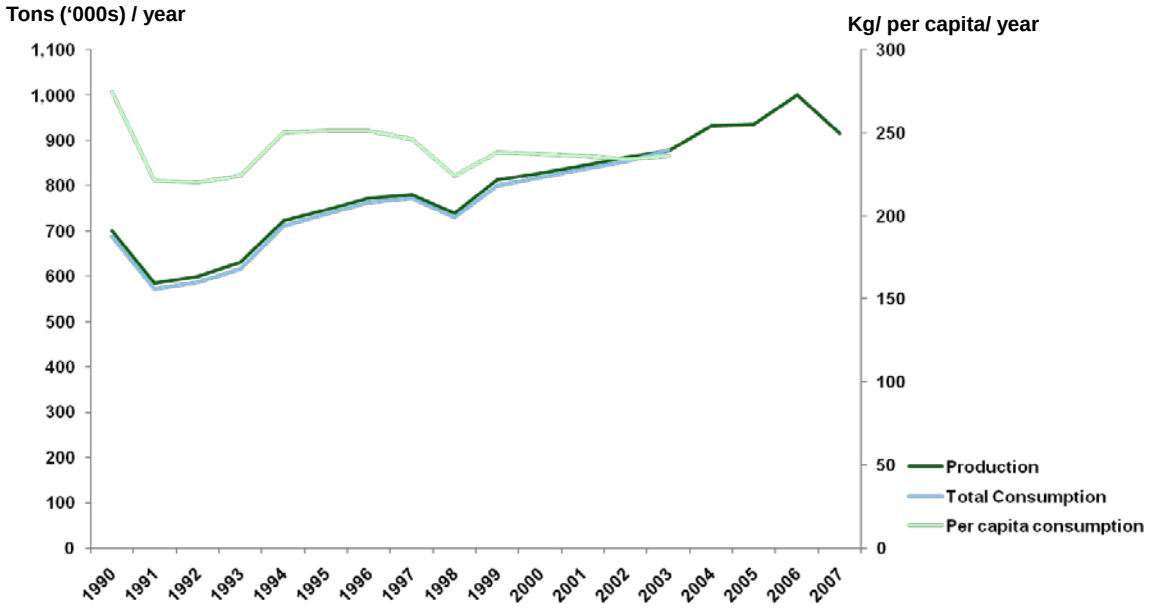
Summary: Historical Trends & Commercialization of Cassava in RoC
• Both total and per capita production of cassava in Congo have steadily increased since the early 1990s, with troughs roughly corresponding to outbreaks in conflict • Since the early 1990s, production and consumption have shown the same growth patterns, with consumption slightly higher than production; more recent estimates show production has slightly surpassed consumption (we assume the difference to be lost to wastage) • Cassava is consumed in myriad forms in Congo; however, four main forms are sold in urban markets: paste, cossettes, foufou (flour), and chikwangue

A. Historical trends

Both total and per capita production have steadily increased since the early 1990s, with dips roughly corresponding to the outbreaks of conflict in 1993, 1997 and 1998. Per capita consumption has shown a similar trend, although per capita consumption exceeded per capita production throughout much of the 1990s, indicating cassava must have been imported from neighboring countries (though this is not strictly confirmed by FAO trade data or the ITC's Trademap database).

Beginning in 2002, per capita production caught up with consumption; however, we do not have a clear picture since then, as FAOSTAT has not published consumption data past 2003. We do know that production continued to increase until 2007, when it showed a slight decline (*Figure* ***9***).

Figure 9: Cassava Production and Consumption Trends in Congo



It should be noted that, as is often the case in developing and especially post-conflict countries, data is scarce and unreliable in Congo. The FAO bases its production estimates on figures provided by the Government of Congo, and the government has not conducted a production

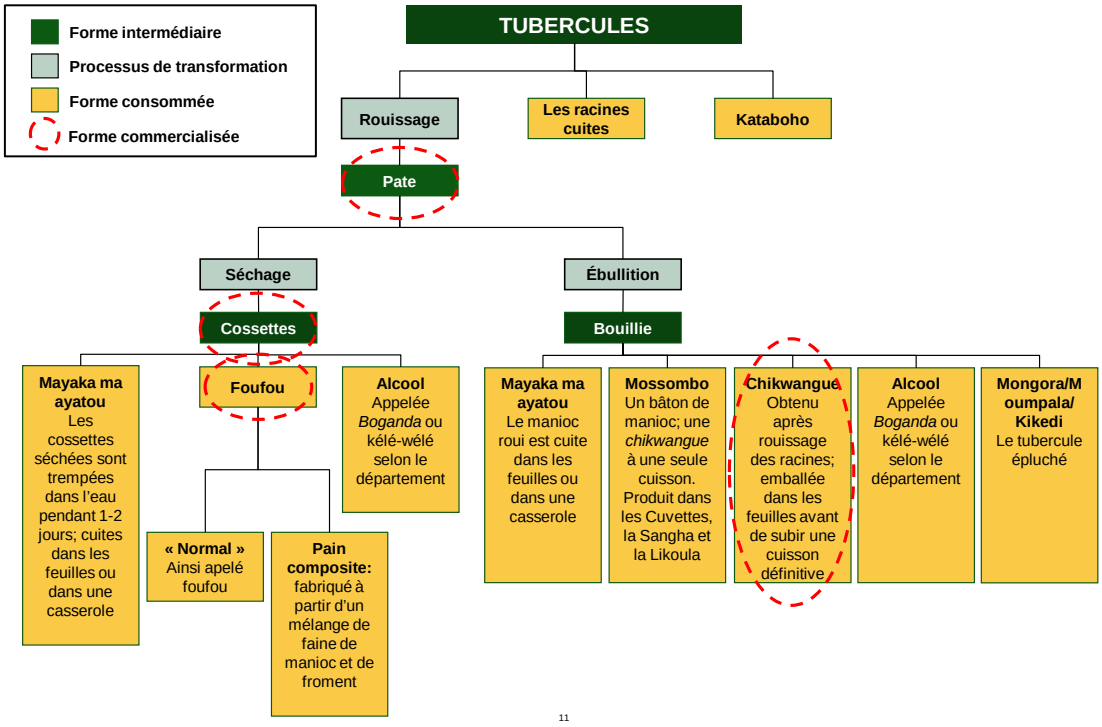
survey since 1996. Thus, we should take care not to assume too much precision in the figures and understand them to be rough estimates.

With that caveat in mind, we can look to the Ministry of Agriculture and Animal Husbandry (MAE) to provide production estimates where FAOSTAT drops off. MAE approximates cassava production in 2008 was 1,092,270 tons; if the 2009 growth rate in production is the same as MAE's 2008 estimate indicates (i.e. 2%), this predicts 2009 production will be 1,119,576 tons.[9] The Ministry does not have estimates of consumption beyond the 2003 FAO figures; however, OTF's analysis estimates consumption at approximately 1,026,440 tons for 2009 (methodology described on page 23). Since Congo is not exporting cassava, we assume the difference between production and consumption is post-harvest waste. This implies post-harvest waste of 8%, which is not far off the estimate of 5% provided to us by several local cassava experts (see section on wastage, below).

B. Forms of Cassava Consumed

Cassava is consumed in Congo in a wide variety of forms, however four of these (circled in red in Figure 10) make up nearly all the cassava that is commercialized in urban markets.

Figure 10: Forms of cassava consumed in Congo



The remainder of these cassava-based products is prepared in the household from purchased foufou flour or paste.

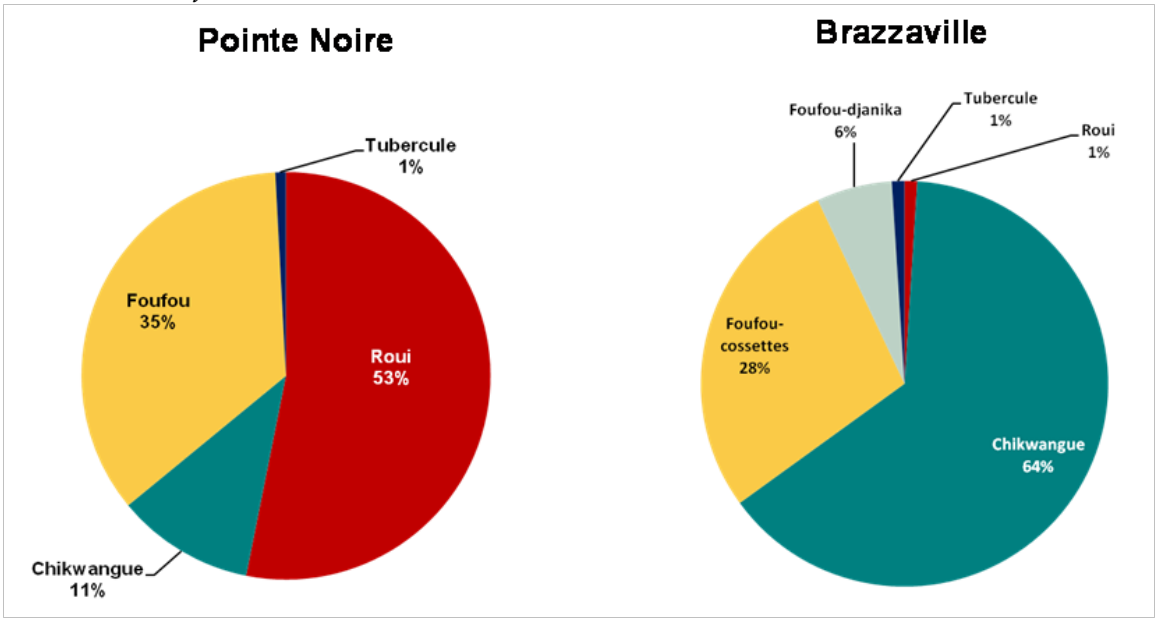
[9] Élaborât de la politique agricole commune (PAC) de CEEAC - Diagnostique Congolaise 2008.

Name	Roui or Pate	Cossettes	Foufou	Chikwangue	Djanika
Description	Cassava in paste form, after soaking, grinding and pressing of raw cassava	Roui which has been dried in brick form	*Roui* which has been dried in non-brick form	Cassava root which has been soaked, sieved, wrapped in banana leaf, and steamed	Cossettes which have been ground down into a flour
Estimated Shelf Life	3 Months	6 Months	3 Months	10 Days	6 Months
Potential for forward integration products	Yes	Yes	Yes	No	Yes

OTF and a local consultant conducted a study to observe the prevalence of each form of cassava in the markets of Brazzaville. A team of nine research assistants visited the nine principal markets where cassava is sold in Brazzaville for seven days, recording the type, quantity and provenance of all cassava arriving from the countryside. A previous study by our local consultant (also commissioned by the World Bank) in 2006 had obtained this same information in Pointe Noire (following the same methodology). We present the results of these studies below. Several points are worth noting:

- While it is not unheard of to see cassava in unprocessed tuber form in urban markets, it is exceedingly rare (1% of the market in both Brazzaville and Pointe Noire) because the process of soaking (rouissage) and drying (séchage) is most easily done in rural areas.
- Cassava in paste form (*roui* or *pate*) is by far the most prevalent form in the market in Pointe Noire (53% of sales), whereas chikwangue is the most prevalent in Brazzaville (64%).
- In both markets, the dried form of cassava (foufou) makes up approximately one third of the market. The majority of this dried cassava is sold in small bricks called *cossettes* (28% of the market in Brazzaville), while a smaller portion is sold pre-ground as cassava flour called *djanika* (6% of the market in Brazzaville). The breakdown between *djanika* and *cossettes* is not available for Pointe Noire, but we expect it to be similar to that in Brazzaville.

Figure 11: Forms of cassava most sold in Pointe Noire & Brazzaville[10]



[10] Pointe Noire data from: Moukouba, Jean. *Projet de Développement Agricole et de Réhabilitation des Pistes Rurales (PDARPR) : Etude sur les Bassins de Production et Evaluation Institutionnelle des Organisations Producteurs. Volume II.* Mars 2006. Brazzaville data from study carried out by OTF Group and Jean Moukouba, June 2009.

VI. Demand

Summary: Demand
• Current urban consumption is estimated to be 402,101 tons per year; we estimate actual urban demand may be as large as 976,530 tons per year • Rural Congolese consume cassava at 2.4 times the rate of urban consumers • All Congolese prefer cassava that is pure white in color, and assuming no price differential would prefer chikwangue to foufou • In actuality, chikwangue is consumed at a higher rate in rural areas because price and spoilage effects are not as significant

A. Urban Market Sizing for Cassava

According to the FAO and the Ministry of Agriculture and Animal Husbandry (MAE), the average rural person consumes 425 kg of cassava per year. This figure was substantiated anecdotally through OTF interviews with rural farmers and cassava experts[11]. FAO and MAE report that urban consumers average 175 kg per year. Given the substantial rural exodus taking place in the country, the urban population has grown by an average of 3.5% annually since 1990 and currently 61% of Congolese reside in urban areas.[12] These statistics imply that total consumption in 2009 is 1,026,440 tons and urban consumption is 402,101 tons. To estimate total demand we take into consideration that (1) there may be unsatisfied demand, and (2) the current estimations may be slightly inflated. Based on these two premises, we model a pessimistic, neutral, and optimistic scenario for the urban market size (*Figure 12*).

Figure 12: The market size for cassava in Congo – 3 scenarios

	Consumption (kg/pp/yr)		Population		Market Size (tons)		
	Urban	Rural	Urban	Rural	Urban	Rural	Total
Estimated current consumption	*175*	*425*	*2,297,718*	*1,469,033*	*402,101*	*624,339*	*1,026,440*
Pessimistic Scenario	162	350	2,297,718	1,469,033	372,230	514,162	886,392
Neutral Scenario	300	425	2,297,718	1,469,033	689,315	624,339	1,313,654
Optimistic Scenario	425	450	2,297,718	1,469,033	976,530	661,065	1,637,595

In the ***pessimistic*** scenario we assume the current estimate of urban and rural estimate is inflated and thus we use 160 and 350, respectively. This scenario can be supported in by the following for both consumer segments:

- **Urban:** our study of the Brazzaville market estimates a total of 139,000 tons of cassava entering the Brazzaville market per year, which implies a per capita consumption rate of 162 (rather than 175). Further, data from a 2006 study in Pointe Noire suggest that

[11] Focus groups were completed at urban markets and among rural farmers to confirm consumption amounts. Additionally, Jean Isben Moukouba, a cassava expert at the Ministry of Agriculture reviewed these figures and confirmed their accuracy

[12] UNICEF: http://www.unicef.org/infobycountry/congo_statistics.html; accessed 11/06/09.

per capita cassava consumption there is significantly lower, i.e. 38 kg per capita per year.[13]

- **Rural:** the current "official" estimate of 425 kg implies 1.2 kg, or 2.6 lbs, of cassava per person per day!

In the ***optimistic*** scenario, we assume the current consumption estimates are correct; however, urban dwellers have the same preference for cassava as rural dwellers (many of them have only recently moved to the cities, after all) and so the current disparity in consumption is due to the higher prices in urban centres. Thus, we assume urban dwellers would consume the 425 kg per year that is the current estimate for rural dwellers and we assume rural consumption could increase by 25 kg/per person/year.

For the ***neutral*** scenario, we assume urban consumption can increase but not to the level of rural consumption. One reason might be that the small portion of the population that is affluent may prefer substitutes for cassava, for example a baguette with breakfast.

Figure 13: Assumptions in Market Sizing Analysis

Scenario	Assumptions
Pessimistic	• Urban consumption of 175 kg/yr and rural demand of 425 kg/yr are inflated
Neutral	• Urban demand will increase with reduced prices but not to the level of rural demand because of different consumer preferences
Optimistic	• Urban consumers have same demand for cassava as rural consumers and are currently consuming less because of price • Rural consumption could increase with less waste in the production stage of the value chain

More details of the cassava consumption model can be found in Annex IV.

B. Consumer Needs and Unmet Demand: "Congolese Love Cassava!"

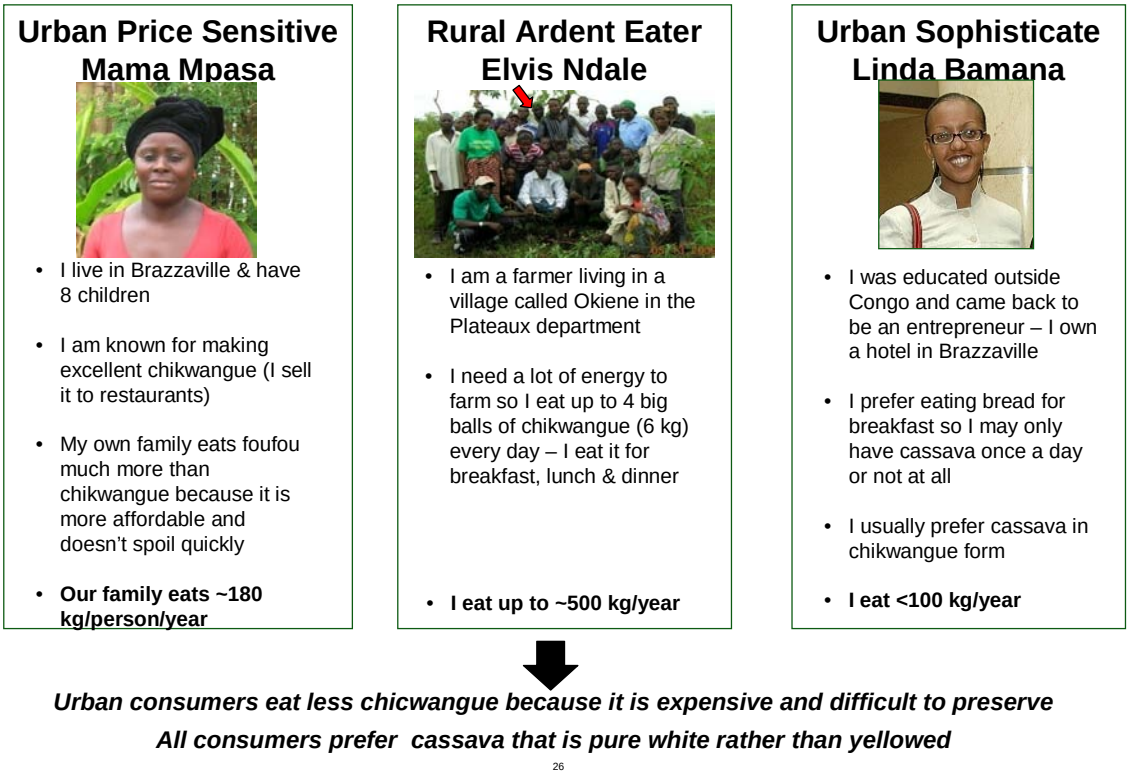
As mentioned previously, the Congolese consume cassava at one of the highest rates in the world. These statistics are borne out by the enthusiasm the average Congolese displays when you ask them about the tuber. Whenever we raised the subject of cassava with someone on the street they exclaimed, "The Congolese love cassava!"

