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# Chapter 16

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## Enhancing cassava marketing and processing in Cameroon: Drivers, constraints, and prospects of the value chain\*

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## 1. Introduction

Cameroon's economy remains highly dependent on its agricultural sector which currently employs 68 percent of the national active labor force, significantly contributes to GDP, and provides 15 percent of public budget<sup>2</sup>. Since the early 80s, urbanization has induced increases in the demand for food crops to which local supply has been rather unresponsive. As a result, market prices have increased.

Given domestic market failures, Cameroon remains vulnerable to world food markets volatility which has direct pass-through effects onto local urban markets because of high reliance on food imports. In 2008 for instance, the food prices crisis triggered protests and riots in Cameroon, as in its other regional counterparts: Burkina Faso and Côte d'Ivoire. Structural investments should be geared towards the commodity chains and agricultural sectors which have the potential to scale up staples' local supply in order to avoid risks of food shortages. Staples are the main food items for income and social classes which are the most exposed to food crises (i.e. poor urban dwellings). This chapter focuses on the cassava commodity chain which is the primary starchy food in southern Cameroon, and second at the national level. It represents around 8 percent of households' nutritional intake on average.

In order to strengthen food security, the cassava sector has recently benefitted from support provided by the National Development Program of Roots and Tubers (PNDRT) with the overarching goal to increase cassava production and consumption. Backed by IFAD, this 15 billion FCFA project has been implemented by the national government over the last seven years. Regarding cassava in particular, it has promoted a significant rise in production, channeled mainly through the supported producers' groups, with average farm yields having undergone a twofold increase from 10-12 tons up to 25-30 tons per hectare.

With regard to processing and marketing though, the results are less visible, due to the inherent difficulties to overcome logistical and quality constraints due to the rapid perishability of cassava crops. This lack of downstream development and linkages with the production stage of the value chain generates a significant bottleneck for the cassava sector with many potential implications in terms of poverty alleviation.

Coping with the above features, this chapter aims to examine thoroughly the key drivers and constraints of downstream development of the cassava value chain. Such downstream linkages of additional and significant marketing outlets with increased production should be adapted to the features of local familial agriculture through supported farmers' organizations and cooperatives. The study also identifies the main marketing constraints and inefficiencies for cassava raw products, processed, and by-products, and their income implications for local smallholders. Drawing on existing studies and evidence, additional fieldwork and several other evaluations, this chapter presents the main barriers and bottlenecks to scaled-up marketing, which would ensure more consistent income flows for local producers and traders.

This chapter is organized as follows. Section 2 is an overview of the Cameroon cassava value chain and its organization. Section 3 identifies and characterizes the main constraints and drivers of processing and marketing. The last section concludes and provides recommendations on the main drivers, initiatives, and policies to emulate in order to improve sectoral performance of the value chain, which would in turn benefit smallholders.

The institutional framework of the cassava value chain is the same as the one for the other agricultural commodities, with the central role of the Ministry of Agriculture and Rural Development (MINADER)

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<sup>2</sup> Ministry of Agriculture and Rural Development (MINADER), 1999

partnering with other government bodies and ministries (trade, industry, finance, and other specialized entities). When a commodity sector is to be supported, the main strategies are materialized through development or launching programs (or a subset of projects). The PNDRT for instance seeks to induce increases in farm yields by distributing appropriate input package (seeds and improved varieties), facilitating market access, and relying on seedling and extension agents for technical advice to be delivered to the main targeted beneficiaries in villages and on local markets.

## 2. A general overview of the cassava value chain in Cameroon

### 2.1 Contribution of the cassava value chain to the agricultural sector

The current government strategy for agricultural development revolved around a more intensive-based agricultural sector, which is stimulated by dynamic and growth-generating value chains that provide employment: among them is cassava. Centering agricultural development around those value chains seeks to encourage inclusive value chain development at all stages (production, processing, marketing) up to the end products and markets.

Like other commodity sectors in Cameroon, cassava is characterized by complex marketing and processing channels, partly due to the different categories of stakeholders involved (and their outcomes), and due to the intricacies and overlaps between several industries (e.g. feed industry) or between the stages of a given commodity sector under the prominence of the informal sector. This results in a lack of reliable and consistent data, as revealed by the rural development strategy.<sup>3</sup>

The cassava value chain is of strong importance with regard to basic food intake of the population, representing 20 percent of cultivated land and around 46 percent of national food crop production. Besides, around 90 percent of producers are rural poor women. National production is estimated to be around 3.1 millions of tons in 2010 and has remained steady over the last years. Cassava is especially important as a contributor to food security in Cameroon because:

- Cassava products are components of basic food intake for 7 to 8 million people in Cameroon, mostly living in the 8 southern provinces (Nord and Extreme-Nord being exceptions), and cover around 8 percent of daily nutritional needs, lying just below plantain (9.8 percent) in the group of starchy food crops.<sup>4</sup> At the regional level, cassava is the first crop in the category of roots and tubers that is produced to a large scale in Central Africa. It is by now a major component in fighting hunger and the food crisis (IITA, 1989).
- Cassava is highly climate and soil-tolerant regarding its yield performance and thrives in growing conditions in agro-ecological areas and seasons which would not otherwise fit the physiological requirements of other crops. Cassava does not require large amounts of inputs and fertilizers and is highly suitable for processing, which compensates for its high perishability as a crop. Caloric yields of cassava by land unit and growing time unit are very high and overperform those of other cereals and tubers. Regarding dry matter yields by land unit, cassava dominates the top ten tropical crops.