[13] OTF Group Analysis, June 2009. Cassava quantity in Pointe Noire from : Moukouba, Jean. *Projet de Développement Agricole et de Réhabilitation des Pistes Rurales (PDARPR) : Etude sur les Bassins de Production et Evaluation Institutionnelle des Organisations Producteurs. Volume II.* Mars 2006. Pointe Noire population estimates from : US State Department.

As depicted in Figure 10, Congolese have myriad ways of preparing cassava. There are slight regional differences in preference, but one quality that is appreciated throughout the country is a very pale hue. Local experts told us that some varieties of cassava popular in West Africa would not be marketable in Congo because they produce a yellowish tuber/flour/paste.

Urban and rural consumers of cassava differ in terms of both quantity and form consumed. As described in the previous section, the average rural inhabitant consumes 2.4 times the amount of cassava of the average urban inhabitant. This disparity can be explained by the fact that most rural dwellers grow their own cassava for subsistence and/or have relatively easy access to cassava harvested by others. Poor rural roads make transport to cities costly and add to the price of cassava sold in town. In addition, most Congolese tend to prefer chikwangue to foufou, but in urban areas foufou is consumed in greater quantities because it lasts longer (cassava paste or prepared chikwangue spoil after several days). As a result, foufou is less expensive and can be bought in large quantities. Figure 14 depicts three typical Congolese consumers.

Figure 14: Cassava consumer snapshots



The urban "price sensitive" consumer is by far the largest consumer group as 61% of Congo's population is urban, and the vast majority of people are poor. It is this group that has the greatest unmet demand, and where there is the greatest potential for increasing cassava consumption. Right now this group tends to buy much more foufou than chikwangue because it has a longer shelf life (a month for a large sac of foufou flour vs. a day or two for chikwangue by the time it reaches the end consumer), is cheaper, and can be more easily stretched to feed more people when money is limited. For example, one woman we interviewed, Mama Mpasa (so called because she is a mother of twins) makes chikwangue and sells it to local restaurants, but her own family of 10 consumes cassava almost exclusively in foufou form. The sole exception is that one of her twin sons does not like foufou, so she occasionally gives him chikwangue – which is seen as an extra luxury.

The rural "ardent eater" currently accounts for the biggest portion of cassava consumed in Congo. Although the rural population represents a minority of the total population, because they consume cassava at more than twice the rate of the urban population, their total consumption is higher. As described above, rural consumers eat an average of 425 kg of cassava per year. Because this is an average of all rural consumers, including children and the elderly, it is not surprising that someone such as Elvis Ndale – a farmer in his early 20's – told us he eats six kilos of cassava a day! Not only do the rural ardent eaters consume more cassava than their rural counterparts, they also consume a greater portion of their cassava in chikwangue form. Because they are so close to the fields where cassava is grown, the issues of transport and spoilage that make chikwangue so expensive in the cities do not apply in rural areas. Thus, as described in the consumption model above, there is not much pent up demand for cassava in Congo's rural areas.

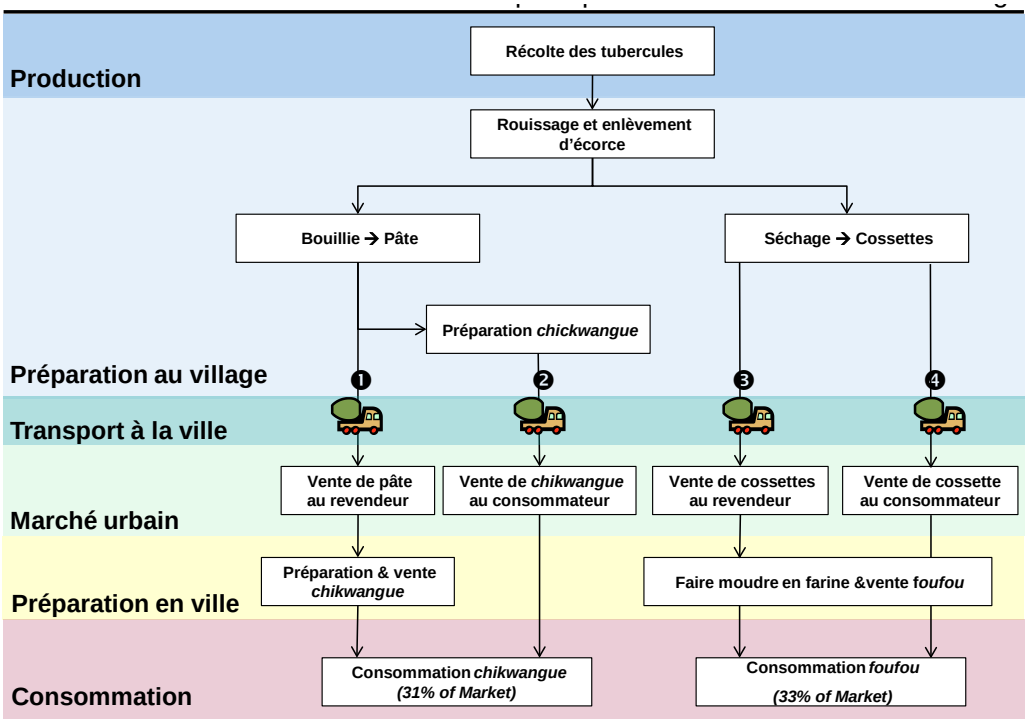
The "urban sophisticate" is the smallest segment of the market – in terms of both number of people, per person consumption, and total consumption. This segment is made up of Congo's wealthy elite who seek to emulate European styles and tastes and eschew traditional Congolese meals. This group can afford, and tends to prefer, bread (such as baguettes) to cassava, and therefore consumes cassava at a rate well below the national average.

VII. The Cassava Value Chain

Summary: Supply
• The Pool department produces the greatest portion of Congo's cassava; this is followed by Bouenza, Plateaux and Niari provinces • There are four main forms in which cassava is consumed; each follows a slightly different path to the end consumer; paste/chikwangue are more expensive than cossettes/foufou • The highest costs along the value chain occur in the production stage • Up to 15% of cassava produced is wasted, and 2/3 of this wastage occurs at the production stage for both foufou and chikwangue products • The remaining 1/3 of wastage occurs during transformation for foufou, and during transportation for chikwangue • Prices of foufou and chikwangue are counter-cyclical: foufou is cheaper in the dry season while Chikwangue is cheaper in the rainy season

A consistent and growing supply of cassava to the Congo market implicates a multi-step value chain, including: production, processing, transportation and marketing or commercialization. The follow graphic illustrates the different steps in the value chain for two cassava-based products: chikwangue and foufou. This section will break down supply into each step of the value chain.

Figure 15: The Value Chain for Cassava in Congo



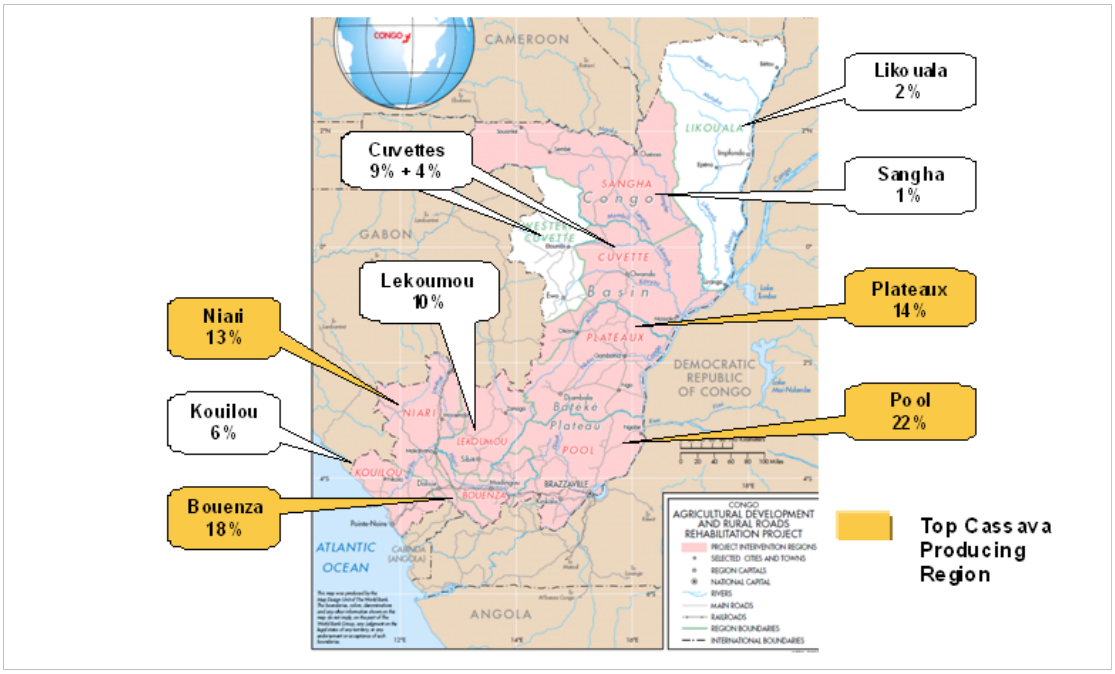
A. Current Production

As mentioned above, production of cassava in Congo has mirrored consumption over time – the most recent estimates putting production at just above 1.09 million tons in 2008. According to the Elaborat de la politique agricole commune (PAC) de CEEAC - Diagnostique Congolaise 2008, production increased at a Compound Annual Growth Rate of 4.5% over the period 2003-

2008. However, the rate of increase has slowed over this period, and estimates for growth for 2009 should be nearer 2%.

Figure 16 depicts the relative contribution of each province to total production. Although the figure is based on the last agricultural census, which was conducted in 1997, local experts believe the relative contribution of each department probably does not differ significantly today, with the one exception that Pool department probably contributes a smaller proportion to total production because the conflict was concentrated there. It is estimated that the 2008 production in Pool is approximately 22% of national production, and most of this surplus production has shifted to Plateaux and Bouenza. The figure below represents 2008 estimates adjusted from the 1997 figures.

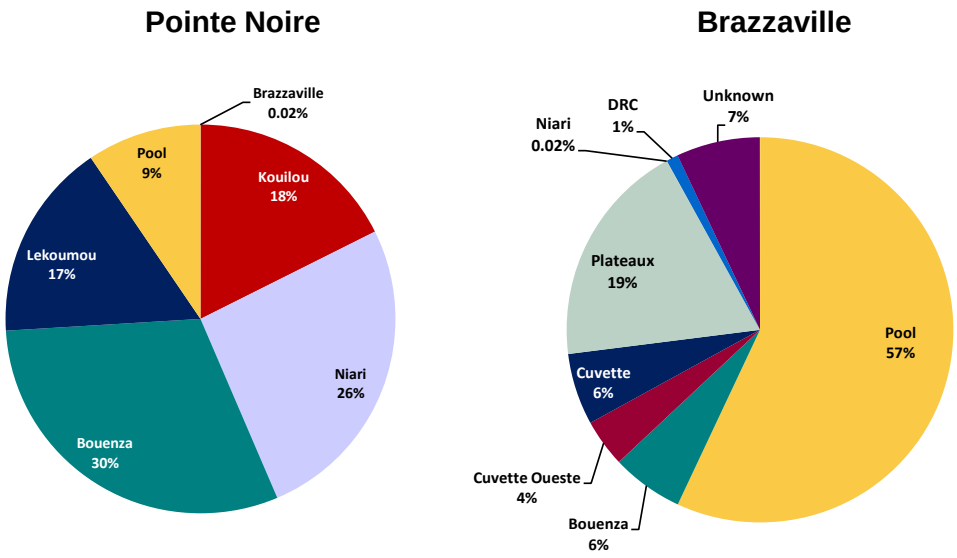
Figure 16: Cassava Production by Province[14]



In addition to looking at the production figures supplied by MAE, we also conducted primary research to determine which the provinces are the biggest suppliers to the urban centers. As in *Figure 11*, the Brazzaville data is from OTF Group's and Jean Moukouba's study in June 2009, and the Pointe Noire data is from M. Moukouba's 2006 study. Bouenza and Niari departments supply more than half the cassava consumed in Pointe Noire while Pool, Bouenza and Plateaux supply most of the cassava consumed in Brazzaville.

[14] Moukouba, Jean. *Projet de Développement Agricole et de Réhabilitation des Pistes Rurales (PDARPR) : Etude sur les Bassins de Production et Evaluation Institutionnelle des Organisations Producteurs. Volume II.* Mars 2006.

Figure 17: Cassava Supply to Urban Centres



Seasonality impacts production

The ***season*** affects the value chain: production costs for foufou increase during the rainy season because it is harder to dry the cassava. Conversely, in some departments (e.g. Plateaux) production costs for manioc roui increase during the dry season because women have to travel far to fetch water for boiling. The season also affects transport costs, as in the rainy season roads become more treacherous and some areas may become completely inaccessible.

Wastage in the Production Stage

Overall, up to 15% percent of waste occurs for both chikwangue and foufou products. *Most of this waste occurs at the production stage* – ripe cassava that is left in the ground un-harvested and rots, or is diseased, or is consumed by animals. While areas affected by some of these diseases can incur losses of up to 80 or even 100%, nationwide only 10% of cassava produced is lost during production, with post-harvest losses amounting to 5%.

According to a report by MAE, the major causes of loss during the production stage include:

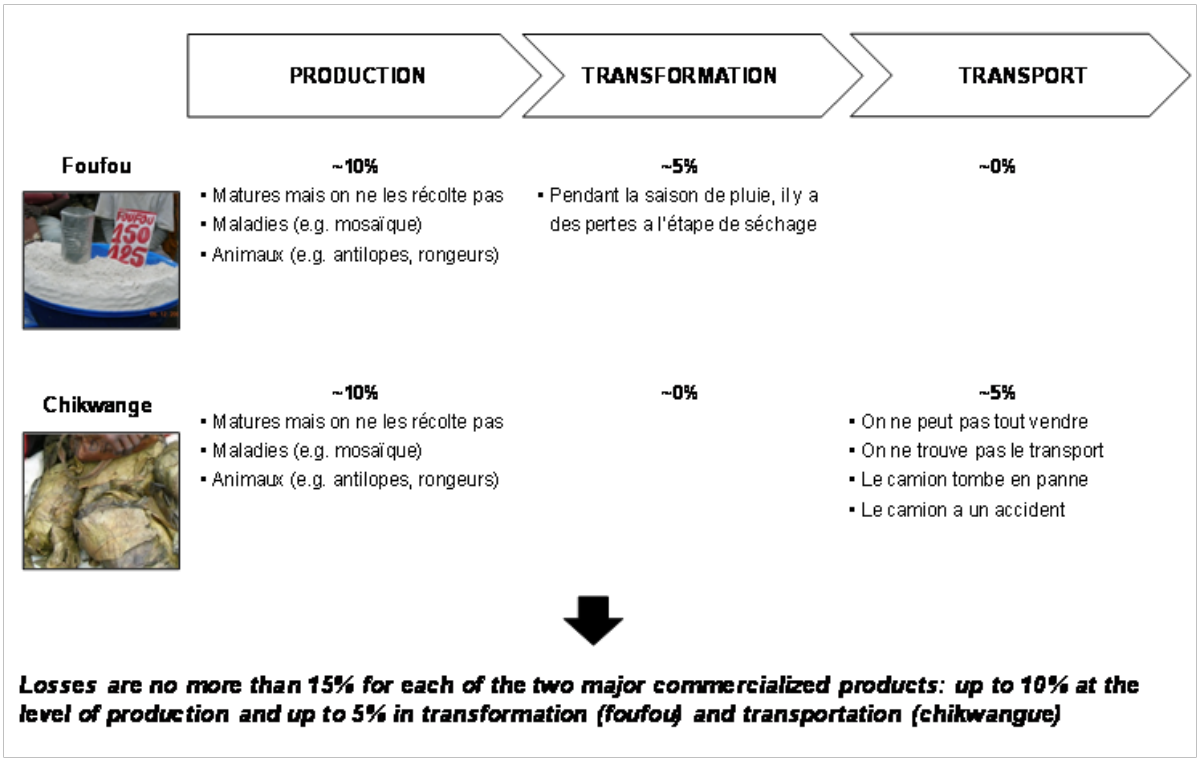
- ***African Mosaic Manioc Disease :*** the most wide-spread disease in the tropical regions of Africa and India , causing yield losses of 20-80%
- ***Vascular bacteria:*** causes yield losses of 80-100% during periods of heavy attack.
- ***Rotting roots or and general rot:*** caused by various pathogenic agents in the soil
- ***Anthracnose:*** caused by a mushroom
- ***Sigatoka disease:*** a disease of secondary importance, characterized by leaf-spots.
- ***Parasite diseases:*** Consisting of crop destruction caused by inundations, particularly in the departments of Cuvettes, Sangha, Likoula and rarely hail in the Plateaux
- ***Pests:*** green mite, the mealybug, root mealybug, the variegated grasshopper, and cercopide
- ***Weeds:*** constitute a major constraint to the development of manioc

There are currently a number of interventions for disease control in Congo that should be leveraged as part of its eventual intervention the cassava value chain. The following chart highlights the principal intervention programs. A detailed list of stakeholders and contact information can be found in Annex 3.

Figure 18: Existing disease prevention interventions in Congo

Program / Organization	Intervention
Comite International de la Croix Rouge Congo (CICR)	Since 2004, Congo's agriculture minister has worked conjointly with CICR in the districts of Lékana, Kinkala, Mindouli and Kindamba to identify and distribute four local varieties of resistant roots. Stems were distributed to 104 farmer collaboratives, including 13,000 beneficiaries. However, these varieties were only a temporary solution as they are not resistent to the more severe viruses. By 2007, 330,000 stems were distributed to 7,500 beneficiaries.
	Recently imported four new varieties, that are currently in multiplication phased in Kinkala, Mindouli and Kindamba, and will be redistributed to 50 groupements.
International Institute of Tropical Agriculture (IITA)	1. Imported six varietals from RD at the end of 2005, multiplied and distributed them in Lékana, Kinkala, Mindouli Kindamba, Vinza and Kimba. 2. In the field operations for capacity building
Projet de Développement Rural (PRODER)	1. Elaborating a production scheme and strategy for the distribution and marketing of resistant strains 2. Evaluating incidences and severity of different diseases 3. Production and distribution of resistant strains 4. Coordinating with IITA to adopt new resistant varieties
Food and Agriculture Organization (FAO)	1. Programs launched: TCP/PRC/0166: "Production et protection integree du manioc dans la region des Plateaux and UFT/PRC/001/PRC 2. Enlarge genetic base of cassava by introducing 115 elite clones through the IITA 3. Organization and structuring of a network of producers, APROMAP 4. Working to create a genetic culture laboratory for in vitro and biotechnology 5. Capacity building support, with an emphasis on disease prevention 6. Creation of school fields for training
Ministerial Intervention	1. General Delegation of Scientific and Technical Research (DGRST) is a governmental body overseeing and coordinating research activities 2. Support programs and institutional structures include: PDARP and PRODERs, CVTA, CNSA, AgriCongo

Figure 19: Sources of losses along the value chain



We should note that the 5% figure for post harvest loss is an estimate obtained through expert interviews and not direct observation by OTF Group. However, our own model for estimating 2009 production and consumption implies a post-harvest loss of 8%, indicating the 5% figure given to us is not unreasonable. In addition, although when we look to other countries comprehensive data on post-harvest losses are not readily available, a 1992 survey in Ghana indicated low levels of physical post-harvest loss of cassava and estimated losses unlikely to exceed 5 percent, a figure which is likewise consistent with our information on Congo.[15]

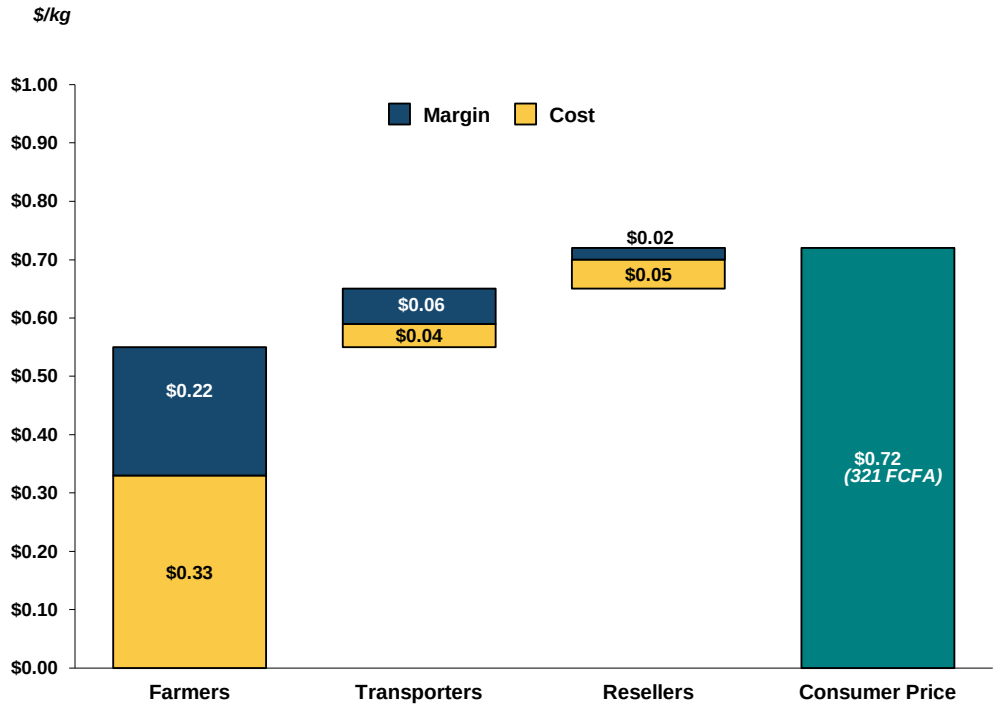
B. Current Processing

While cassava can be consumed in many different forms, necessitating different value chains by end product, the vast majority is consumed as chikwangue or foufou in Congo. Due to the fact that most cassava processing occurs on the farm, added value remains with farmers, explaining high percentage margins at the farm-level. In the case of the graph below, where the specific products are cossettes, the soaking, peeling and drying are all done by the same farmers that harvest the crop. Once the cassava leaves the farm, there is little to no further processing before being sold to the end consumer.

It should be noted that this bar chart is an estimate of the "average" costs and value added, and that in fact there exist a number of variables that can change both the total and the distribution of costs and profit along the chain. Below we explain the influence each variable has on production and transport costs and margins in the value chain.

[15] http://www.fao.org/docrep/V4510E/V4510E08.htm accessed 15/06/2009.

Figure 20: The Value Chain for Cossettes de Foufou

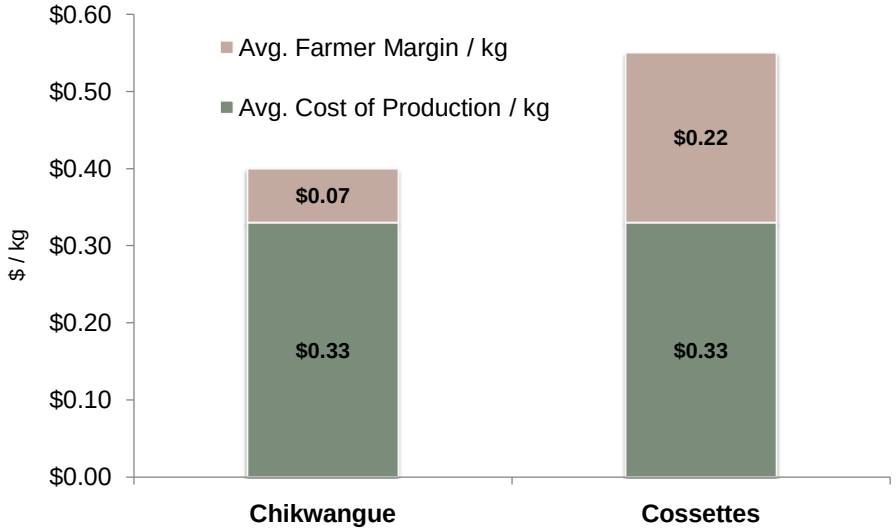


Type of processing impacts overall margins

The product matters because with manioc roui and chikwangue (in the case when they are produced in the village), the costs are higher and tend to occur at the village level. The forms of foufou (cossettes and djanika) have lower overall costs.

The following chart demonstrates the difference in profitability of two commonly commercialized cassava-based products: cossettes, with a 28% market share of commercialized cassava, and chikwangue, with a 31% market share. As outlined in the chart, cost of production of the two products is, in fact the same. However cossettes fetch significantly higher margins (margins are 40% of the sale price). This can perhaps be explained by the fact that cossettes have forward integration capabilities, while chikwangue is in its final, consumable form. Moving forward, it will be important to carefully monitor all market pricing in Congo, as a way to ensure the stabilization of production and processing to meet market demand, while optimizing margins.

Figure 21: A cost – margin comparison of two cassava-based products in Congo



Wastage in the Processing Stage

Wastages occur in all forms of cassava processing in Congo. During foufou processing, an additional 5% of waste can occur, especially in the drying process. This occurs during the rainy season if drying of the cossettes is attempted. If the cossettes are exposed to too much moisture, they spoil and are not considered suitable for market. The result of this wastage is higher prices in urban centers, due to a reduction in supply. *Figure 23* shows that prices in Brazzaville fluctuate according to the season; prices rise during the rainy season from November through April and decline in the dry season, May through October.

C. Current Transportation and Marketing

Different cassava based products follow different paths to market. Chikwangue principally follows one of two paths to market. Along both, cassava is harvested at the farm and then peeled and boiled to make a paste.

- **Path 1:** At this point, cassava can be transported to town as a paste (Path 1 represents 53% of the cassava market in Pointe Noire, but only 6% of the market in Brazzaville).
    - Upon arrival in the urban market, the paste is sold to a reseller.
    - Then the cassava is prepared as chikwangue and sold to the end consumer.
- **Path 2:** Alternatively, the paste can be transformed into chikwangue directly in the village (Path 2 represents 64% of the cassava market in Brazzaville but only 11% of the cassava market in Pointe Noire), and then transported to the urban market.
    - Upon arrival, it is sold directly to the end consumer.

Foufou also follows two paths to market. Along both, the cassava is harvested at the farm, then peeled and dried in villages, resulting in cossettes.

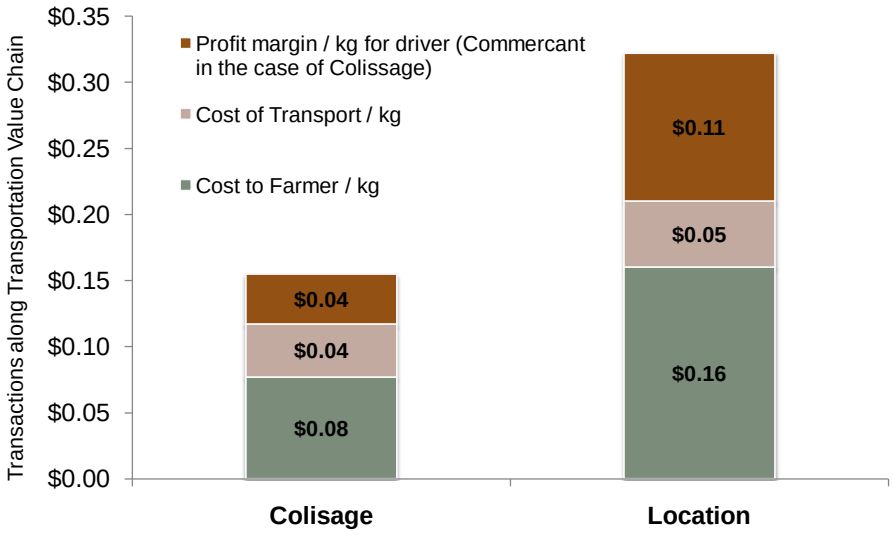
- **Path 3:** Alternatively, resellers can transform the cossettes into flour/foufou (called *djanika*) which can be sold to the end consumer (path 3 represents 6% of the cassava market in Brazzaville).

- **Path 4:** After being transported to urban areas, the cossettes can be sold directly to the end consumer (Path 4 represents 28% of the cassava sold in Brazzaville markets).

Transportation arrangements impact cost

Transportation arrangements significantly affects which actors get to keep more of the profits. There are two types of arrangements: colisage and location. In colisage, a merchant from the city "orders" cassava from farmers and owns or hires a car for collection. Under the location system, villagers pay a fee to transport their goods on someone's truck. Farmers pay less for transport through colisage, as the merchant offering colisage services is less dependent on transport margins to turn a profit. Instead, the merchant is able to collect his margins from both transportation and marketing. While transportation costs represent only a small share (approximately 13-15%) of overall value chain costs, and while the cost difference for the farmer appears to vary only slightly in the two models, the $0.08 / kg cost reduction gained through colisage could save a farmer producing 1 ton per year approximately $80, keeping more revenues in rural areas. The following graphic further illustrates the transportation options.

Figure 22: Cost comparison of two different transportation arrangements



Geographical positioning impacts margins

The ***distance from the city*** matters because (not surprisingly) transport costs increase with distance from the city. However, our data suggests that transport costs per kilometer slightly decrease with distance. The relative isolation of the farm ("***enclavement***") also increases the portion of the costs incurred by farmers, as they typically pay for transport to the main roads[16].

[16] Excerpted from: World Bank, Republic of Congo Investment Climate Policy Note, June 2009. "There are officially 1,200 km of main tarmac roads in Congo but more than half of them are in serious disrepair. There is no continuos all weather rod on the critical route linking Brazzaville to the Port of Pointe Noire. Large sections of the main northern artery to Ouesso are in disrepair. Most rural communities are served only by tracks, with no effective network of rural feeder roads. The poor condition of the road system has serious economic consequences as it raises the cost of internal transportation and does not allow connection to markets."

Government Efforts to Improve Road Infrastructure in Congo

"The construction of the 600 km road between Pointe-Noire and Brazzaville is underway with assistance from China. A section has recently been completed under funding from the European Commission (68km from Brazzaville to Gambari with a cost of US$80 million). Rehabilitation works have started on the Pointe Noire – Dolisie section (186 km) since 2007 and the completion rate is estimated at 19 percent (the road goes through an extremely wet and hilly area: Mayombe). The cost of this section is estimated at US$360 million and works are supposed to be completed by end 2011.

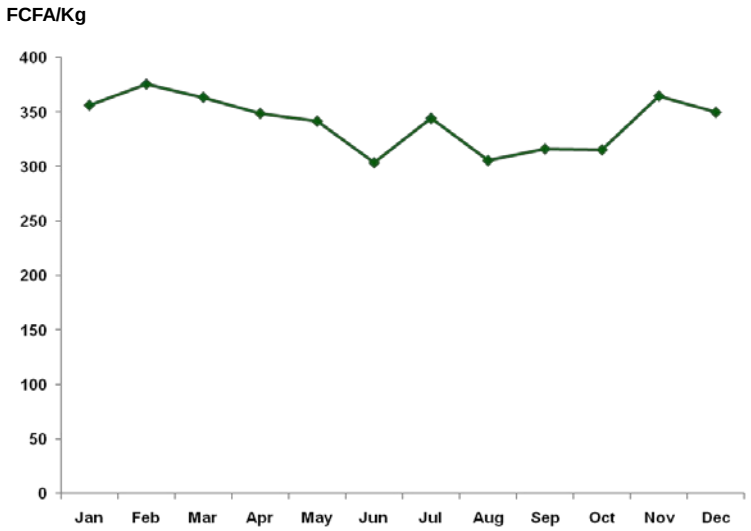
Consultants have been hired (under European Commission funding) to search for a concessionaire for CFCO, the state-owned railway company, the container port of Pointe-Noire has been put under private management (with a 27 years concession) and an agreement has been reached with Agence Française de Développement (AFD), the European Investment Bank (EIB), and Banque des Etats de l'Afrique Centrale (BDEAC,) for the financing of the modernization program for the port (for a total cost of US$511 million). This modernization program would turn Pointe Noire into the first deep sea water port in Western Africa to receive vessels up to 6,000 TEU.[17]"

Counter-cyclicality of pricing

Interestingly, foufou and chikwangue prices are counter-cyclical, because chikwangue prices tend to increase during the dry season when water is less readily available for boiling the cassava. This is especially true for chikwangue coming from the Plateaux region, where water is especially scarce during the dry season (Plateaux is one of the major suppliers to Brazzaville, thus the impact on prices in the capital is significant). Investments such as hangars to protect cossettes from rain and cisterns to store water for rouissage and boiling may help smooth seasonal price fluctuations.

[17] Source: World Bank Draft Country Partnership Strategy, Republic of Congo and World Bank Draft Prioritizing Infrastructure Investments: a Spatial Approach, Republic of Congo
http://www.congo-siteportail.info/Route-Pointe-Noire-Brazzaville-le-Chef-de-l-Etat-visite-les-travaux-du-troncon-Pointe-Noire-Dolisie_a4019.html

Figure 23: Price of foufou in Brazzaville (monthly average 2003-2008)[18]



Wastage at the Transportation & Marketing Stage

Up to 5% of chikwangue can be lost at the transport stage, for a variety of reasons. The first is an inability for the farmers to find trucks to send their cassava to the urban centers. Other issues revolve around the reliability of the trucks used – either mechanical problems or accidents make transporting the cassava to urban centers impossible.

[18] Centre National des Statistiques et Etudes Economiques, OTF Group Analysis 2009

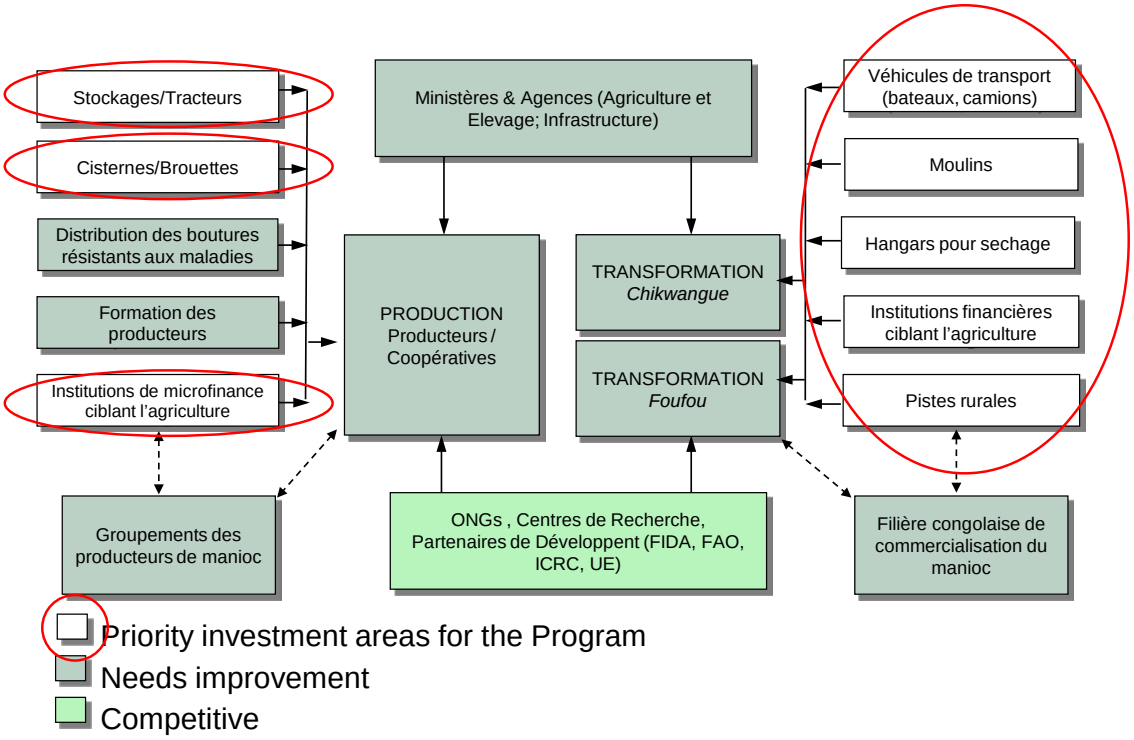
VIII. SWOT Analysis of Congo's Cassava Sector

The development of high performing clusters is a critical component of increasing a sector's productivity and competitiveness. A cluster includes all of the related and supporting industries involved in the production and delivery of a specific product or service. Cluster methodologies emphasize the inter-relationships among the many industries, suppliers, and businesses that must work together. Once a healthy cluster forms, it must continually become stronger. Aggressive rivalry in one industry spreads through spin-offs or diversification. Information flows freely and innovations spread rapidly via the relationships between customers and suppliers. These strong linkages are critical to the competitiveness of a region or a country.