<sup>3</sup> MINEPAT, Document de Stratégie de Développement du Secteur Rural, 2005

<sup>4</sup> Feasibility study for an agro-industrial production unit of cassava products and processed products for daily food consumption (SNI 2009) p. 13.

Cassava is the first consumed staple in Cameroon. The way it is consumed (processed, prepared, packed) is heterogeneous across cities, ethnic groups, or regions. Some consumers prefer it as a fresh root, others prefer processed products (fufu, gari, or sticks). Fresh roots represent 50 percent of total quantities consumed in cities and villages for all end products of the value chain, which is a much higher share than in the 90s. Following the currency devaluation in 1994, food imports have substantially reduced, as local food crops were promoted, which has benefitted cassava production geared towards self-consumption and deliveries to local markets and as an import-substitution strategy.

Cassava by-products are the first source of starchy food in the whole of Southern Cameroon (PNDRT 2003, ECAM III 2007). Cassava products represent 60 percent of the roots and tubers' market share (in value), comprising 40 percent of processed products (fufu, gari, sticks, and waterfufu) and 20 percent of fresh roots.

## 2.2 Stylized facts on consumption

### Household consumption<sup>5</sup>

Table 1 displays results from the latest ECAM survey from the National Statistical Office (INS), carried out in 2007, regarding cassava by-products. Cassava expenditure is presented by socio-professional category of the household head (millions CFAF).

**Table 1. Household consumption of cassava processed products in 2007**

By-products		Executives and entrepreneurs		Skilled workers		Laborer and unskilled workers		Domestic workers/trainees		Total/city
		Cons.	STC	Cons.	STC	Cons.	STC	Cons.	STC	
Gari	Douala	100	18%	258	27%	566	13%	6	5,4%	930
	Yaoundé	125	22%	158	17%	208	5%	11	10%	502
	<b>Cameroon</b>	<b>554</b>	<b>/</b>	<b>924</b>	<b>/</b>	<b>4227</b>	<b>/</b>	<b>111</b>	<b>/</b>	<b>5816</b>
Fufu	Douala	44	9%	121	13%	205	6%	0	0%	370
	Yaoundé	162	33%	236	25%	271	8%	7	41%	676
	<b>Cameroon</b>	<b>484</b>	<b>/</b>	<b>924</b>	<b>/</b>	<b>3286</b>	<b>/</b>	<b>17</b>	<b>/</b>	<b>4711</b>
Waterfufu	Douala	43	8%	44	13%	86	5%	9	32%	182
	Yaoundé	33	6,6%	4	1,2%	2	0,1%	8	28%	47
	<b>Cameroon</b>	<b>495</b>	<b>/</b>	<b>330</b>	<b>/</b>	<b>1562</b>	<b>/</b>	<b>28</b>	<b>/</b>	<b>2415</b>

**Source:** Excerpt from Agropme (2010) from INS data, ECAM3 (2007)

STC=share of total national consumption in percent, Cons=Consumption in millions CFAF

Results show that the overall market for cassava processed products is large with an overall value above 13 billion CFAF, including 3 billion for the urban Douala and Yaoundé markets. In Douala, this market is mainly driven by the poorest social classes who favor gari. In Yaoundé, the middle and upper classes dominate the market with consumption oriented towards fufu. In urban markets, gari represents 53 percent of quantities and value, but is around 45 percent at the national level. Fufu is around 35 percent and waterfufu 20 percent.

<sup>5</sup> This sub-section is based on the study conducted by AGROPME for PNDRT and l'IRTCM/IFAR in 2010.

### Consumption patterns

To put the above figures into a dynamic perspective, we compare results from both ECAM studies carried out in 2001 and 2007. Table 2 presents figures for both 2001 and 2007 waves in Yaoundé and Douala and deduces average annual growth rates (AAGR) of demand (waterfufu not covered in the first wave). Regarding differences across income and social classes, they are roughly the same as above reviewed. We note no significant changes in the market volume over this time frame and now discuss substitution effects between processed products.

### Gari

- Overall national decline in demand of 6 percent over the whole period, amounting to an average annual decline rate of 1 percent;
- Growth in urban demand in Douala and Yaoundé of a 5 percent AAGR. This growth pattern is driven by the lower income classes who represent 50 percent of total consumption. Demand has remained steady for the upper classes.

**Table 2. Comparisons of household consumption in cassava processed products between 2001 and 2007**

	GARI				FUFU			
	Gari (2001)/million CFAF	Gari (2007)/million CFAF	Growth rate (2001-2007) (%)	AAGR (%)	Fufu (2001)/million CFAF	Fufu (2007)/million CFAF	Growth rate (2001-2007) (%)	AAGR (%)
Douala	621	930	49,8		462	370	-19,9	
Yaoundé	444	502	13,1		661	676	2,3	
<b>Douala &amp; Yaoundé</b>	<b>1065</b>	<b>1432</b>	34,5	5	<b>1123</b>	<b>1046</b>	-6,9	-1,2
<b>Cameroon</b>	<b>6192</b>	<b>5816</b>	-6,1	-1	<b>4479</b>	<b>4711</b>	5,2	0,8

Sources: ECAM2 (2001)/ECAM3 (2007).

### Fufu

- Household demand has remained steady at the national level (0.8 percent AAGR)
- Demand has declined in urban markets with a -1.2 percent AAGR in Douala and Yaoundé, the lower classes having kept their consumption levels at constant levels and representing 45 percent of the market value. The decline was driven by the upper class and the Douala market.

### Household preferences

Demand in cassava by-products is a traditional component of Cameroon's food consumption. This part is based on Horus (2010) study. Cassava sticks are ready-to-eat products and frequently consumed all year round, and by all household members, especially in urban areas. Fufu requires long preparation times (half an hour), although households do not find preparing it to be a hassle and demand remains substantial. Gari has advantages in terms of preparation, and is especially favored by children as a sweet collation between meals. Fresh roots are also appreciated and consumed boiled, women are skilled in recognizing the less acid varieties and in preparing them.

Those products are generally purchased from local weekly markets and cannot be found in supermarkets. Gari and sticks are purchased for immediate consumption whereas fufu and fresh roots are sometimes preserved over several days. Quantities purchased are in general limited, due to high perishability. It is often stated that all those products cannot be kept for long and have high impurity rates (in any case, not reliable or consistent either). Sticks are more appreciated with more elasticity, clear color, and without acidity. Consumers do not like the lack of transparency on the part of sellers who often display good quality samples that are much better than the products they actually sell.

### 2.3 Cassava production in Cameroon

Root and tuber production, especially cassava, generally relies on smallholders whose farms are mostly less than 2 ha (cassava plots' acreage). It can also be found in mid-size farms (2-4 ha) and larger producers (over 4 ha). A survey conducted in 1995 exhibited the following distribution of cassava farms which, although out of date, has been confirmed by FAO in 2010 (Martin Tsounkeu 2010) and fieldwork conducted for this chapter.

**Table 3. Cassava farm sizes**

Farm size	Acreage	%
Small plots	< = 2 ha	62,5
Mid-size plots	2 – 4 ha	17,5
Large plots	>4 ha	20
<b>Total</b>		<b>100</b>

**Source:** OCISCA Survey, 1995

It is important to recall that local cassava varieties in humid areas require a 12-18 months production cycle, expanding to 15-24 months in highlands and sub-Saharan conditions. The growing cycle has however been reduced to 10-15 months for the PNDRT popularized varieties in humid conditions, and 15-18 months in other areas.<sup>6</sup>

The main production areas for cassava are concentrated in the Southwestern region and another part in the littoral region (shore). Gari and waterfufu production is more spread. Those products constitute the base of the local population's nutrition, which explains why weekly village or communal markets are of crucial importance (Table 4).

**Table 4. The main production areas for cassava in Cameroon**

Product	GARI	WATERFUFU	FUFU
<b>Main areas</b>	Malendé (Muyuka) Muyuka Oyé Passim (Melong) Balengui (Kumba)	Batoke et Bakinguili (Limbe) Lelem (Melon) Sollé (Yabassi) Malende (Muyuka) Malende (Kumba) Ikiliwindi	Baré (Nkongsamba) Melong II Sollé (Yabassi)

**Source:** PNDRT, 2010

<sup>6</sup> Due to a lack of financial resources, and in order to maximize impacts and avoid resource diversion, PNDRT strategy was amended and now supports only 20 percent out of the 6,000 villages which were identified as involved in cassava production.

In the PNDRT-uncovered basins, production farming systems have remained extensive and are characterized by associate cropping, with local growing techniques which are adapted to local agro-climatic conditions (and economic conditions). Cultivated varieties are the most suitable to food self-consumption through fresh roots, surpluses being delivered to local markets as fresh roots, fufu, or sticks. Yields are around 8-10 tons/ha. Due to high perishability and the fact that areas of production are landlocked, cassava is generally kept in the field for 15-24 months, being gradually harvested depending on the household's food or cash needs (through sales on local markets).

In most PNDRT-covered zones, farming systems undergo a slight intensification pattern through the adoption of the new aforementioned high yields cassava varieties (25-30 tons/ha), specialization of cassava farmers' organizations and increases in cassava acreage. Cassava varieties which have been introduced by PNDRT and which are most suitable for industrial and processing not eaten as fresh roots but has to undergo the first processing stage before it can be consumed. Because of lacking financial resources, PNDRT could not afford to distribute processing equipment to all beneficiary villages. There is thus a strong concern for processing in villages where cassava acreage has substantially increased (as well as farm yields) but production is lost in the fields due to insufficient processing facilities and processing incentives. The reason for this is the marketing risks arising from the fact that local farmers and farm associations have not grasped the marketing channels for processed products. Another problem is that, high yield cassava varieties cannot be conserved more than 2-3 months in the field after it is fully mature, unlike traditional. Although there was capacity building support for local equipment providers in the cassava value chain (through field studies in African countries such as Nigeria, Ghana, and Benin), village based producer groups generally cannot afford the capital costs. Furthermore, the quality of raw products does not satisfy industrial standards which are required in the profession.

## **2.4 Market analysis of cassava supply and demand**

A new approach for cassava value chain development at the local scale is envisaged by the IRCTM (Regional Initiative for Cassava Processing and Marketing), supporting PNDRT through IFAD funding, in order to increase the value of cassava and its by-products to achieve better market penetration in different segments. The study related to this value chain development sought to determine detailed market information both in quantitative and qualitative terms, for both the Douala and Yaoundé markets, including demand levels required by IRCTM and PNDRT to promote the production of cassava by-products on an industrial and semi-industrial scale. Most of the main results are used here to inform about the market analysis of the sector.