In a world of increasing global competition, the sources of competitive advantage are becoming increasingly localized and inter-connected. Clusters boost localized economies because they involve hundreds of small and medium-sized companies which sell "subcontracted" services at lower costs with improved flexibility. This flow of services encourages large companies to support the development and growth of small and medium-sized enterprises that will be the biggest future source of employment in Congo. Although this type of approach may sound ambitious for Congo, the emergence of local clusters can help the cassava sector achieve the scale and level of professionalism required to serve the needs of the domestic market and beyond.

The cluster map below shows that no area of the cassava industry in Congo could be regarded as globally or regionally competitive, a serious threat to the proper functioning of the industry.

Figure 24: Cassava Cluster Map



In order to transform Congo's cassava sector from a primarily informal and artisanal sector to a high performing commercially driven industry, it is necessary to strategically analyze the sector and the business environment in which it operates. This section uses a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis to identify potential growth strategies and constraints. For the purposes of this analysis, strengths and weaknesses are defined as the internal factors or those that impact the functioning of the value chain. The external factors, the opportunities and threats, are those factors that are external to the value chain. The SWOT aims to identify strategies at the donor and support institution levels.

The Congo Cassava Sector SWOT Analysis and Challenges as we move ahead.

To begin structuring the Program strategy, the team developed a SWOT analysis that takes into account key internal and external factors that should drive the choices in establishing a cassava sector support solution. The goal of this analysis is to leverage all possible strengths and opportunities while mitigating weaknesses and threats. In the graphic below, the internal and external factors are summarized with what is essentially a "brainstorm" of potential strategic choices for the Program. These were generated by combining the various factors; for example a Strength / Opportunity strategy is named "SO" and would capitalize on a potential strength of the sector to exploit an opportunity. Following *Figure 26* is a subset of options that should be pursued immediately to ensure the design of a program that is relevant to the needs of Congo's cassava sector.

A. Strengths – "We love Cassava!"

Research and development organizations such as IFAD and FAO are perhaps the strongest actors in the cluster, and have begun training farmers about disease prevention and distributed disease-resistant cuttings. However, the fact that cassava mosaic disease and other pests continue to be serious threats means these organizations still have a lot of work ahead of them.

Congo's has a strong cassava culture. Because of the local acceptance of cassava and processed cassava in Congo, there is a strong base upon which upgrades can be made. Currently, Congo has the fourth highest level of per capita consumption of cassava in the world.

Figure 25: On-site International Agency Activities in Congo

Donor Organization	Summary of Activities in Congo Brazzaville
FAO	FAO focus is on food security and capacity building activities in the field. Improved cassava varieties are being multiplied and distributed to farmers through FAO farmers' field schools. FAO also conducts extensive research on issues of food security, agricultural best practices, and agricultural economics[19].
IITA	IITA focuses on developing and multiplying improved cassava varieties, which are disease and pest resistant, and low in cyanide content, draught-resistant, early maturing, and high yielding. IITA's biological control program has for a number of years been working to solve pest problems in cassava using natural and environmentally friendly methods. The program has been a major player in the successful bio-control of the cassava mealybug and cassava green mite. IITA also focuses on the area of postharvest, developing effective and simple machines and tools which reduce processing time and labor, as well as production losses. Finally, IITA focuses on training researchers and technicians in production and processing best practices[20].
IFAD	Since 1983, IFAD has financed six projects in the Congo. The organization's commitments in the country amount to US$46.2 million, while the total cost of the five projects is US$82.1 million. The La Cuvette Artisanal Fisheries Project, the Kindamba Food Crops Development Project and the Marketing and Local Initiatives Project have been closed. IFAD has initiated a lending program for two operations to support the government's Interim Post-Conflict Program for agricultural development, food security enhancement and poverty reduction. The Rural Development Project in the Plateaux, Cuvette and Western Cuvette Departments is ongoing. The Rural Development Project in the Departments of Niari, Bouenza and Lékoumou was approved in April 2006. IFAD's focus is on the revival of production capacity. The priorities are to give the rural population access to drinkable water and to improved seeds and cuttings for main food crops such as cassava. The Rural Development Project in the Nyari, Bouenza and Lékoumou Departments will focuses on market access, with the building and maintenance of feeder roads[21].

[19] www.fao.org
[20] www.iita.org
[21] www.ifad.org

B. Weaknesses – A disconnected cassava "cluster"

The cluster is weak overall, with particular lack of inputs in production and processing phases of cassava, limiting the amount and quality that can be commercialized in the urban centers of Congo. As shown in the cluster map above, basic farm supplies such as wheelbarrows (to transport the cassava from the field to drying areas and to the feeder or even main roads) and cisterns (to store water for soaking out the cyanide and for boiling the cassava in the case of pâte and chikwangue) are needed but in short supply. In terms of inputs to processing, basic structures such as hangars for drying cassava and simple mills would improve productivity. Production and processing continues to be carried out entirely in traditional forms, without mechanization. On the side of transport and marketing, the cluster continues to be weak, with poor access to affordable transportation and lack of forward integration into the market due to the lack of sufficient merchants.

A weak financial sector. Congo's financial sector is comprised of four privately held commercial banks. Lack of competition among the banks leads to a deficit of financial services for the population (only 3% of Congolese have a bank account) and the private sector faces high interest rates, risk aversion in terms of a focus on short-term loans, and general disinterest in investing outside of the commerce and petroleum sectors.

Overview of the financial sector in the Republic of Congo[22]

Financial Sector:

The Congolese financial sector is small, concentrated, and overly liquid. The sector as a whole counts total assets of approximately 630 billion CFAF (US$1.2 billion) and is dominated by commercial banks (approximately 83 percent of total assets of the sector) most of which exclusively target the corporate sector or salaried employees. Lending to the economy is very low, with credit to the private sector relative to GDP of 2.49 percent compared to 9.2 percent in Cameroon, and liquid assets representing 73 percent of total banking sector assets. The banking sector counts only 70,000 active individual bank accounts (2007) for a population of approximately 4,000,000, representing a penetration rate of less than 2 percent. Moreover, banking services are heavily concentrated in Brazzaville and the oil production center of Pointe Noire, with only one bank branch per 100,000 inhabitants for the country overall.

Microfinance Sector:

The Congolese microfinance sector is very small and - as in many West and Central African countries - dominated by cooperative institutions. The sector is highly concentrated in a single strong and profitable cooperative network, MUCODEC (with 217,552 members as of April 2009) representing approximately 91 percent of the sector's deposits and 94 percent of loans outstanding. MUCODEC's loan portfolio mostly consists of salary loans to employees of large companies or the public sector. The second microfinance institution, but much smaller than MUCODEC is CAPPED (and not yet financially sustainable). Other MFIs are small, weak, beset with governance problems and lack technical and managerial capacity. Like the banking sector, the microfinance sector is concentrated in the two urban centers of Brazzaville and Point Noire,

[22] Excerpted from: World Bank, Republic of Congo Investment Climate Policy Note, June 2009, Source: IFCE Africa Microfinance Program's Feasibility Studies in Congo.

with limited outreach to rural areas due to serious infrastructure constraints and a desire by MFI's managers to manage operating costs.

In Congo today, financing institutions are completely disconnected from the sector. Currently rural farmers have almost no access to credit or any other financial services. Microcredit is still in its incipient stages in Congo and is concentrated almost exclusively in urban areas. Even for these facilities, collateral demands are out of reach for most cassava producers and require at least one guarantor. Currently, the government of Congo has set up a credit facility dedicated to agriculture. However, funds have not yet been released and there is great potential for collaboration with the World Bank, World Bank Private Sector Development programs and other international donor agencies in order to set up effective lending schemes. As an example, the cassava support program should establish formal links with the World Bank's rural roads program. The Program could contribute in several ways; for example, 1) providing capacity building to the government lending facility, 2) encouraging local institutions to promote and support participation in the cassava sector and 3) bolstering the financial capital of the fund through direct monetary support.

- The most important financing need for smallholders in the ***production and transformation stages*** of the value chain is for microloans available to groups (solidarity groups or cooperatives) with loan terms of greater than six months (allowing enough time for harvesting).
- The greatest financing need in the ***transport stage*** of the value chain is insurance for vehicle owners.
- In the ***marketing stage***, urban business owners need financing to purchase their own vehicles. Donors could also add value by providing technical assistance to the Congolese government on a taxation system that would make importing vehicles more affordable for small businessmen.

- *Weak local agencies dedicated to the cassava sector.* While local institutions are increasingly lending focus and support to Congo's cassava sector, there remains no agency dedicated to the sector. The Program must commit to working through the local government and the Ministry of Agriculture. Of primary importance, efforts should be placed on building capacity of local institutions, to improve the quality of their support to the sector.

Poor physical infrastructure increases cost of production and processing, and reduces margins. As the World Bank has recognized, rural roads are in serious disrepair and their rehabilitation would provide a major boost to the cassava cluster. Other basic infrastructure needed for improved cassava production and processing, such as cisterns, are unavailable. Because of road disrepair, factors such as ***distance to urban centers*** has a great impact on transportation costs Additionally, lack of appropriate "feeder" roads to main roads causes relative isolation of farms ("***enclavement***"), increasing the portion of costs incurred by farmers, as they typically pay for transport to the main roads. Road improvement efforts through the WB's rural roads program are outlined in ***Figure 38: Scheduled Road Rehabilitation vs. Supply of Cassava Urban Markets***.

C. Opportunities – Building up from a strong cultural base

Untapped domestic market: Based on research, there is a current conservative supply gap estimate of 242,000 tons per year, factoring in a compounded 2.74% annual population growth over the next three years.

No competition in the market / first mover advantage: With minimal to no private sector involvement in Congo's cassava sector, there is significant opportunity to invest in all phases of the value chain, and to gain first mover advantages. In particular, significant investment opportunities exist at the processing and transportation stages of the value chain, with potentially thick margins in both. With appropriate financing, farmers are particularly well situated to move up the value chain, integrating improved processing capabilities to their production, establishing collaboratives with other farmers to create a more stable base for further private sector investment. By grouping into cooperatives, farmers can co-invest in new mechanization technology, improve quality, and secure regular entries into the market.

Case Study: Complications with Farmer Collaboratives in RoC

"In the past, producer organizations including cooperatives were created by the political Establishment without real commitment from farmers. Most such organizations have stopped operating, either because they no longer receive grants from political bodies, or because Government has disengaged from the activities (e.g. marketing of coffee or cocoa) that led to their creation. Following the democratization process, many farmers have become very suspicious about the notion of cooperatives, despite Government's ongoing efforts to amend the 1955 law on cooperatives, with the view to provide incentives for their development, e.g. by tax exemption. At the same time however, several informal groups have been created at the initiative of rural youths or rural women, to carry out activities such as crop marketing, land preparation etc. Because of the major discrepancy between the spirit of Government legislation that reduces farmers'' organizations to formal cooperatives, and the rural realities where informal organizations appear to be the most favored form of organization, the questions of the role of Government in the promotion of rural organizations has not been addressed in public policy discussions. Yet, given the challenges facing Congolese agricultural sector, there are ample opportunities for rural groups to play important economic functions e.g. in maintaining feeder roads, managing primary produce markets etc., if provided with adequate organizational and technical support. Although most Government services lack the technical or managerial skills to provide such support, selective provision of financial support and training to NGOs staff, under contractual arrangements, might be mechanisms to be tested in regions where the demand for support is more apparent[23]."

Integration into alternative value chains: With appropriate investment, cassava-based products can feed into other sectors, such as bakery (with higher value cassava flour), animal feed, paper, and starch production. By integrating cassava into these potentially symbiotic sectors, farmers and processors can guarantee larger markets, higher demand and margins. However, this requires minimum levels of quality, which are not yet present in Congo. The Program's

[23] World Bank, Congo Agricultural Sector Review, February 25, 1997, Report No. 16407-COB.

medium to long term efforts should focus on attracting and providing incentive to manufacturers looking to reverse-integrate into the cassava market.

D. Threats – All or nothing

No support services: Aside from the research and development services of FAO and IITA, Congo is entirely without specific cassava support services, such as financing, equipment distribution, and dedicated governmental agencies, insurance, mechanics, trade organizations, etc. While there are governmental agencies, such as General Delegation of Scientific and Technical Research (DGRST) that focus on research for all agriculture products, none are dedicated to cassava. A cassava growers and processing association should be considered for Congo, as is seen in other regional countries, such as Nigeria.

Disinterested banking sector: Without appropriate financing mechanisms, little can be accomplished. Specially tailored financing schemes will be necessary throughout the cassava value chain. Currently, Congo's banking sector (the commercial banks) has shown little interest in being involved in this upgrade, and lack general understanding of the risks and opportunities in the sector. As the World Bank looks to develop its support solution, it will need the support and distribution capabilities of these organizations.

Weak business enabling environment: Currently, Congo ranks 178 out of 181 countries on the IFC's *Doing Business Index*. This demonstrates the complications and inefficiencies of doing business in Congo, which will certainly directly impact upgrade attempts in the cassava sector. The indicators alone can also prevent potential foreign investors from entering the market.

Unreliable raw material supply: Due to lack of appropriate incentives for farmers to increase yields at the production level, and due to the lack of farmer networks and cooperatives, supply is often low, and inconsistent. As a result of this inconsistent supply, the private sector has made few inroads into the cassava sector.

Substantial imports of competitive products: While accurate import figures appear unavailable, it is certain that a substantial amount of wheat flour and rice is being imported into the country, potentially at lower prices than local cassava products. This can, if not considered, steer market demand away from cassava-based products.

Mosaic Disease, other pests and viruses: While there have been significant research and development efforts to introduce disease resistant varieties in Congo, they continue to be serious threats.

A disconnected cluster: Lack of communication and collaboration among stakeholders remains a significant threat in Congo. While significant steps have been taken to increase communication and collaboration at the governmental and NGO levels, production, processing, transportation and marketing level communication remain very weak.

E. SWOT summary

Overall, Congo's cassava sector is very weak, and is faced with many potential and existing threats. As the overall cluster is weak, support and intervention is needed at almost all levels, with perhaps the exception of research and development, which is currently being carried out by international organizations such as FAO and IITA, in collaboration with the Congolese

government. In turn, however, the overall weakness presents significant opportunities for investment and upgrades.

Figure 26: Congo Cassava SWOT Analysis

External Factors \ Internal Factors		Strengths	Weaknesses
		▪ Relatively strong research and development organizations such as IFAD and FAO have begun training farmers about disease prevention and distributed disease-resistant cuttings ▪ Consumer sophistication, and cultural acceptance for cassava in Congo	▪ Overall weak cassava cluster ▪ Weak intitutional support, including financing, government ▪ Poor physical infrastructure increases cost and reduces margins (Roads, Cisterns) ▪ Weak inputs throughout the cassava value chain
Opportunities	▪ Untapped domestic market ▪ No competition in the market / first mover advantage ▪ Thick margins in transport ▪ Value added products	**SO Strategies** ▪ Build a donor / NGO support strategy that integrates all actors without overlap in different areas of the value chain ▪ Promote opportunities to appropriate private sector investors, with an emphasis on opportunities in transport, production and processing ▪ As almost everything must be upgraded, focus on upgrades in production and transport, first	**WO Strategies** ▪ Implement a comprehensive cluster upgrade, through the development of appropriate financing mechanisms, iimproved market information, capacity building, advocacy and encouraging a culture of cassava entrepreneurship ▪ Coordinate with key stakeholders to upgrade key physical infrastructure, ie roads and cisterns, etc ▪ Promote opportunities for investment at each stage of the cassava value chain
Threats	▪ No support services ▪ Disinterested banking sector ▪ Weak business enabling environment and support institutions ▪ Mosaic disease and other pests ▪ Unreliable raw material supply ▪ Substantial importation of substitute products, such as flour and wheat	**ST Strategies** ▪ Coordinate stakeholders to offer appropriate support services at different points of the value chain ▪ Develop SME and micro financing solutions, combined with training seminars for financial institutions ▪ Upgrade the enabling environment through key policy shifts	**WT Strategies** ▪ Initially upgrade the value chain through financing support (guarantee fund, challenge fund, etc), as well as other support services including market information, advocacy, and capacity building ▪ Leverage resources and stakeholders to improve key transporation infrastructure ▪ Advocate for temporary protectionism of cassava sector by increasing difficulty of importing substitutes ▪ Focus on promoting and building small to medium sized production and processing

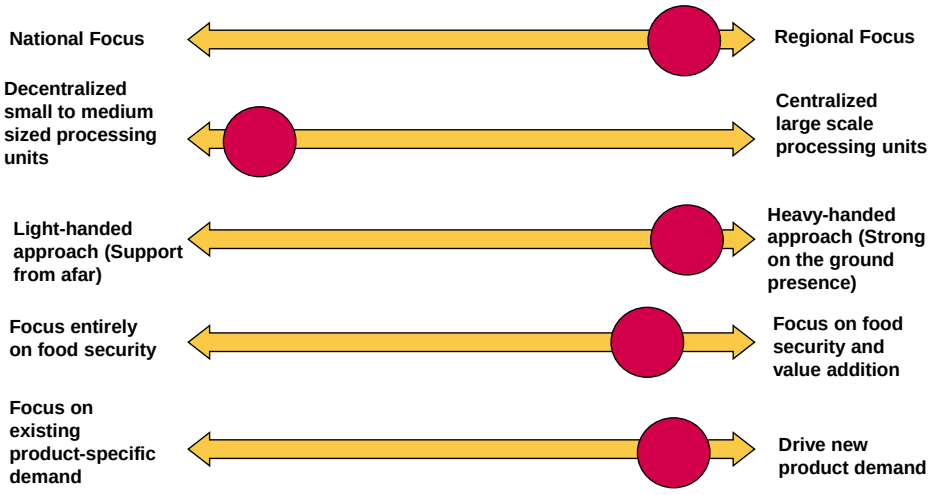
F. Strategic options that emerge from the SWOT analysis

At the heart of the Program strategy moving forward is the importance of choice. To succeed, we recommend that the Program make the following strategic choices, which emerge from the SWOT analysis:

1. *Geographic scope*: As donor resources are scarce, it is advised that donors apply a regional focus to their strategy, ensuring regional specialization, and avoiding overextension. In concrete terms, this means focusing on the top four cassava producing regions of Pool, Plateaux, Bouenza and Niari.
2. *Processing Approach*: It has often been suggested that the Program efforts in Congo should focus on developing larger scale processing units. However, because these factories require a constant supply of raw materials in order to be profitable, this is a high risk scenario in a country like Congo, which cannot ensure this. Micro-processing units are best set up within villages that produce cassava, partly to reduce transportation costs, but also it helps to establish a good clustering point where farmers can be lent implements, receive information and supply the factory with raw material.

3. *Light or heavy donor approach*: An upgrade of Congo's cassava sector requires upgrades at the production, processing, transport and marketing levels. An upgrade at one level of the value chain without upgrades in the others will end in failure. As a result, it is advised that the Program approach focus be 'heavy', with significant on the ground presence, ensuring simultaneous interventions at all levels of the value chain. The need for heavy touch in Congo is imperative because of the relative scarcity or total lack of strong partners and institutions within the value chain and in supporting sectors such as finance, transport and agricultural extension. However, where partners are available, the support program can make use of existing structures to distribute support solutions.
4. *Food Security and Value Addition*: Currently, there is little incentive for farmers to increase production yields, as there is little access to market and insufficient market demand. Increasing value added products can serve to drive demand and link farmers to the market, improving food security. Therefore, it is advised that donors not ignore the importance of stimulating the production of added value products as a core part of its intervention in Congo's cassava sector.
5. *Focus on existing demand vs. building a more sophisticated demand*: Current demand for cassava in Congo rests with traditional products such as foufou and chikwangue. As there is less opportunity to mechanize the processing of these products, there is little room for efficiency gains through mechanization, and limited scope for product integration into more sophisticated value chains, such as baking. As market demand must be built in order to incentivize increased production yields, it is important that the Program strategy focus on building more sophisticated demand from the cassava sector.

Figure 27: Making Choices to inform Strategy



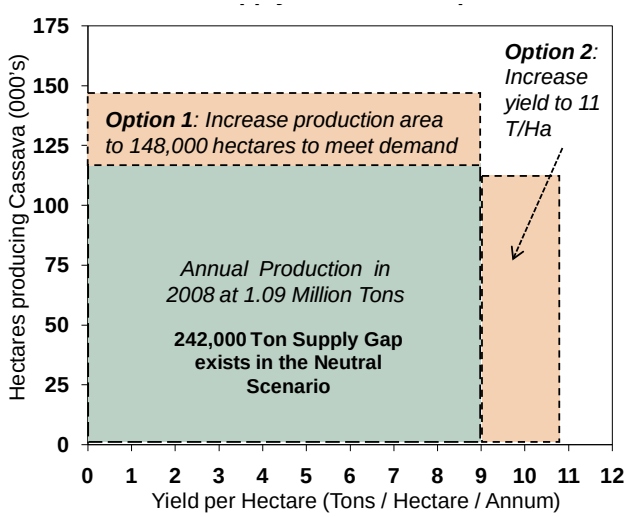
IX. A Business Plan for Congo's Cassava Value Chain

Successful value chain development programs that engage the private sector are able to put in place clear incentives for private investors to make the desired and required investments to upgrade the efficiency and overall competitiveness of a given sector. This section lays out a clear vision and objectives for the Program's intervention in Congo's cassava sector and continues to define a strategy to achieve these concrete objectives.

A. Vision and Objectives

The Program Vision for a cassava sector upgrade in Congo is to improve food security in the medium-term through consistent sector growth aimed to fill an estimated existing supply gap of 242,024 tons per year, driving annual production from 1.09 million tons to 1.332 million tons. This supply gap can be addressed in two different ways: increasing existing production yields and / or increasing production areas. The following graphic represents these two options.

Figure 28: Objectives for Congo's Cassava Value Chain



Due to the difficulties involved with expanding production areas (investment cost of clearing and preparing new land, local cultural preferences land ownership constraints) it is preferable that the Program initiative focus its efforts on improving yields. In addition, focusing on increasing yields should increase income per hectare, and therefore the incomes of cassava farmers. The following chart itemizes four high priority action items for yield improvement in Congo's cassava sector, as a way to fill the existing supply gap. Although there are a wide variety of interventions that could be undertaken by the World Bank and its partners, these four are likely to have the biggest impact in that they have the highest probability of closing the existing supply and demand.

Figure 29: High Priority Yield Improvement Strategies

	Potential Yield Increase	Realistic Yield Increase (50% of Potential)	Yield Increase (Pool , Bouenza and Plateaux)
Widespread distribution of superior cassava varieties	40%	20%	146,000 Tons
Employment of best practices in farming	20%	10%	73,000 Tons
Availability of accessible processing network	20%	10%	73,000 Tons
Improved Transportation & Market Access	10%	5%	36,000 Tons
Total Production Increase	80%	**45%**	**328,000 Tons**

[24] Adjusted from 223,000 tons to account for a 2.74% annual population growth rate over the next three years.

B. Strategy – choices that drive success

The Program intervention strategy can be divided into three overarching components.

- Production
- Processing
- Transportation & Marketing

The reason for this is that these components encompass all of the most important elements of the value chain, and upgrading of one component will yield little improvement without the upgrading of the other components. As an example, higher production yields of cassava is only beneficial if there is either market demand for more raw cassava products or value added products, or if there is a way to efficiently process and store the highly unstable raw material.

C. Production- increase yields to match regional benchmarks

Production in Congo must be increased by 22% to meet demand

With a current production of approximately 1.09 Million Tons, and an expected current demand of 1.332 million tons in three years, based on our modeling of unmet demand, production must be increased by approximately 22% to meet demand. This can be accomplished by either increasing yield per hectare, or by increasing production areas of cassava, or a combination of both approaches. Because of the complexities involved in securing additional land for cassava production (local expertise, local preferences, local historical crops), it is preferential to focus on upgrading existing cassava production practices to increase yield per hectare. This can be accomplished through improved farming practices, distribution of improved cassava varieties, as well as through improved post-harvest processing, transportation and marketing services. Currently, Congo's cassava yield per hectare hovers at approximately 9 tons / hectare, which is average productivity for major cassava producing countries. The Program strategy should be to ***upgrade average yields to 11 tons / hectare, as a way to meet existing demand,*** which is within reason when considering that Congo's neighbors, Ghana and Nigeria have yields of over 12 tons / hectare.

A regional approach to Congo's cassava sector upgrade is necessary

The spatial concentration of cassava in the Pool department Bouenza, and Plateaux, and Niari provinces make these departments prime candidates for cassava specialization, and heightened economic development support, including targeted technology infusions, financing and research diffusion. The limited resources of donors reinforces the need to select a few high-potential departments or regions that can be used as testing grounds for future cassava sector upgrading in other departments.

Program Strategy:

- Initially focus on cassava sector upgrading efforts in: Pool, Bouenza, Plateaux and Niari provinces
- Consider building further regional specialization of value added cassava processing. As Pool and Bouenza, Plateaux and Niari are the four regions principally supplying Congo's urban centers, they should be considered for processing specialization to supply cassava-based products that are appropriate for the urban market.

Building a cluster farming approach can simplify distribution of technical assistance

Increasing productivity at the farm level is a critical component to an overall sector upgrade, as it liberates time for other activities such as planting of new crops, capacity building, and marketing. In Congo, productivity is limited by the fact that farmers are working independently of other farmers at the household level, and are therefore not gaining any economies of scale. Additional adverse effects of this model include:

- *Lack of access to technical assistance* (financing, capacity building, etc), as technical assistance is most effectively distributed to larger groupings of farmers.
- *Lack of appeal to the private sector*: The logistics of dealing with farmers at the household level is often too complicated for the private sector, and therefore entrepreneurs typically stay away, preferring instead to deal with groupings of farmers, associations, etc.

The following case study illustrates a new model for farmer organization which has proven extremely successful in Nigeria.

Case Study: Nigerian Cassava Growers Association

"A number of initiatives are being implemented to achieve increased cassava production in Nigeria. One initiative to achieve greater cassava production is undertaken by the Cassava Growers Association, an umbrella association of all the cassava growers in Nigeria. The association is acquiring about 1000 hectares of continuous land for peasant farmers suitable for commercial cassava cultivation in each Local Government Authority (LGA). In addition to current production, farmers' groups (or clusters) had been organized to engage in large scale farming, using mechanized equipment, high yielding varieties and improved farming practices. Yields of 30 tons per hectare could be achieved in this new area. Throughout Nigeria, 547 of the 774 total LGAs are participating in this program. These LGA planting 1 000 hectares of high yielding cassava are expected to increase production by 16.5 million ton achieving more than half of the targeted increase of 26 million tones.

Members of the Cassava Growers Association are currently practicing cluster farming. There are about 500 groups carrying out cluster farming with each group having about 30 hectares under cultivation. A group can hire a tractor to plough, spray with herbicide to reduce weeding and improve production efficiency. Another initiative is the encouragement of planting cassava at the recommended plant population of 10 000 stands per hectare. The use of this plant density would result in yields of approximately 13 tons per hectare or 9 million tons[25]."

Takeaway for Congo

In Congo today, a vast majority of farmers are working independently of other farmers, and are therefore not gaining any economies of scale. A few recent efforts have sought to establish "groupements" of farmers, consisting of approximately 30 farmers, each with independent land, as well as communal farming land which serves the dual purpose of being a sample plot for training and the testing of new varieties. These few groupements have, however, not made use of economies of scale. *The Program in Congo should*:

[25] Capacity Innovations in Cassava Production, Processing and Harvesting in Nigeria, Abolaji D. Dada

- Support the development of cluster farming as seen in Nigeria, with approximately 30 hectares of land per cluster.
- Target all support and upgrading efforts at the cluster level, including technical assistance, capacity building, market information and opportunities
- Support the creation of a similar Cassava Growers Association, which can serve to assist in the earmarking of continuous stretches of land for cassava production. Such clusters create large enough entities for the private sector to latch onto, building entrepreneurial activity around.

Careful selection of cassava varieties drastically increases yields

The Program strategy for cassava sector support should reinforce existing efforts of the FAO and IITA in Congo to introduce new and improved cassava varieties, with higher yields and greater resistance to disease. Currently, Congo's average yield hovers at approximately 9 tons / Ha, which when benchmarked against regional countries is in the middle of the pack. However, there is still significant room for improvement. In particular, Program initiatives in Congo should provide centralized support to potential "suppliers" such as NGOs and organizations such as FAO and IITA to:

- Help introduce and distribute genetic material from improved varieties with high germination potential, purity and strength.
- Train smallholders in how to multiply higher quality stems and stems from improved varieties.
- Initiate efforts to achieve a system for producing good genetic material.
- Introduce new varieties with high yields, shorter periods to reach maturity, and better post-harvest conservation potential.

Case Study: IFAD Cassava Variety Switch-out

"Since 1996, IFAD's first-generation cassava projects in Nigeria, Ghana, Benin and Cameroon have contributed to the rapid production, expansion and yield increases with their focus on poor farmers' access to high-yielding varieties. Meanwhile, other IFAD-financed rural development projects were involved in screening, multiplication and distribution of new cassava varieties. The achievements at production stage have been significant, ***boosting yields by 40%*** without fertilizer application, and creating an important food security benefit. A continuous renewal of cassava varieties for food and other specific uses, with higher yields, shorter growth cycles, and better disease tolerance will remain necessary in the future[26]."

Production Best Practices & Resources

In addition to supporting the introduction of improved cassava varieties in Congo, Program efforts to improve yields must include additional support, in the form of:

[26] IFAD, Accra Action Plan, Workshop on Cassava Processing and Marketing, Initiative for the Western and Central African Region, Accra, Ghana, 20 – 22 March, 2006).

Finance mechanisms to purchase:

- *Fertilizer*: When available, fertilizer can increase production yields by up to 100%. However, fertilizer supply is certainly not guaranteed.
- *Harvesting Tools*: Introduction of better harvesting tools so that more time can be freed up and focused on processing and marketing of cassava. This can include tools as simple as wheelbarrows, to storage equipment such as cisterns and shelters.
- *Planting material and improved cassava varietals*: As outlined in the case study above, improved varietals have proven to boost yields by up to 40%, while reduced risk of diseases. Financing mechanisms to purchase these varietals must be structured to allow farmers to purchase the varietals before planting, and pay back post-harvest.

Capacity building support to reinforce best practices in:

- *Soil preparation*: Existing soil preparation methods such as slash-and-burn are detrimental to the soil and prevent optimal production. IITA and FAO are supporting efforts to build capacity on more effective methods, which should be integrated in the Program's support solution.
- *Crop rotation*: Extensive farming and growing of the same crop over the same plots of land exhausts soil nutrients and make crops more susceptible to pests and lower yields. Best practice crop rotation can improve production yields.
- *Cassava varieties*: While new and improved cassava varieties might be available, farmers must be informed of their benefits, and trained on variety-specific characteristics.
- *Crop spacing:* Crop spacing drastically impacts yield. Necessary spacing depends on variety and cropping system, and must be determined locally at time of land preparation in order to correctly space mounds and ridges.
- *Weeding*: Weeding is a crucial step in the production process. Best practice weeding show yield improvements of up to 10%.

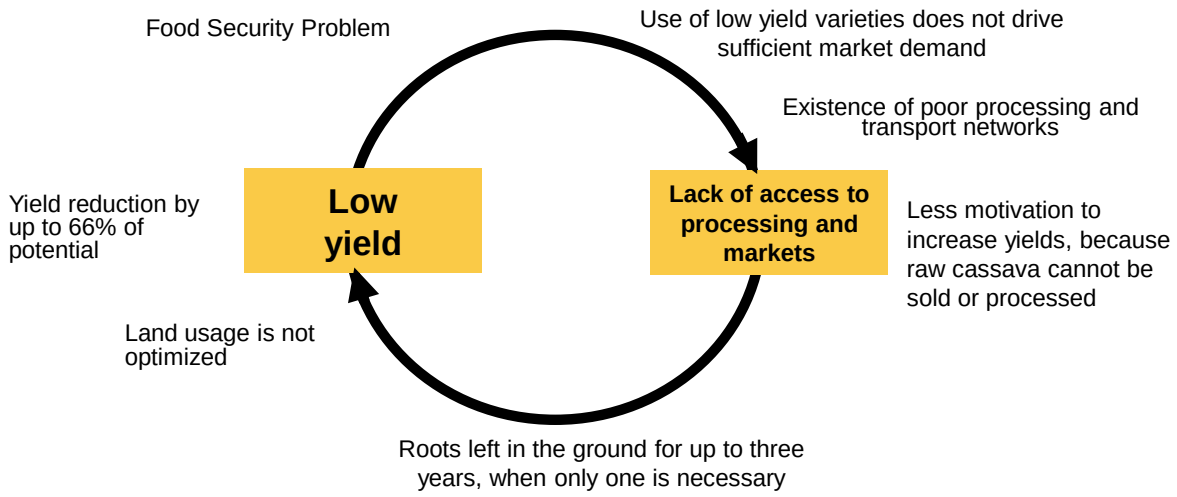
D. Processing – shift away from an artisanal model

Drive increased yield by upgrading processing and market access

Because of the fragility of the cassava root once removed from the ground, farmers often leave them in the ground for up to three years. With the average growing cycle of a cassava root of approximately 12 months, this practice can drastically reduce available land for growing purposes, and reduce yields by up to 66% of potential[27]. Driving this practice is the fact that farmers do not have easy access to efficient processing services, which would render the cassava roots more stable and durable outside of the ground, nor do they have easy access to markets. The following graphic illustrates this low yield cycle.

[27] Sub-Sector Strategic Study on Cassava, Cassava Development Strategy for Mozambique (2008 – 2012), Volume 1, Agro.Ges.

Figure 30: Congo's cassava sector is trapped in a low-yield cycle



Breaking this cycle requires that the Program focus efforts, not only on production, but also on the steps of the value chain that make increased production worthwhile, and lower risk.

Case Study: Nigerian Production Bottleneck is Processing

Nigerian farmers employing IITA's high-yielding TMS 30572 variety have been observed at certain seasons to cut back drastically on planting because they were unable to process the previous season's plantings. This suggests that yield-increasing technology (improved cassava varietals, etc) may not fully translate into expanded production if there is no matching cost-saving technology at the processing stage. The bottleneck is in essence shifted to the processing stage. Improvement in processing technology has as much effect on cassava production expansion as improvement in yield[28]. ***A Program support strategy for Congo's cassava sector will require simultaneous interventions, not only at the production stage, but also at the processing stage.***

Cassava mini-processing factories versus larger scaled mechanized processing

Larger scale mechanized processing facilities make more sense for the longer term and for private sector investment, because the cost of running these factories requires a constant supply of raw materials, which is far from guaranteed in Congo. Congo's current supply of raw material for processing is poor, high-priced, disorganized, and irregular. Based on research conducted in Nigeria and Ghana, it is however more important in the short-term to ensure farmer proximity to efficient processing units. Due to limited resources, it is therefore more realistic to consider supporting the establishment of a broad network of micro to small sized processing units, which are capable of processing from 0.5 to 10 tons per day of raw material, but more typically around 1 ton per day. Through close integration of farmers and processing units, farms should be able to supply at least 75% of a factory's raw material processing

[28] Cassava Production and Processing in Côte d'Ivoire, Nweke, Felix I, Ngoram, K, Dixon, AGO, 2000.

capacity, in order to ensure profits[29]. This becomes increasingly more difficult when processing units are located over 5-10km away from farm-gate.

Building Congo's ideal tapestry of processing units in the short, medium and long term

Micro-processing units are best set up within villages that produce cassava, partly to reduce transportation costs, but also it helps to establish a good clustering point where farmers can be lent tools, receive information and supply the factory with raw material. In particular, the Program initiative should focus on supporting the establishment of micro factories (1t/day) as well as supporting private sector investment into a handful of small, medium and large factories in the longer term, in prioritized zones. These factories should be privately managed by local entrepreneurs, not run by the government or donors. The following table outlines a potential spread of new processing units in the three focus regions (Departments): Pool, Bouenza, and Plateaux.

Figure 31: Building Congo's processing capability to meet demand[30]

Processing Level	Household	Micro	Small	Medium	Large
Output	0.1-0.2 T/day	0.5-1.5 T/day	6-10 T/day	30 T/day	50 T/day
Outside Labor	0	1-2	3-10	10-15	15-30
Beneficiary	Household	Village	Village	Region / Country	Region / Country
Radius (km) of Absorption of Raw Materials	0	5-10	10-20	25-50	50-100
Value	Sustenance	Food Security	• Food Security • Industrial • Attracts Private Sector	• Industrial • Attracts private sector investment	• Industrial • Attracts private sector investment
Potential WB Intervention	-	• Micro-financing • Capacity building • Investor Support	• Investor Support • Micro-financing • Capacity building	• Investor Support • Training of financial Institutions • Capacity building	• Investor Support • Training of financial Institutions • Capacity building
Optimal Breakdown for 3 Regions	-	279	18	3	3
Total Processing (Tons)	-	101,840	52,560	32,850	54,750

Mechanization is an essential part of commercialization

Moving from traditional processing techniques to increased mechanization serves multiple purposes

- It frees up time for farmers to focus on other activities, such as production and marketing, reducing cassava's processing time and labor by up to 50%.
- It ensures a more consistent and higher quality of processed goods, which can serve to attract additional private sector investment

[29] Sub-Sector Strategic Study on Cassava, Cassava Development Strategy for Mozambique (2008 – 2012), Volume 1, Agro.Ges.