### ***Cassava fresh roots***

According to evaluations by the Ministry of Commerce, local consumption of fresh tubers (in quantity) is comparable with the bunch of processed cassava products which are locally marketed or exported. Fresh tubers stemming from improved varieties have to be subject to a first processing stage right after harvest in the fields before being transported to markets.

### ***Traditional products***

Fufu and gari suffer from insufficient drying over the rainy season (lack of non-solar drying equipment), which severely shorten their shelf life and render local supplies less consistent and more contained over the year. This raises prices over the rainy season to a significantly higher value than those recorded over the dry season.



Urban consumers would prefer more biosafety in the processing and marketing processes, with improved packaging, but this would render most local supplies unaffordable for them, which in turn means that there is not enough demand to compensate for quality improvement. It is however likely that the improved living standards of urban middle classes would be compatible with more willingness and capacity to pay for quality, and generate new incentives for quality to which local supply is not yet ready to respond. Cassava is barely suggested outside home meals as a sophisticated product, it often comes as a non-processed food product, a side dish to a meal, or as sticks. Waterfufu is the most popular cassava product in rural areas, due to its long conservation length (2-3 months), the ease of making it and its numerous secondary and tertiary processed options for income enhancing marketing. It can be consumed boiled or processed into sticks, cossettes, or chikwangué, when it is intended to be exported.

### ***Cassava starch for industrial use***

The main marketing outlet is the sector of cardboard-making industries, which has a potential market of 350-400 tons a year, for a unit purchase price standing around 500-550 CFAF/Kg. In Douala, the Plasticam company specializes in cardboard making and sources starch from Ferme Agricole du Sud which is located in Batouri, Eastern Region. The firm assesses cassava starch with regard to its stickiness compared with maize starch which is commonly used by many other cardboard makers located in Douala and Limbé. The CICAM company is another potential marketing outlet for cassava-native starch with a potential demand which has been estimated around 150/200 tons a year, and to serve as raw material for its weaving unit located in Garoua. The purchase price suggested is rather low (330 CFAF/Kg), CICAM would thus not constitute a major marketing outlet but only a supplementary one for semi-industrial starch cassava processing units (Horus 2010).

Nestlé Cameroun, Douala, shown interest in sourcing locally produced cassava starch and/or flakes (Horus 2010), with potential output of 1 500 to 2 000 tons a year by 2018. A partnership between the Chamber of Commerce, MINADER, and PNDRT is envisaged to stimulate emergence of several mid-size processing units to serve this demand. A starch-processing factory is being built through this partnership frame in the Sangmélina district (in the Southern region).

Dry cleaners (in urban areas) are mostly served by small scale processors and local POs, but they source starch mostly from cassava products. Those customers could only represent a supplementary marketing outlet for one semi-industrial processing unit, because sector has collapsed and each dry-cleaning unit requires only a small amount of starch. Direct consumption of households is low and essentially takes place in the biggest urban centers of Cameroon. According to Horus (2010), one firm based in Douala -Cervo- has specialized its processing activities towards supplying raw products to dry cleaners, among which there is starch. Its production volume remains low even though there are development prospects in Chad.

### ***Cassava flour***

Cassava flour is used for spangling in baking using 5 to 6 000 tons of cassava flour a year. In bread making this represents 10 to 20 000 tons a year, assuming that the maximum rate of cassava flour in the one used to make bread was around 5 to 10 percent. According to Horus (2010), the viewpoints of the main stakeholders are as follow: (i) bakers state that they are open to incorporate cassava flour in bread making provided it reduces their production costs and some have conducted experiments in this area; (ii) grinders are skeptical since they cannot see how enough cassava flour can be produced which meets

quality standards and at a reasonable cost; (iii) all agree on the fact that grinders are the best placed to ensure consistent quality in flour made of wheat and cassava; (iv) other potential marketing outlets can be considered at the industrial scale, especially for the production of biscuits and doughnuts (5 to 10 000 tons a year for the same interval of incorporation rate of cassava within the flour as bread); (v) Due to drying constraints, local supplies of cassava flour by small scale processors is to remain marginal. In addition, consumers favor French baguettes which can only be prepared with wheat flour, and which has to be partly substituted for by cassava flour (Horus 2010).<sup>7</sup>

### ***Cassava cossettes for animal feeds***

Cassava use in animal feeds exists in Cameroon but is confined to small family pig production units mainly in the southern part of the country. Cassava is barely used in livestock feeding which relies on fodders because there is a lack of information for breeders about cassava's nutritional content. It is not part of fodder mixtures currently in use, because supplies are insufficient and there is lack of critical mass. The potential market for cassava cossettes in animal feeds is estimated to be around 35 000 tons a year and concerns pig and poultry outlets. Cassava would then partly substitute for maize and the potential market would be developed if breeders were to buy fully prepared products made of cassava or incorporate cassava into their feeding formulae up to its full capacity.

### ***Ready-to-use products***

The only ready to use cassava by-products that exist in Cameroon are starch and cassava sticks. Potential (and solvable) demand for those products is restricted to the minor share of the population who purchase food and other products in supermarkets. Two ready to eat products were launched in 2010 and are marketed on a small scale: spiced crisps produced by the GIC Talles Dry Food in Yaoundé, and Cassava semolina, which is semolina, produced by a pilot unit set up by the Chamber of Commerce in Douala. Supermarkets and high end restaurants are the main retailing channels for such products and would sell more only if there was greater demand for them, which there is not at present. Regarding cassava semolina, a pilot incubation center (CIP) with cassava processing facilities has been inaugurated in Doula by October 2010 by the Ministry of Industry. The CIP has been designed by the Chamber of Commerce, of Industry, Mines, and Traditional Industry of Cameroon (CCIMA), and cassava semolina is intended to be delivered to local markets and exported.