[30] FAO, *A cassava industrial revolution in Nigeria: The potential for a new industrial crop*, 2004

- It is one component in a value chain upgrade which helps to ensure a market for all raw materials that farmers can produce, thus incentivizing best practices and higher production yields.

The following table outlines potential processing mechanization upgrades for Congo's traditional processed cassava products, as well as for High Quality Cassava Flour (HQCF), which is currently not produced in any significant quantity in Congo. Demonstrated here is the fact that more sophisticated products, such as HQCF require higher investments. Moving forward, a critical component of donor support activities in Congo will be to attract and provide technical support to commercial enterprises looking to develop such processing capabilities. It is important to note that the following table does not address additional financing needs, which could include: land purchase, building construction and materials, and working capital.

Figure 32: Shelf life and mechanizing cassava processing[31]

	Traditional form Foufou	Cossettes (Dried whole root)	Djanika (Flour)	Chicwangue (Paste)	High Quality Cassava Flour (HQCF)
Shelf Life	3 Months	6 Month	6 Months	10 Days	6-12 Months
Rough Estimation of % of Current Market	33%	28%	6%	31%	0%
Areas for post-harvest Mechanization	• Grating	• Drying	• Grate • Press • Pulverize • Dry • Mill	• Press • Grating	• Grate • Press • Pulverize • Dry • Mill
Machines to be financed	• Mechanized Grater ($100)	• Drying Tables ($50)	• Mechanized Grater ($100) • Manual Press ($100) • Pulverizer ($100) • Drying Tables ($50) • Milling Machine ($500)	• Manual Press ($100) • Mechanized Grater ($100)	• Mechanized Grater ($100) • Manual Press ($100) • Pulverizer ($100) • Drying Tables ($50) • Milling Machine ($500)
Cost of Mechanization	$100	$50	$900	$200	$900 (Additional financing of approximately $4,000 needed for clean factory building and operating costs)

Currently, Congolese demand for processed cassava rests firmly with traditional foufou (33%), its derivative, cossettes (28%), as well as chikwangue (31%). While demand will drive processing needs, it is important to consider supporting the establishment of processing units that output more sophisticated products, such as HQCF. While the demand is currently not present, HQCF could eventually have a higher likelihood of driving demand, as it is a more versatile product that can be used in baked goods, noodles, etc, and can serve to replace all or a portion of other types of (imported) flour. Based on the premise that increasing production yields requires improved processing and access to markets, traditional processed cassava

[31] Boeteng, E,.O, *Business Plan on Urban Level High Quality Cassava Flour Production Enterprise,* http://www.fao.org/docs/eims/upload/agrotech/2022/R7418_4.pdf

products will have difficulty driving demand as their processing has less opportunity for mechanization, and their markets are limited based on their lack of usage versatility.

Processing ensures food security

Cassava root is highly unstable as a raw material, lasting only 2-3 days outside of the ground without appropriate processing. Processing therefore is an integral component in ensuring food security, as it stabilizes cassava root for future consumption, thus reducing the risk of seasonal production cyclicality. Specifically, it is important to emphasize and support processing that ensures a longer shelf life, such as flour (6 month shelf life), and foufou (3 month shelf life). In the longer term, donor initiatives may consider strategies to support cassava derivatives with shelf lives of up to one year, such as HQCF.

Multi-Donor Direct Interventions in Processing

Assuming that new micro-processing units will be divided to focus equally on 5 different products (traditional foufou, cossettes, djanika, chicwangue and HQCF), and must be set up or upgraded accordingly, an initial Program investment effort aimed at mechanizing the 279[32] micro-processing units in the three priority zones could arrive at approximately $121,000, or approximately $433 average per unit. This figure, however, does not include additional potential financing needs for capacity building, working capital, or facility construction / purchase. Donors might consider optimizing micro-credit schemes to offer up to $500 per processing unit.

Moving from micro to larger processing units, donor focus should be to focus less on direct financing, and more on attracting private sector investment, capacity building and on other forms of technical assistance.

Establishing of a Cassava Equipment Fabrication Association of Congo

The Program should look to form a Cassava Equipment Fabrication Association of Congo to bring together experts in cassava processing machines[33]. Through this association the donors should organize meetings of engineers to assess existing cassava processing equipment and evaluate new equipment such as cassava harvesters, washing machines, peeling machines, graters, chippers, presses, millers, centrifuges, pelletisers, stem cutters, flash driers, and solar

[32] Based on best practices and historical evidence from Nigeria, the number of large and medium sized processing plants must be limited, and geographically well spaced, as too high a concentration will cause raw material supply bottlenecks. As was orchestrated in Nigeria, one medium and one large processing unit could be acceptable at the province level. The numbers calculated for Congo cassava processing units, displayed in Figure 31, incorporate this best practice, by not creating more than 3 large and 3 medium sized processing units. While four provinces have been prioritized for this Program, it is likely that at least two of these provinces can share one large and one medium processing unit, which explains only calculating for three. 18 small units are included in this calculation, also based on current distributions found in Nigeria. Given the estimated capacity of these units, and based on the assumption that the average micro-processing unit can process 1 ton / day, 279 micro-processing units will be able to process 101,840 tons per year.

[33] An equivalent organization was formed in Nigeria in 2003, through the CMD Project. This group is currently producing equipment being distributed to industries in selected areas. The project aims to support small and medium-scale enterprises in rural communities, and has built synergies between different government agencies, NGOs and the private sector.

driers. Working together the stakeholders can develop effective equipment, such as a simple machine that helps women sieve mashed cassava. Ideally, all the equipment would be sourced or manufactured in Congo, again providing a valuable source of income for the manufacturers.

E. Transportation & Marketing

Without sufficient access to markets or market demand, the low-yield cycle will not be broken

As discussed in the previous section, Congolese farmers are currently not appropriately incentivized to increase production yields, as they do not have sufficient access to market or market demand in order to improve their practices. Access to markets and market demand must be improved in order to break this cycle. Currently, the following elements are reinforcing the cycle:

- Poor access to transportation to bring products to processing and to market
- Poor roads and run down transportation vehicles making transportation more difficult and expensive, causing farmers to bear the risk-cost of transporting their goods
- Unsophisticated demand in both rural and urban areas, and lack of integration of cassava into other value chains, such as baking.
- Lack of a reliable source of raw, semi-processed and processed cassava to which the private sector can build on.

The following chart outlines transportation and market-level solutions explored in other countries:

Figure 33: Marketing and Transportation Intervention Best Practices

Constraint	Best Practice Solution
Poor access to transportation to bring products to processing and market	Nigeria implements ***policy*** to monitor and legalize road blocks, and coordinates and prioritizes road improvements based on high production cassava areas
	Ghana and Nigeria aim to implement ***standardized insurance options*** at the transportation level as a way to reduce unnecessary transport risk-cost being transferred to the farmer.
Unsophisticated and insufficient demand	Nigeria implements ***policy*** to require that the baking industry utilize 90% regular flour and 10% cassava flour, to drive demand and temporarily established policy to prevent importation of standard flour
	Nigeria launches a ***national cassava promotion campaign*** to inform Nigerians of new and interesting uses of cassava. This effort included the distribution of recipe books that incorporate cassava, and also informed on various access points to purchase different forms of processed cassava.
	Nigeria establishes a ***dedicated governmental agency*** for the promotion and support of the cassava sector, as opposed to cassava being lumped into a broader agricultural department
	In Tanzania, IITA works to ***sensitize*** and train farmers , bankers and the private sector on how best to make use of cassava products (e.g,. high quality cassava flour) in the industries.
Lack of reliable source of raw materials	Nigeria and Ghana encourage the ***grouping of farmers into collaboratives*** facilitating the distribution of technical assistance, including capacity building efforts and financing, resulting in more stable production outputs, and consistent links to markets and private sector operators.
Investment Risk	Nigeria is a member of MIGA (Multilateral Investment Guarantee Agency) and the ICSD (International Centre for Settlement of Investment Disputes). Potential investors are therefore ***insured against a wide range of non-commercial risks***.
Price Fluctuations	Nigeria launches a cassava ***price monitoring index*** that is distributed to farmers and processors. This level of market information helps to stabilize price discrepancies and fluctuations

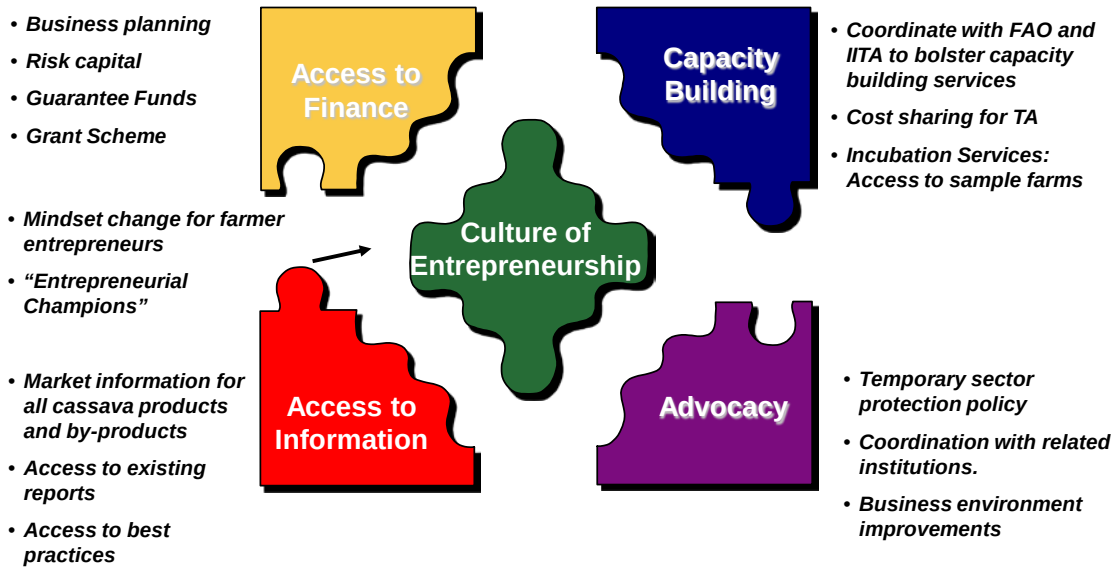
X. The Solution – an Integrated Support model

In each component of the value chain (production, processing and transport & marketing), there is a combination of five elements that must be addressed to ensure success. An overview of the approach and a detailed discussion of each value chain component are below.

A. Five keys to upgrading the value chain

Based on the review of existing local and international initiatives, the ideal cassava sector support solution is a well-funded and well-staffed donor supported program that focuses on five overarching support activities. As noted above, the reason that a relatively interventionist approach is required is due to the lack of strong partners on the ground upon which the World Bank could rely to achieve the objective of enhanced food security through increased production, more efficient processing and streamlined transport & marketing.

Figure 34: Components of the ideal cassava sector support solution



The five components of the support solution are:

- *Access to finance:* this not only includes the "hard" elements of loans and grants for various actors in the value chain, but technical assistance to both the private sector and banks to allow them to "speak the same language" in terms of the key success factors in the industry and winning business models.
- *Capacity building:* Congo's cassava sector operates in a relatively informal and artisanal manner at all levels. To professionalize the sector to increase yields and efficiency, training will be required for nearly all actors in the value chain.
- *Access to information:* a major constraint to optimizing the value chain is lack of access to data on market trends and best practices in the industry. Flow of all types of information among the value chain actors must improve.
- *Advocacy:* improving Congo's tough investment climate in general terms is a long-term project. In particular, addressing business environment dimensions calculated by the IFC's *Doing Business* Index, highlighted in Figure 2, including starting a business and enforcing

contracts. However, cassava specific reforms can be undertaken to improve the business environment for those that want to invest in the sector.

- *Culture of entrepreneurship:* at all levels of the value chain, there must be an attitudinal shift from cassava as a survival product to a true business opportunity. Upgrading Congo's cassava sector will depend on private investment and business solutions, not the goodwill of the donor community.

The sections below lay out the key interventions, the distribution channels (meaning interventions by the donors or partners, and an estimate of the investment needs for a three year intervention.

B. Production-level support

Based on the estimated gap of 233,000 tons of cassava in the market, production must be increased to meet this business opportunity. As noted above, the focus of the donor interventions should be on improving yield, which will increase farmer's incomes while avoiding costly and complicated investments into bringing new production area online.

For access to finance, the key interventions are to provide backing to the government's agricultural development fund in the form of liquidity and technical assistance. In addition, the Program should support the establishment and reinforcement of microfinance institutions (MFIs), that can provide localized financing to farmers for inputs such as improved varietals, tools, and fertilizer[34].

Capacity building at the producer level will take two forms. First, the establishment of model farms that can act as training centers and distribution points for new growing techniques is critical. In addition, extension services that go to where the farmers work to ensure that best practice is being applied is necessary for ensuring broad-based adoption of the new techniques.

To maximize the impact of upgrading the cassava value chain to producers, they need better access to information regarding market prices for cassava-related products. Important here is the fact that the vast majority of cassava farmer are illiterate, so special consideration would need to be taken in terms of the format of the reports and the distribution or communication channels to target this segment.

Unleashing the entrepreneurial spirit of farmers will sustain the value chain upgrading initiative. While it is unrealistic to suggest that donors can "change the mind" of Congolese farmers from being in a mainly survival or sustenance activity to a business that has the potential to transform lives, donors should focus on supporting initiatives that do have this capability. In particular, a business-focused Cassava Growers Association should be established to advise growers on potential opportunities in the sector and encourage innovation through an annual business plan competition.

The structure of production for cassava can be transformed through advocacy. First, the vast majority of farmers that are currently not organized into associations should be convinced to organize themselves into larger production units that achieve sufficient scale for industrial

[34] See the Congo ICPN Report, pg. 46 for detailed financial sector strategy actions from the Republic of Congo Financial Sector Strategy.

production. To support this effort, the World Bank should build the advisory and technical capacity of the newly formed Cassava Growers Association.

These interventions are summarized in the table below.

Figure 35: Interventions at the production level

	Intervention	Distribution Method
Access to Finance	Provide financial backing to the government's new agricultural credit facility.	Direct partnership with agricultural credit facility
	Support rural microfinance initiatives that finance production-level tools, such as wheelbarrows and cisterns, as well as for inputs such as new cassava varietals and fertilizer, and that provide financing on the farmer collaborative level.	Where possible, provide financing support through existing NGOs and microfinance institutions. When not possible, establish regional-level microfinancing institutions.
Capacity Building	Develop and support sample farms that integrate best practices	Direct
	Distribute and support existing capacity building efforts, training on issues of soil preparation, cassava varietals, crop spacing, crop rotation, etc	Direct in areas of direct intervention, and through partner organizations such as IITA and FAO. Based on transporation difficulties this could require one employee per radius of 100 sq km, plus support staff and operational costs.
Access to Information	Establish a market info reporting mechanism which regularly informs farmers of market prices for cassava-based products, opportunities for forward integration, etc. This should take into account that many Congolese are illiterate, and would not be able to read reports.	Distributed through regional NGO organizations, as well as direct in areas with WB on-the-ground interventions
Advocacy	As it is necessary to encourage farmers to assemble in collaboratives, advocate for laws facilitating the formalization of such entities	Either Direct or through a Cassava Growers Association
	Build the advocacy capacity of the Cassava Growers Association	Direct
Culture of Entrepreneurship	Develop an Innovative marketing campaign: "Change the mind of Congo's Farmers" on entrepreneurship, and new production opportunities, with an EMPHASIS on targeting potential women farmer entrepreneurs	Direct
	Launch a yearly business plan competition for business ideas integrated into the cassava sector.	Direct
	Support the establishment and strengthening of a **Cassava Growers Association** through technical assistance: financing, capacity building, and integration into the broader WB program	Direct

C. Processing-level support

The increase in production that will result if the above interventions are successfully executed must be accompanied by both an increase in processing capacity and a shift in this processing capacity from an artisanal to industrial model. As noted above, at the core of the processing intervention is a portfolio of micro, small, and medium-sized that will transform raw cassava into value added products while creating investment opportunities for private investors.

Access to finance interventions can be grouped into two different categories for processing. For small to large processing units, the donors need to engage with the local banking sector. Assistance will range from setting up a cassava specific guarantee fund, a grants facility, and training for bankers on opportunities in the value chain. In addition, the program should work in close collaboration with the government's agricultural development fund. At the micro level, a clear investment package to establish micro-mills through MFIs will also be required.

The hard assets that financing can bring must be complemented by the soft skills required to maintain quality and consistency of the product. A model that often works well in agribusiness is to bring in regional technicians (from Cameroon or Nigeria for example), who have experience managing cassava processing operations. This will be especially important for new and higher quality products such as HQCF.

Case Study: Building the HQCF Value Chain for Baking

An ongoing IFAD program in Ghana has helped participants diversify their income base by moving towards processed cassava products. Cassava can be processed into high-quality flour and marketed as a substitute for wheat in bread, snacks and biscuits. The IFAD program has

trained 2,600 cassava processors, including pastry makers and bakers from 67 districts, on the different uses of high-quality cassava flour. Eight cassava recipes have been developed, with accompanying studies to test consumer response. For the processing of cassava, 15 demonstration centers are being set up, and new stoves have been introduced to produce cassava products more efficiently[35]. ***The Program support strategy for Congo's cassava sector should focus on developing HQCF processing capabilities, combined with appropriate market capacity building for increased forward integration.***

A key gap in Congo's value chain is access to the information. As with the producers, processors must know what the market is demanding in terms of volume and specific product characteristics. The Program could establish a monitoring and reporting mechanism to track prices and demand that would be transitioned to private sector management and ownership over the course of the project to ensure sustainability.

Advocacy could have a positive impact on cassava processing in two ways. First, new policies that would temporarily protect this infant industry from competition from imports of substitute products would be critical. A second policy that has been used with some success in Nigeria is to require that 10% of all flour used for bread making be cassava flour instead of wheat. At the institutional level, a new Association of Cassava Processors & Equipment Fabrication would be an excellent platform for sustainability of the Program and focal point for all types of assistance to this segment of the value chain.

These interventions are summarized in the table below.

Figure 36: Interventions at the processing level

	Intervention	Distribution Method
Access to Finance	Provide financial backing to the government's new agricultural credit facility, to support the establishment of micro-processing to larger scale processing. As an example, a factory that can output 50 t/day of high value cassava starch costs about $7M. This specifically is not recommended, but gives an idea of scope.	Direct partnership with agricultural credit facility
	Establish a grant fund, to launch innovative processing ideas arriving from the local private sector	Direct
	Support rural microfinance initiatives for the establishment and support of 279 micro-processing units in four provinces. Approximately $500 per loan.	Where possible, provide financing support through existing NGOs and microfinance institutions. When not possible, establish regional-level microfinancing institutions.
Capacity Building	Develop capacity building, designed specifically for the mechanization and improvement of processing activities. Where appropriate, offer capacity building programs for the development of more sophisticated products such as HQCF.	Direct in areas of direct intervention, and through partner organizations such as IITA and FAO. Based on transporation difficulties this could require one employee per radius of 100 sq km, plus support staff and operational costs.
Access to Information	Provide consistent market information to processors and potential entrepreneurs, such that they can recalibrate where necessary. Also provide up to date information on market prices, demand, etc	Direct
Advocacy	Promote policy to protect Congo's burgeoning cassava industry: increase import taxes for cassava competitors such as wheat flour, corn and rice	Direct
	Promote policy to drive the cassava industry: ie, must include 10% of cassava flour in bakery products, etc	Direct
	Support the establishment and strengthening of a **Cassava Equipment Fabrication Association of Congo** through technical assistance: financing, capacity building, and integration into the broader WB program (Seminars on new production and processing equipment, etc)	Direct

D. Marketing and Transportation-level support

The final link the value chain is to get cassava products to urban centers where most Congolese live and then market the products to increase demand. In relative terms, this area probably

[35] www.ifad.org

requires the least attention and resources out of the three to succeed, but there are a few critical interventions that should be implemented.

In access to finance, there are two major interventions that are required. First, the introduction of a standardized insurance product to reduce the high risk premium put on transport from rural to urban areas would be critical. Second, the introduction of a financing tool such as leasing to allow rural producers to purchase their own vehicles to sell products would be a key first step in encouraging forward integration into the urban markets allowing producers to capture wholesale and retail margins. Additionally, it will be important that interventions are aligned with other World Bank programs, such as the scheduled road rehabilitations outlined in Figure 38***: Scheduled Road Rehabilitation vs. Supply of Cassava Urban Markets***.

At the marketing level, the culture of entrepreneurship and capacity building interventions are closely linked. The goal is not only to increase the number of sellers of cassava-based products, but also encourage investment into activities that use cassava to create higher value added products. This will require a relatively robust business development services (BDS) approach in urban areas that could specifically target female entrepreneurs.

Driving demand for existing cassava products and marketing of new cassava based products is a critical component of increasing demand and improving the probability of private sector success in cassava. Elements of this marketing campaign would perhaps include key health benefits of cassava, where to buy cassava products, and new uses of cassava for consumption and industrial uses.

On the advocacy front, the Program should work with government to put in incentives for increased value added processing and commercial production of cassava. To avoid long-term market distortions, this should be temporary support to the sector. In addition, a system of prioritizing cassava shipments from rural to urban areas (perhaps a laissez-passer system) and eliminating illegal roadblocks should be adopted to ensure that more perishable cassava products arrive in urban markets in a timelier manner.

Case Study: Reducing Roadblocks in Nigeria
The Nigerian Cassava Growers of Ogun State identified the need to reduce the cost to move product to market, which was being substantially increased by illegal roadblocks. They implemented four initiatives to reduce transportation costs associated with road blocks, including the "elimination of such blockages where possible, the legalization and regulation of blockages, the preferred (free) passage of transport carrying cassava, cassava processed and cassava using products (with complaints to a cassava ombudsman or private police force) and a government refund of the charges imposed by such blockages36."

These interventions are summarized in the table below.

[36] IFAD, The Global Cassava Development Strategy: A cassava industrial revolution in Nigeria, 2004

Figure 37: Interventions for marketing & transportation

	Intervention	Distribution Method
Access to Finance	Implement standardized insurance options at the transportation level, as a way to reduce unnecessary transport risk-cost being transferred to farmers	Direct
	Integrate cassava-specific support with other existing WB programs, such as Road Improvement	Direct
	Provide financing support to encourage colissage form of transporation, versus location.	Direct
	Support urban microfinance initiatives that integrate cassava products into the market	Direct
Capacity Building	Provide technical assistance and appropriate business module training to entrepreneurs looking to develop a business surrounding cassava. Consider implementation of IFC's SME Toolkit and Business Edge	Direct
Access to Information	National cassava promotion campaign to inform Congolese of new and interesting uses of cassava. This effort can include distribution of recipe books that incorporate cassava, while also providing information on access points to purchase different forms of processed cassava	Direct
Advocacy	Promote policy shifts that encourage increased cassava production and added value processing	Direct
	Promote policy shifts that require the legalization of road blocks, and give priority to vehicles transporting cassava based products	Direct
Culture of Entrepreneurship	Sensitization campaign to inform cassava entrepreneurs and the private sector on how to integrate cassava into their value chains.	Direct

Figure 38: Scheduled Road Rehabilitation vs. Supply of Cassava Urban Markets

	Length to be rehabilitated (km)	% of total distance to be rehabilitated	% Brazzaville supply (2009)	% Pointe Noire Supply (2006)
Pool	332.4	25%	57%	9%
Bouenza	289	22%	6%	30%
Niari	183	14%	26%	2%
Plateaux	135	10%	19%	
Lekoumou	134	10%		17%
Cuvette	96.4	7%	6%	
Kouilou	79	6%	18%	
Sangha	53	4%		
Pointe Noire	13	1%		
Brazzaville	8	1%		

Conclusion

Congo's cassava value chain presents a US $174 million opportunity for Congo's private sector. However, given the country's generally difficult investment climate and the additional challenge of encouraging investment into a productive sector in rural areas, the Program must be prepared to take the lead with a wide ranging program to create sufficient incentives and support for private investors to actually make an investment.

Due to the overall weakness of Congo's cassava sector and support services, a successful cassava support program will be defined by its ability to make highly targeted and impactful interventions with its limited resources. The strategic choices that will guide this project include: operating with a regional focus (top four cassava producing regions of Pool, Plateaux, Bouenza and Niari), focusing on micro-processing instead of larger-scale processing, stimulating the production of added-value products, as well as building sophisticated market demand.

Implementing these guiding strategies will require a portfolio of 5 overarching activity types, at all levels of the value chain, including: providing access to

1. Providing ***access to finance*** solutions and establishing new finance mechanisms. *Programs include*: Micro-credit schemes, guarantee Fund, and support for the existing government-established agriculture loan facility, etc
2. ***Building capacity*** at all levels of the value chain, and supporting existing capacity building efforts.
3. Improving ***access to information*** as a means to stabilizing sector fluctuations, driving demand and highlighting investment opportunities. *Programs include*: establishment of a market price index, as well as campaigns to promote the cassava sector and cassava usage.
4. Engaging in and supporting existing ***advocacy*** efforts to establish an improved business environment for the cassava sector. *Initiatives include*: the establishment and strengthening of a Cassava Growers Association as well as policy shifts to encourage cassava integration into other value chains such as baking.
5. And finally, building a ***culture of entrepreneurship*** as a way to guarantee the permanence of sector improvements, while driving private sector investment into the cassava. *Programs include*: annual business plan competitions with grants, technical assistance for entrepreneurs as well as sensitization campaigns on business opportunities in the cassava sector.

The Republic of Congo is endowed with valuable natural resources and a climate favorable to agriculture, but it has suffered from ongoing conflicts that have destabilized the nation, and left its core economic sectors in ruins and its food security in jeopardy. By following a carefully laid out strategic approach, the Program can resolve the 242,000 tons of unmet demand, catalyze private sector investment, and impact the all important national objective of food security. In collaboration with Congo's private sector, government and NGOs, a new way of producing and selling is possible, but it will require the serious commitment of all actors.

Annex I: Interviews Conducted & Field Visit Schedule

	Nom	Titre	Organisation
2009-05-05	Mme Nadege Bicoumou	Assistante Executive	Banque Mondiale
2009-05-05	M. Sainteli Applinaire Kervalec Bouenda	Assistant Administratif	Banque Mondiale
2009-05-06	M. Pierre-Claver Oboukangongo	Coordonnateur	PDARPR - Banque Mondiale/GoC
2009-05-06	Mme Irene M.C. Mboukou-Kimbatsa	Docteur-Ingenieur	PDARPR - Banque Mondiale/GoC
2009-05-06	M. Simon Atsiou	Directeur	Centre National des Semences Ameliores (CNSA)
2009-05-06	Dr. Jean Michel Magema	Consultant	FAO
2009-05-06	M. Bernard Ofamalekou	Responsable de l'Appui a la Production et a la Com	PRODER 3 (Project de FIDA et GoC)
2009-05-06	M. Eugene Ndinga	Ingenieur du Developpement Rural	PRODER 1 (Projet de FIDA et GoC)
2009-05-07	M. Maurice Obambi	Chef de Projet de Manioc	Ministere de l'Agriculture et de l'Elevage
2009-05-07	M. Blaise Gassila		Ministere de l'Agriculture et de l'Elevage
2009-05-11	M. Bienvenu Biyoudi	Economiste	Banque Mondiale
2009-05-11	M. Dieudonné Koguiyagda	Representant au Congo	FAO
2009-05-14	M. Elvis Ndala		PRODER
2009-05-12	Mme Georgette Dandou	Directrice Generale	Ministere de l'Agriculture et de l'Elevage
2009-05-12	M. Jean Moukouba	Coordonnateur des Projets de Cooperation Multila	Ministere de l'Agriculture et de l'Elevage
2009-05-13	M. Maurice Bouesso	Coordonnateur du Projet Eau et Developpement U	Ministere de l'Equipement et des Travaux Publics

	MON 4 MAY	TUES 5 MAY	WED 6 MAY	THURS 7 MAY	FRI 8 MAY	SAT 9 MAY
WEEK 1			*Meet WB local team *Meet PDARPR team *Meet CNSA *Meet PRODER (IFAD)	*Interview cassava retailers in Brazzaville (Mati & Bouemba) *Meet OBAMBI Maurice, Chef du projet de manioc, Ministere d'Ag	Interview cassava retailers in Brazzaville (Yoro & Lycee Thomas Sankarra Markets)	*Meet Dr. Magemba, FAO
	MON 11 MAY	**TUES 12 MAY**	**WED 13 MAY**	**THURS 14 MAY**	**FRI 15 MAY**	**SAT 16 MAY**
WEEK 2	*Interview Diedonne (FAO) *Meet M Biyoudi, WB Brazza team	*Interview Moukouba *Interview Dandou (Ministere d'Agriculture)	Interview cassava vendors in Province 1	Interview cassava producers, Okiene (Plateaux)	Debriefing with WB team Brazzaville	Depart

Annex II: Road Rehabilitation Report from PDARPR

1 – DEPARTEMENT DE POINTE-NOIRE

BASSIN DE PRODUCTION	**PISTE**	L (km)	Connexion
Kounda	**Mbi Fani** - RN5	5	Réseau urbain
Kounda	**Ancienne raffinerie** - Fouta Laisse	7.5	Réseau urbain
Débarcadère des pécheurs	**Base Agip** - Débarcadère	0.50	Réseau urbain
TOTAL : 13 km pour 3 segments de piste			

2 - DEPARTEMENT DU KOUILOU

BASSIN DE PRODUCTION	PISTE	L (km)	Connexion
Tchiamba Nzassi / Mvouti	**Kouloumbo** - Bilala	55	RN1 - RN5
Lac cayo	**Mavitou** - Lac cayo	8	RN5
Mvouti	**Les Saras** - Bondika	16	RN1
TOTAL : 79 km pour 3 segments de piste			

3 - DEPARTEMENT DU NIARI

BASSIN DE PRODUCTION	PISTE	L (km)	Connexion
Moutamba	**Nsimba (RP1**) - Ngoua II	51	RP1 : yenenganou - Mossendjo

Kimbangou-Divenié	**Ngoua II** - Divinié	69	RP7 : Nyanaga - Divenié
Banda-Kibangou	**Kayes Banda** - Tsembo	36	RIL 22 : Kayes - Bandas (RN3)
Louvakou	**Carrefour RN3** - Malolo village	15	RN3
Kimongo	**Kimongo** - Mboukou moukongo	12	Dolisie - Kimongo
TOTAL : 183 km pour 5 segments de piste			

4 - DEPARTEMENT DE LA BOUENZA

BASSIN DE PRODUCTION	PISTE	L (km)	Connexion
Kayes	**Kayes- Sonnel Louamba** - Kingongo	42	RN 1: Bzv - PN
Mfouati	**Mfouati - Louadi** - Kinanga - Kibenza	15	Loutété - Mfouati
Mfouati	**Mfouati - Kingonda** - Kitombo	35,20	Loutété - Mfouati
Kayes - Boko Songho	**Sonnel-Louamba-Soukoubouadi Manzakala** - Ferme LOUAMBA	35	RIL 35 - RIL 36 Boko songo - Hidi
Mabombo	**Nsekepembé** - kImvembé	18	RIL 28 - Sibiti - Madingou
Tsaki	**Tsiaki** - Makaka	32	RP 8 : Sibiti - Mouyondzi
Mouyondzi	**Mouyondzi - Makaka** - Kolo	21	RP 20 : Mouyondzi - Kingoué
Mouyondzi	**Makala** - Ndoungou	18	RP 20 : Mouyondzi - Kingoué

Kingoué	**Zabata** - Kinkoula - Zapata - Matiti	41	RP 20 : Mouyondzi - Kingoué
Mfouati	**Kinzaba-Ngouédi** - Bouansa	20	RN 1: Bzv - PN
Loudima	**Loudima gare** - Doumboula	11,80	
TOTAL : 289 km pour 11 segments de piste			

5 - DEPARTEMENT DE LA LEKOUMOU

BASSIN DE PRODUCTION	**PISTE**	L (km)	Connexion
Sibiti - Mayéyé	**Panda** - Boudou	10	RP 8 : Sibiti - Mouyondzi
Komono - Zanaga	**Car Lissengué** - Lefoutou - Liwewe	84	RP5 et RP9
Zanaga	**Kengué** - Yhomi- Kimboto	40	RP 9 - Mapati - Zanaga
TOTAL : 134 km pour 3 segments de piste			

6- DEPARTEMENT DU POOL
Partie OUEST

BASSIN DE PRODUCTION	**PISTE**	L (km)	**Connexion**
Boko / Louingui / Loumo	**Boko** - Tombo manyanga	45	RP 24 kinkala - Boko
Kinkala / Mbandza Ndounga	**Ngamissami** - Mbandza Ndounga **(Mbouanou)**	41	RN1 : Bzv - PN

Boko / Louingui / Loumo	**Loumou** - Louenga	26	Louingui - Loumo
Kinkala / Mbandza Ndounga	**Kimbetsi** - Tsamouna	10	RN1 : Bzv - PN
Mindouli / Kindamba	**Mpiene** - Kindamba Ngouedi	25	PK 11 de la route Mindouli-Kindamba
Mindouli / Kindamba	**Ntadi** - Louila	10	
Kimba / Mindouli	**Kimba** – Dzokotro[2]	44	Kimba - 12 manières
Kinkala / Mbandza Ndounga / Mayama	**Mayama** - Loukouangou	15	Bzv - Mayama
Vindza / Kimba / Kindamba	**Vindza** - Mpangala	15	Kindamba - Vindza
TOTAL : 231 km pour 9 segments de piste			

6 - DEPARTEMENT DU POOL
Partie EST

BASSIN DE PRODUCTION	**PISTE**	L (km)	**Connexion**
Igné	**Massa** - Maty centre	60,50	RN2 : (PK 74,5)
Igné	**Odziba** - Impoh	10,90	RN2 : (PK 95,5)
Igné	**Itaba** - Mah	8	RN2
Igné	**Itaba** - Sah	10	RN2
Igné	**Ingha II** - Ingolo	12	RN2 (PK 106)
TOTAL : 101,40 km pour 5 segments de piste			

NB : Pour tenir des recommandations du consultant BenALIL, les segments Odziba-Impoh, Itaba-Mah, Itaba-Sah et Ingha II – Ingolo ont été substitués par le tronçon ***Odziba-Impoh-Ingolo – Dziba et Dzio-Dzio*** *Soit 40, 40 km*

7 – COMMUNE DE BRAZZAVILLE

Ceinture maraichère de Mayanga : 8 km

8 - DEPARTEMENT DES PLATEAUX

BASSIN DE PRODUCTION	PISTE	L (km)	Connexion
Djambala	**Mpini (RP26)** - Abalandolo	12	RP26 Ngo - Djambala - Lekana
Ollombo et Ongoni	**Ngouené (RN2)** - Okassa	30	RN2 : Bzv-Ouesso
Ollombo	**Otali** - Ekouassendé	15	RIL 68 : Ollombo - Abala
Ngo et Gamboma	**Engakou (RN2**) - Bouemba	35	RN2 : Bzv-Ouesso
Ngo et Gamboma	**Ollono II** - Impé	28	RN2 : Bzv-Ouesso
Djambala	**Akou** - Mpoandzio	15	RP26 Ngo - Djambala - Lekana
TOTAL : 135 km pour 6 segments de piste			

9 - DEPARTEMENT DE LA CUVETTE CENTRALE

BASSIN DE PRODUCTION	PISTE	L (km)	Connexion

Makoua	**Mohati (RN2)** - Mvoula	7,20	RN2 : Bzv-Ouesso
Makoua	**Issengué (RN2)** - Aboua	9	RN2 : Bzv-Ouesso
Owando	**Owando (PK5**) - Ikongono+bretelles	45	RP owando-Ngoko - Boundji
Owando	**Okona - Isseyi** - Katsoko	10	RP32 Obouya - Boundji
Tchikapika / Mossaka	**Tongo** - Boniala	25,20	Oyo-Tchikapika - Tongo
TOTAL : 96.40 km pour 5 segments de piste			

10 - DEPARTEMENT DE LA SANGHA

BASSIN DE PRODUCTION	**PISTE**	L (km)	Connexion
Ngbala	**Ngbala** - Bolozzo	41	RP34 Sembé-Ngbala
Souanké	**Souanké** - Djampouo	12	Ouesso- Souanké
TOTAL : 53 km pour 2 segments de piste			