### ***Price structure (local markets)***

In the region surrounding Douala, cassava price is lower in Melong than in other localities which have been surveyed. Processing activities are not that diversified though. Processing is not very developed in Bakinguili and Passim, which are a little bit far from urban centers. Cassava is more expensive in Muyuka where processing is the main income generating activity for farmers, where the demand for processing stimulates local markets.

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<sup>7</sup> According to Horus (2010), grinders have raised the point that bread baguettes made from mixed wheat/cassava flour might have different attributes from the current one, which would necessitate its promotion and associated costs that they are not willing to incur.

**Table 5. The main cassava by-products in Cameroon**

By-products	Localities	Purchase price		Sale unit	Cassava price/kg	Packing units
		Min	Max			
<b>GARI</b>	Muyuka*	6 500	10 000	29kg	50 F	100 Kg
	Bombe	6 500	8 500	29kg	35 F	100 Kg
	Passim	3 500	5 500	20kg	25 F	100 Kg
<b>WATERFUFU</b>	Muyuka	6 000	7 500	50 kg	50 F	100 Kg
	Lelem	2 000	2 500	35kg	30 F	100 Kg
	Bakinguili	5 000	10 000	50kg	25 F	100 Kg
<b>FUFU</b>	Melong	12 000	15 000	120 kg	20 F	100 Kg

\* **Note:** Yoke is located in Muyuka district (important gari production zone) and 64 kms from Batoke and Bakinguili villages (important waterfufu production areas. **Source:** PNDRT, 2010

Around Yaoundé region, cassava processing is driven by the processing of sticks (cosettes), one of the by-products from cassava paste. Cassava sticks are largely consumed, gari, fufu, and waterfufu productions are marginal.

**Table 6. Cassava price structure in the Yaoundé region**

By-products	Localities	Purchase price		Sale unit
		Min	Max	
<b>WATERFUFU</b>	Ebolowa	6 000	7 500	85 kg
	Bityli	3 000	4 500	50 kg
	Lobo	5 000	5 000	50Kg
<b>GARI</b>	Ebolowa	4 500	6 000	20kg
	Ambam	4 500	5 000	20Kg
<b>COSSETTE</b>	Bityli	4 000	5 000	25 kg

**Source:** PNDRT, 2010

### 3 The downstream nodes of the value chain

In order to satisfy end product consumers, producers generally have two marketing channels: an intermediate channel through wholesalers or exporters and local markets.

Relationships between producers and other stakeholders take several forms. They can be marked by trust, loyalty, and exclusiveness/marketing arrangements. The most important purchasers generally attempt to buy the loyalty of their most consistent and reliable producers. By giving cash advances, they try to encourage them and give them incentives to ensure consistent, timely deliveries of the right quantities. This is notably the case for waterfufu producers who deliver to several exporters among their main clients.