Annex III: Cassava Cluster Contact List

Name	Organization	Tel
Abia Sylvestre	Producteur (association Ollombo)	513 22 93
Ambende Daniel	Centre National des Semences Ameliorees	584 19 90
Bakadissa Jean	DGRMAE	627 96 05
Bamana Dandou G.	Direction Generale de l'Agriculture	531 28 94
Bani Gregoire	CRAL	668 81 74
Bassangatala Jean-Paul	CVTA	536 56 90
Bizbandoki Paul	Coordonnateur PRODER-Sud	591 82 45
Bouka Richard	ArgiCongo	536 91 88
Boukou-Kimbatsa	PDAR	660 50 76
Diahouakou Gamard	ASDH	530 65 12
Dimi Marcel	COPAC	551 30 09
Dimi Martin	ICCC	556 62 17
Eboko Federic	DDA Sangha	417 58 78
Elombila Jean-Paul	Inspecteur General des Services Techniques	667 62 24
Gassila Blasise	DPAPV	564 29 91
Ibeaho Bouya	COPAC	551 07 96
Kasu Sam	NG Entrepise/Oyo	515 62 44
Kiyindou Berthe	DPAPV	526 05 70
Kono Louis	DRDEV/MAE	622 68 42
Kounampo Pierre	DCPA	556 66 04
Koyo Mongouya Roger	DRDEV/MAE	544 60 35
Lessebe Gaston	Project manioc/MAE	675 31 22
Louhoua T. Alphonsine	DPAPV	522 24 36
Mabiala Berthe Felicite	DEP/MAE	5131 65 76
Mabika Gaston	Cabinet du Chef de l'Etat	531 65 44
Makouba-Nzambi Henriet	PSSA	538 81 69
Mampouya Pierre Cesar	Institut du Developpement Rural	551 18 51
Mankoussou Marc	Attache au developpement rarul/Cabinet MAE	971 79 73
Manmba Noel Renaud	IGST	556 34 79
Massengo Edouard	DRDEV	531 43 49

Name	Organization	Tel
Matouala Jean Christophe	DPAPV	531 56 32
Mbani Faustin	DDA – Plateaux	526 35 52
Mendon Sophie Delphine	Criox Rouge Congolaise	663 65 48
Milongo Jonas	DDA-Pool	704 09 27
Miyouna T. Claude	CDIST/DGRST	639 68 26
Miyouna Antoine	Direction des Statistiques	668 87 27
Mizele Simon	Producteur (Odziba)	572 50 94
Moulangui Albert	DRDEV/MAE	579 80 30
Moupegnou-Tombey J.S.	DACC	522 49 84
Mpio Emmanuel	COPAC	548 56 72
Mputu Monique	Chargee d'appui terrain/FIDA	2439982699
Mvila Armand	CERAG	528 09 90
Ndinga Eugene	Assistant Composante ADA PRODER-Nord	559 72 34
Ngandzadi Jaques	IGST	544 15 11
Ngoma-Bakana Glenn A.	DPAPV	536 16 89
Nguie Georges	Primature	534 99 81
Noms	Institutions	Contact
Nsika Mikoko Elie	Faculte des Sciences (BPV)	662 85 67
Ntady Seraphin Medard	CNOP-Congo	536 08 22
Numbi Marcel Dieudonne	PRODER-Sud	566 56 27
Okoulokoulou Bernard	Direction Generale de l'Agriculture	531 23 93
Ondongo Gabriel	DG ArgiCongo	566 11 71
Ossobe Norbert	Direction Generale de l'Elevage	538 83 91
Ossona Jaques	PSSA	556 06 63
Ouadiabantou Desire	CICR	570 37 39
Samba Desire Alphonse	MPFIFD	574 05 68
Sassi Marie Pauline Eve	PSSA	541 71 49
Tombet Ariane	Chef de delegation CICR	550 17 90
Tsoh-Ikounga H.	PRODER-Sud	526 36 58
Yacoub Tandoka	ArgiCongo	661 48 83

Annex IV: Brazzaville Consumption Survey Tool

FICHE D'ENQUETE JOURNALIERE

Journée du_____

Nom de l'enquêteur :

Lieu de l'enquête : **Arrondissement :**

Produits enquêtés - Préciser : Chikwangue (Gros,Moyen,Petit,Moungouele, Cossettes, ndjanika ,roui,tubercules,moussombo)

Véhicule de transport immatr et type	Produits identifiés	Condition-nement sac ,vrac ou autre	Nombre de sacs ou condition-nement	Poids unit, moyen du pdt condit	Poids sac ou autre condition kg	Poids total transporté kg	Origine du produit	Autres infos

Annex V: Consumption Model Details

POPULATION DISTRIBUTION

Avg annual urb growth rate 1990-2007* 0.035

% population	2007*	2008	2009
urbain %	61.00	63.14	64.24
rural %	39.00	36.87	35.76
Total Population**			3,766,751
urban population			2,297,718
rural population			1,469,033

**Source (% urban & urban growth rate): http://www.unicef.org/infobycountry/congo_statistics.html*
***Source (total population 2007): WDI online*

CASSAVA CONSUMPTION - PRESENT

Milieu	Pop	Kg/pp/yr	Total Kg	Tons
Urban	2,297,718	175	402,100,662	402
Rural	1,469,033	425	624,338,967	624
Total	*3,766,751*		*1,026,439,630*	*1026*

Rural/urban consumption ratio 2.4
% potential increase in urban 143%

CASSAVA CONSUMPTION - POTENTIAL

Milieu	Pop	Kg/pp/yr	Total Kg	Tons
Urban	2,297,718	425	**976,530,180**	977
Rural	1,469,033	425	624,338,967	624
Total	3,766,751			*1,601*

Source: Etude sur les bassins de production et evaluation institutionelle des organisations des producteurs
Assumption: Urban consumers have the same taste for cassava as rural consumers, and consume less due to the higher price

2009

	Consumption (kg/pp/yr)		Population		Market Size (tons)		
	Urban	Rural	Urban	Rural	Urban	Rural	Total
Estimated current consumption	*175*	*425*	*2,297,718*	1,469,033	*402,101*	*624,339*	*1,026,440*
Pessimistic Scenario	162	350	2,297,718	1,469,033	372,230	514,162	886,392
Neutral Scenario	300	425	2,297,718	1,469,033	689,315	624,339	1,313,654
Optimistic Scenario	425	450	2,297,718	1,469,033	976,530	661,065	1,637,595

Notes: the 162 kg/pp/yr in the pessimistic scenario is based on our observation of cassava entering 9 markets in Brazzaville over the course of a wee

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Annex VII: Terms of Reference

Termes de référence pour une étude de l'amélioration et la commercialisation et de la transformation du manioc en République du Congo, et de l'implication du secteur privé dans ces domaines

La République du Congo est un pays bien doté en ressources naturelles et aux conditions agro climatiques favorables à l'agriculture, mais qui a beaucoup souffert, au cours de la décennie 1990, de plusieurs conflits qui ont accéléré l'exode rural et largement ruiné ce qui pouvait exister en termes d'infrastructures rurales et voies de communication et de désenclavement des campagnes.

En dépit de sa richesse en hydrocarbures, le Congo est un pays pauvre car la manne pétrolière, mal repartie, a très peu profité à l'immense majorité de la population. Au cours des 15 dernières années la pauvreté s'est accrue, surtout en milieu rural. On estime qu'aujourd'hui 50 % de la population vivent sous le seuil pauvreté[37], comparé à 30 % avant le début des conflits.

Du fait de sa richesse pétrolière, de la dépopulation des campagnes et de la dégradation avancée des pistes rurales dans les régions agricoles, la production agricole a fortement décliné et le Congo est devenu très dépendant des importations de denrées pour assurer l'alimentation de sa population. La crise de la production agricole a encore été aggravée par le désengagement de l'Etat des activités productives à partir de1986, alors que le paysannat local n'était pas préparé à prendre la relève des fermes d'Etat.

Depuis 2001, le Congo s'est lancé dans un programme de réformes économiques avec l'appui des agences de développement multilaterales. Le gouvernement vient de se doter d'une Stratégie de Réduction de la Pauvreté. Ce document a identifié le développement rural en général et le développement agricole en particulier comme étant un vecteur essentiel de réduction de la pauvreté dans les campagnes. Par ailleurs, la reprise de la production agricole et la restauration d'une meilleure autonomie alimentaire, en relançant la production des produits vivriers, sont une nécessité pour le Congo, surtout dans le contexte actuel de forte augmentation du prix des denrées alimentaires sur les marchés mondiaux.

Pour atteindre ces objectifs le Gouvernement du Congo (GdC) a adopté une nouvelle Stratégie de Développement Rural dont les objectifs sont d'améliorer la sécurité alimentaire et réduire la pauvreté en favorisant l'investissement dans les productions vivrières, la pêche et certaines cultures de rente.

Pour appuyer la mise en œuvre de cette stratégie, la Banque mondiale a préparé, à la requête du GdC, un Projet de Développement Agricole et de Réhabilitation des Pistes Rurales (PDARPR)[38], qui a été approuvé par son conseil d'administration en mai 2007.

Domaine de l'étude

L'objectif de l'étude envisagée est double :

[37] Enquête pauvreté de 2005, ECOM

[38] Le Projet couvre huit régions : Pool, Bouenza, Niari, Lékoumou, Plateaux, Cuvette, Kouilou, Sangha et Brazzaville

- Apporter un concours à la mise en œuvre de la sous composante 2 de la composante 2 du PDARPR, qui prévoit la construction ou réhabilitation d'infrastructures de collecte et de mise en marche des produits agricoles. La prestation de conseil recherchée devra permettre de mieux cerner les besoins en matière d'infrastructures de collecte primaire et de commercialisation des produits de l agriculture. Cependant, compte tenu d'une part de la relative étendue du secteur des productions vivrières (manioc, autres tubercules, arachide, maïs, banane plantain, haricot riz, etc.), et d' autre part des ressources limitées disponibles pour ce travail, il est suggéré de se concentrer sur la production de manioc, qui est de loin la principale production en termes de tonnage produit et d'importance relative dans l'alimentation de la population[39].
- Le Département Secteur Privé / Secteur Financier (AFTFP) de son côté, réalise une étude sur l'amélioration du climat des investissements en République du Congo. Dans le cadre de ce travail, il est envisagé, parmi d'autres thèmes d'étude, un travail spécifique sur les contraintes sectorielles dans le domaine de l'agriculture. Il s'agira spécifiquement d'investiguer comment une filière agricole spécifique (le manioc en l'occurrence) pourrait devenir source de croissance, et concrètement**, il s'agira d'identifier, à travers cette filière, les contraintes entravant de développement d'une agriculture commerciale avec son corollaire, l'investissement du secteur privé national dans le développement de cette filière.** De manière générale, l'implication du secteur privé dans la filière manioc sera traitée de manière transversale dans cette étude.

Principaux domaines à étudier

Les flux de commercialisation et les besoins en infrastructures de stockage:

Une étude préliminaire[40] a montré que, dans les cinq départements couverts par cette étude[41], la collecte primaire des produits en milieu rural est le fait de petits commerçants indépendants aux moyens très limités et dont l'activité se concentre autour des principaux axes de communication (où ils ont recours à des transporteurs informels). Les prix payés seraient d'ailleurs assez directement fonction de la difficulté d'accès aux zones d'approvisionnement. On peut aussi déduire des quelques informations disponibles dans cette étude, que nombre de régions, qui se sont retrouvées partiellement ou totalement enclavées du fait de la dégradation de réseau de pistes rurales, sont retournées à un mode d'autarcie alimentaire sans échanges monétaires avec le reste du pays.

Le consultant prendra connaissance des prévisions de réhabilitation des pistes dans les départements concernés et, à partir de du potentiel des bassins de production ainsi (mieux) desservis, et la localisation actuelle des marchés il émettra des hypothèses de développement de flux de produits (en se concentrant sur le manioc et autres tubercules) selon trois scenarios (pessimiste, moyen, optimiste) de réponse de l'offre à la demande devenant ainsi accessible, et pour chacun de ces scenarios, il estimera les besoins en infrastructures de stockage (et de transformation si pertinent). Cet exercice tiendra compte des résultats obtenus par ailleurs en

[39] Voir en annexe la « Note sur les filières vivrières en RoC » .

[40] Etude sur les bassins de production et évaluation institutionnelle des organisations de producteurs, J. Moukouba, mars 2006.

[41] Départements du Kouilou, du Niari, de la Lékoumou, de la Bouenza et du Pool.

matière de l'implantation des points de concentration (plateformes de consolidation des produits) qui découlera logiquement de localisation des pistes réhabilitées par le projet PDARPR.

Implication du secteur privé (petit, moyen et gros) à tous les niveaux de la filière (production, transformation, commercialisation) :

L'étude précitée[42] établit que le secteur paysan assure 90% de la production vivrière et que le secteur coopératif, institué du temps de la prééminence de l'Etat, est largement en déclin. Le secteur privé agricole, toujours selon l'étude, connaîtrait un certain essor, mais il s'agirait surtout de petites entreprises agricoles, situées en zone périurbaine, axées sur les productions maraîchères, avicoles et porcines, et la transformation. Pour ce qui est du manioc, Il y aurait cependant « dans les districts d'Igné et Ngabé (dans le Pool), et à Madingou (Bouenza), une activité de mécanisation agricole, fondée sur la monoculture du manioc à l'initiative de néo-ruraux, sur des terres achetées ou en location [43]». En s'appuyant sur un travail préalable de description minutieuse de la chaine d'approvisionnement du manioc, le Consultant étudiera les expériences mentionnées dans cette étude (et d'autres dont il pourra entendre parler sur place) et, à partir de ces exemples concrets, il en tirera des conclusions quant à la possibilité de les étendre à d'autres bassins de production du Congo. Il caractérisera les conditions d'accès au crédit de ces entreprises, et vérifiera la position des intervenants bancaires (et de micro-finance) sur des dossiers de ce type. Il décrira dans le détail les conditions qui devraient être remplies pour attirer l'investissement national privé dans le domaine de commerce et de la transformation du manioc, et rendre plus facile l'octroi de crédit, de façon à susciter la création d entreprises dans ce domaine.

Transformation du manioc

Un produit comme le manioc se conserve peu longtemps à l'état de tubercule et gagne donc à être transformé en produits plus stables (cossettes séchées, gari) avant transport Cependant, selon les informations recueillies par l'étude susmentionnée, « la transformation agroalimentaire en milieu rural est artisanale et pratiquement réduite aux besoins de l'autoconsommation et de la mise ne marché sur un rayon géographique très limité »[44]. Pourtant l'idéal serait de transformer dans les villages, les produits primaires (tel le manioc) qui se conservent mal. Mais on se heurte ici de nouveau au problème des voies d'évacuation et de l'offre de transport disponible.

Pour ce qui est de la transformation industrielle du manioc en farine, il est fait allusion à un complexe agro-industriel étatique à Matsoumba, mais qui aurait cessé son fonctionnement en 1989.

Dans un premier temps, le Consultant étudiera donc dans les régions retenues, la problématique de la transformation du manioc et de la meilleure localisation possible pour l'ajout de valeur, le long de sa chaine d'approvisionnement, compte tenu des diverses contraintes qu'il aura identifiées (transport, financement, etc.). Dans un deuxième temps il

[42] Op. cité, pages 28 29
[43] Op. cite, page 29
[44] Op. cite page 60

émettra des recommandations sur les améliorations possibles de productivité de long de cette chaine par implication possible du secteur privé dans la modernisation de la chaine et la recherche de productivité.

Toujours en se basant sur le potentiel agricole des régions concernées, le consultant, étudiera la pertinence de développer ces transformations artisanales du manioc à une échelle plus importante et donnera son avis sur la possibilité de localiser ces activités (stade semi-industriel) sur les lieux de consolidation de l'offre qui auront été définis par ailleurs et d'adjoindre ainsi une activité de transformation à des plateformes de négoce et de stockage. Ici il étudiera la pertinence d'introduire dans ces régions le concept de « plateforme multifonctionnelle » qui a donné des résultats probants dans d'autres pays d'Afrique sub-saharienne.

Etendue géographique de l'étude

L'étude se fixe de couvrir, autant que faire se peut, les provinces retenues dans le Projet PDARPR, dans la mesure où leur accès sera possible aux consultants compte tenu des contraintes de sécurité qui seront en vigueur au moment de la réalisation de l'étude. Par ailleurs, vu l' étendue du territoire, il pourra être proposé par le Consultant de procéder par échantillonnage de districts dans ces diverses régions, en tenant compte des spécificités logistiques de mise en marché des produits vivriers dans chaque région (route, CFCO, le fleuve Congo).

Responsabilités du consultant

Pour cette étude concernant le sous-secteur du manioc (production, transformation, mise en marché), le Consultant procédera aux tâches suivantes :

- A partir des statistiques de production et des informations disponibles, le consultant identifiera les principaux flux de commercialisation et les croisera avec une carte des voies de communication existantes et celles qui seront réhabilitées dans le cadre de ce projet.
- Il étudiera et décrira les pratiques commerciales existantes concernant le manioc (autoconsommation, commerce local, régional etc.) et caractérisera ces pratiques (collection primaire, existence d'éventuels points de consolidation, méthodes d'évacuation, le rôle des divers intermédiaires impliqués, etc.,). En étroite concertation avec les acteurs (à travers les associations de producteurs lorsqu'elles existent, ou par interview des responsables des communautés villageoises), le consultant prendra en compte les priorités exprimées par les usagers potentiels des infrastructures envisagées.
- Le Consultant estimera les divers coûts tout au long de la chaine d'approvisionnement du manioc, de façon à localiser précisément les étapes possibles de valeur ajoutée.
- En matière de transport le consultant décrira les modes de transport utilisés aux divers stades de la commercialisation (réseau routier informel, transport routier consolidé opéré par des professionnels etc.)
- A partir des flux existants, et en partant du potentiel de production, le consultant proposera des solutions pour améliorer la distribution du manioc et de ses produits transformés vers les centres urbains.
- Proposer les investissements nécessaires pour réduire les coûts de collecte et l'amélioration des infrastructures de commercialisation

- Description des pratiques et des couts de transport (cout formels et informels)

Constitution de l'équipe

Compte tenu du périmètre de l'étude, il est envisagé de constituer une équipe de consultants qui comprendra des consultants nationaux sous la responsabilité d'un consultant international, chef de projet.

Période envisagée

Il serait souhaitable que le travail de terrain puisse se dérouler en janvier ou février 2009, de façon que le rapport provisoire puisse être disponible fin février 2009, et le rapport final à la mi-mars 2009.

Visibility of European Union Financing

The operator agrees to include reference to the financier, the European Union, on all publications, including invitations, programs, posters, folders, banners, streamers, and reports, and to put the logo on all documents produced or published in relation to these Terms of Reference. Further, the operator agrees to take photos of such materials with the logo visible and to include them in the progress and final reports.

Language

All deliverables will be in French.