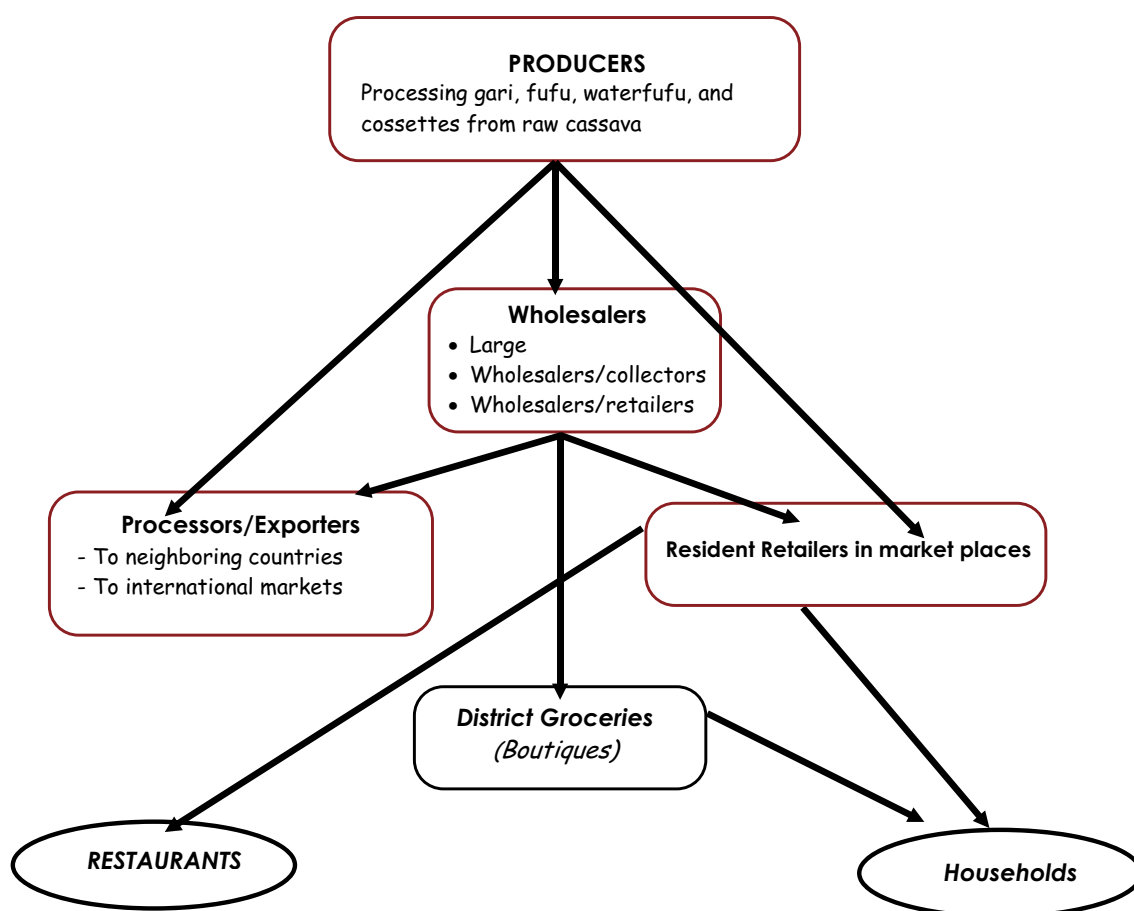
### 3.1 Large wholesalers

Intermediaries are divided between wholesalers and retailers. Wholesalers can be ranked in several categories: large, collectors, and mixed wholesalers/retailers.

These focus exclusively in fufu and operate on local and border markets. They generally possess marketing equipment composed of trucks and storage buildings. In Yaoundé, there are six in the Mokolo market. These mainly source cassava products from the Eastern region, and to a lesser extent from the Grand Mbam, sourcing through a network of collectors who are generally shareholders of the wholesale business. Those large wholesalers often come from the Northern regions.

Marketing channels of gari, fufu and waterfufu in the final consumers' markets (Douala and Yaounde)<sup>8</sup>

**Figure 1. Presentation of the main stakeholders of the cassava by-products marketing chain (cases of Yaoundé and Douala markets)**



Source: PNDRT, 2010

<sup>8</sup> This part is based on the study of Agropme (2010) which was commissioned by PNDRT and l'IRTCM.

**Wholesalers/collectors** (*Bayamsellam*)

They source cassava products by collecting themselves or through agents with whom they have close, kinship-based, or familial relationships from producers (personal) and from weekly markets located in production areas. Those wholesalers/collectors in general specialize in one particular by-product: gari, fufu, or waterfufu. They have access to warehouses in the market place. In Douala, they can be found in the central market “marché de la gare” for fufu and gari marketing, and at the “marché des chèvres” for waterfufu. In Yaoundé, those stakeholders are based in the Mokolo market for gari. Crossing information sources, it appears that all of them manage to sell over 40 tons of gari on a weekly basis in this specific market. Fufu stakeholders are based in Mfoundi and Mokolo market places while waterfufu can be found at the Mfoundi and Acacia (Mbiyem Assi) markets.

They practice marketing either in warehouses (Yaoundé), or in the open markets (Douala). Those market places are the main hub for each city, of products’ marketing and dispatch large purchased quantities to other intermediaries or directly to final consumers (households, restaurants, or processors in other sectors, e.g. starch processing, animal feeding).

**The set of products owned by a wholesaler in Douala and Yaoundé market places**

Waterfufu (50 kg) from Northwest region at the « marché des

Waterfufu from the Center region (50Kg) at the Mfoundi market in Yaoundé

Fufu balls dried in the granary of Moungo at the Douala central market

Bafia cossettes (50kg) aligned bags within a wholesale warehouse at the Mfoundi market in Yaoundé

Relationships between wholesalers and producers are in general based on loyalty and trust, when quality is established (and consistency). But relationships between wholesalers and collectors are different since it is the quality of available products which matters.

**Wholesalers/retailers**

These are operators who source quantities from producers and collectors and who retail small quantities (1 to 15 litres) to final consumers (households and restaurants) and to grocers (only gari though). Almost all work in retail, like the waterfufu wholesalers from the northwest.

**An example of products sold by a wholesaler/retailer**

Fufu bowls (Souza)

Gari in retailed quantities (Mokolo market in Yaoundé)

Waterfufu originating from North West Acacia Market, Biyem-Assi Yaoundé

Wholesalers face several constraints which ultimately affect prices and cause delivery delays.

With regard to sourcing, such constraints lie in the bad road conditions and landlocked production areas, high transportation costs to the Yaoundé markets (around 7,000 CFAF per 100 Kg-packaged bag: 1,500 from villages to Bamenda, 2,500 from Bamenda to Yaoundé, and 3,000 other costs for labor and taxes).

Regarding products, there is a lack of homogeneity and high rates of perishability which reduce profits for traders and retailers. Consignments of gari which have deteriorated have been returned from neighboring countries, forcing wholesales to lower prices to avoid spoilage, sometimes below the production cost.

Short shelf life puts enormous pressure on product sales. The taste of gari can change and it can go moldy after a few weeks; fufu can change color and attract weevils; waterfufu can become acidic if exposed to air and then change color. Those constraints imply that all market actors must specialize in one product, being gari, fufu, or waterfufu. They have to source products by collecting from smallholders and small scale processes at periodic markets (in villages), and that they have to go to producers for sourcing.

**Table 7. Price structure for wholesale markets in CFAF**

By-products	Packing(bags)	Min purchase price	Average sale price	Max sale price
White gari	300Kg	60,000	65,000	90,000
Yellow gari	300Kg	35,000	45,000	65,000
Fufu	50Kg	9,000	10,000	12,000
	100 Kg	15,000	17,000	24,000
Waterfufu	50Kg	7,000	8,000	10,000
	100Kg	10,000	20,000	25,000

Traders' margins are highly dependent on rather prohibitive transport costs amounting to 4,000 CFAF for each bag carried between production areas and Yaoundé. But those products remain in general very competitive in spite of high retail prices, thanks to their reputation for good quality among households and restaurants. 100 Kg packaged waterfufu is in general sourced from the Eastern region by log trucks for chikwangué and cassava sticks' processors who are the main clients. The eastern region is the most competitive production area since sale prices can go down to 8,000 CFAF per 100 Kg bag.

On average, prices are a slightly lower in Douala, with 5 to 10 percent difference as compared with Yaoundé. Sale prices of waterfufu sources from the North West are higher than other competing products.

### 3.2 Retailers

These are small scale traders who carry out sourcing on a daily basis and on the spot (on the markets) from wholesalers, and in small amounts (one bag). They are not specialized like wholesalers and they generally own a set of fresh food crops and products among which are gari, fufu, or waterfufu that they retail in small amounts (20cl, 1l, 1,25l, 2,5l, 5l, 15l). Their main clients are households and restaurants. The products they display on the ground or on open shelves are subject to bad weather and ambient risks (rain, dust, sun, odors, and so on). For their purchases, they are not generally loyal to one particular wholesaler, and the quality of available products remains the most important determinant.

**Table 8. Price structure for retail sales on the Douala and Yaoundé markets**

Product	Type	Packaging	Average purchase price	Min sale price	Max sale price
<b>Gari</b>	Yellow	17Kg (13L)	/	2,600F	3,800F
		5,66Kg (4 ;33L)	/	900F	1 300F
		<b>1kg</b>	/	<b>153F</b>	<b>225F</b>
	White	17Kg (13L)	/	5,000F	5,700F
		5,66Kg (4 ;33L)	/	1,700F	2,000F
		<b>1kg</b>	/	<b>295F</b>	<b>335F</b>
<b>Cassava flour</b>	Bafia	4Kg (5L)	/	800F	1,200F
		<b>1 Kg</b>	/	<b>200F</b>	<b>300F</b>
	Eastern	100 Kg	18,000F	13,500F	24,000F
		4Kg (5L)	/	700F	1,100F
		<b>1 Kg</b>	/	<b>175F</b>	<b>275F</b>
		Moungo	1Kg	/	200F
<b>Waterfufu</b>	NW	1Kg	/	200F	200F
	Center	1Kg	Not for retail		
	Shore	1 Kg		200F	300F

**Notes:** Sale units in use in Douala and Yaoundé differ from the ones in practice that applies in production markets. On consumer markets, sellers aim give the impression that they offer comparable prices to production markets and derive margins from using smaller sale units, i.e. 17 kg (13l) buckets instead of those of 20 kg (15l).

**Source:** PNDRT, 2010

The main difficulties faced by retailers are their exposure to bad weather and other risks, lack of biosafety and hygienic conditions, weak commercial margins and trade capacities, inconsistencies of wholesalers' supplies (e.g. waterfufu from North West and fufu from Mbam), and high degree of perishability.

### 3.3 Exporters

According to their products' destination, two exporter categories can be distinguished:

#### **Regional exporters**

They export to neighboring and bordering countries (Central African countries in general). They source their products via collectors from producers and processors and send them to their customers based in Congo, Gabon, Equatorial Guinea, or Nigeria. Loyalty and trust can be found in the commercial relationships between some producers who have benefitted from PNDRT support and some collectors or direct foreign buyers (e.g. smallholders from Souza who exclusively produce for a regional exporter to Congo). This type of arrangement also exists for gari exported to Equatorial Guinea.

Waterfufu is sold by 125kg-packaged bags with an average weekly export quantity of two tons, amounting to 100 tons a year. It is rather difficult to evaluate the exact quantity as they are mostly part of the informal sector.

### **International exporters**

These are exporters who are the operators who have especially benefitted from PNDRT support and who export waterfufu or waterfufu by-products (cassava sticks and mainly chikwangue) that they self-process to the European Union (France, Germany, Belgium) and Switzerland. They are partners within a professional organization which regroups fifteen members of so either in Yaoundé or Douala, the biggest exporters being based in Douala.

Some of them have initially attempted to negotiate marketing arrangements with smallholders who were supported by PNDRT to ensure consistency of supplies. But this strategy turned out to be unsuccessful caused by a lack of smallholders' professionalism, inconsistencies in deliveries, inconsistent quality, transport costs, low production quantities, and uncompetitive prices.

Almost all international exporters currently source their products from producers or wholesalers through a network of traders in order to ensure consistent deliveries, technical and contractual requirements such as quality and quantity specifications, consistency, and price competitiveness. In turn, Yaoundé exporters are sourcing their products from Ntui, Mbangassina, Nkolgem, and Ayos localities. They make timely purchases in Mfoundi market in Yaoundé to ensure they have enough stocks. They process the purchased waterfufu quantities within their own unit before exports. Chikwangue does represent around 90 percent of the final output that they exporting. through the Yaoundé-Nsimalen international airport.

Douala exporters are dominated by five key actors who source most of their products in the Eastern region from four main traders who operate with a network of loyal smallholders. They transport products to Douala (Syncatex/Docoti market) by log trucks to deliver 90 Kg bags to their exporting customers for 8 000 CFAF. In those markets, the weekly deliveries are estimated to be around 375 bags (of which 1/3 is exported to one leading firm). Crossing information sources, Douala exporters were estimated to process around 1 760 tons of waterfufu for producing chikwangue to be exported on international markets (via Douala airport).

This type of sourcing is well recognized and very competitive for the following reasons: consistency and reliability, low transport costs and price competitiveness, product quality. It is noteworthy that there are specific contractual requirements between traders and exporters. In particular, are only paid for when quality is confirmed, when watertufu. This arrangement removes any possible conflict regarding the quality of received products.

**Table 9. Cassava products and by product exports (tons) to EU and USA in 2000/2001**

<b>Exported productions</b>	<b>Yaoundé Nsimalen</b>	<b>Douala airport</b>	<b>Douala port</b>	<b>Total</b>
Cassava leaves	255	-	-	255
Cassava sticks	373	-	-	373
Cassava	-	184	165	349
Cassava flour	-	155	-	155
<b>Total</b>	<b>628</b>	<b>339</b>	<b>165</b>	<b>1132</b>

**Source:** AGRISTAT 2002



**Table 10. Cassava by-products and product exports (tons) to neighboring countries in 2000/2001.**

Product	Abang Minkoo Gabon	Kye Ossi Gabon	Gabon Guinea	Aboulou Gabon	Kentzou RCA	Ekondotiti Nigeria	Total
Cassava sticks	34	5	-	0,4	-	-	<b>39</b>
Cassava	-	-	440	-	966	0,05	<b>1406</b>
Cassava flour	500	167	772	3	-	-	<b>1443</b>
Tapioca	1	-	72	0,1	-	143	<b>215</b>
<b>Total</b>	<b>534</b>	<b>172</b>	<b>1 284</b>	<b>3</b>	<b>966</b>	<b>143</b>	<b>3 103</b>

**Source:** Stratégie sectorielle pour le secteur manioc, 2006

In spite of these imperfections, those statistics tend to show that the cassava products and by-products' exports are of higher quantities in the whole Central African region than overseas.

### ***Selling and purchase conditions***

Small pre-payment proceeds with order issuing and the rest comes after the order is confirmed once the product is sent to the grinder for quality certification. Packages must return to the providers. According to the executive secretary of the Professional Grouping of Traditional Staples in Cameroun (GPATRAC), the weekly exported quantities of chikwangue and cassava sticks are 35 tons for the members of the organization, which comprises 10 tons exported from Yaoundé, and 25 tons from Douala.

**Table 11. Cassava paste quantities processed by international exporters**

	<i>Yaoundé</i>	<i>Douala</i>	<i>Total</i>
Weekly exported quantities of waterfufu by-products	10T	25T	<b>35T</b>
Yearly exported quantities of waterfufu by-products	520T	1300T	<b>1820T</b>
Yearly processed cassava paste (waterfufu)	704T	1760T	<b>2 464T</b>

**Source:** Estimation based from guessed informants and exporters' statements.

### **3.4 Modern retailing channels**

These are the marketing places where mass consumption products like rice, wheat flour, pastas, and cooking oils, are sold. For cassava by-products, the situation is as follows.

**Table 12. Situation of the products under study in the modern retailing channels**

	<i>Current distribution</i>			<i>Reason</i>	<i>"feelings" related to products under study</i>
	<i>Gari</i>	<i>Fufu</i>	<i>Waterfufu</i>		
<b>Supermarkets</b>	No	No	No	No proposition made for those products	Ready to supply provided that quality and safety requirements are satisfied, and that there is some demand from consumers
<b>Groceries</b>	No	No	No	No proposition made for those products	Ready to supply provided that quality and safety requirements are satisfied, and that there is some demand from consumers
<b>Retailing in large quantities</b>	No	No	No	Unavailability of those products for this type of sales	Possible to supply provided demand is significant (groceries and boutiques mainly)

Collective places for meal-taking do not show up in the above table, yet they are an interesting and significant marketing outlet for cassava by-products.

Stakeholders in the marketing channels of gari, fufu, waterfufu mostly operate in an informal fashion without establishing contracts or any professional convention between the various operators. This deprives them of any reliable information source about each actor (identification, location, economic data), and encourages sales proceeding in production areas, home-grown processing and a traditional approach of marketing relationships (customers have to take care when sourcing by making purchases in producers' localities, producers to not take care or develop delivery services).

Starting places in Cameroun for international exports are Yaoundé-Nsimalen and Douala airports, and the Douala harbor. Most exports are to Europe and USA. Regional trade with CEMAC countries and Nigeria proceeds through Douala Peschaud and Ekondotiti harbors. The starting points of these trade flows are the border markets in Kye-Ossi and Abang Minkoo regarding trade between Cameroon, Gabon, and Equatorial Guinea.

## 4. Constraints and opportunities for the cassava value chain in Cameroon

In spite of being a major driver of Cameroon's food security, the cassava value chain has to cope with several challenges and constraints in terms of production, processing, and marketing, and with regard to stakeholders' organization(s) and financing alike. Those constraints severely impede income generation and the overall value chain development process. Several opportunities however exist and several options can be envisaged to overcome those constraints and entail a more intensive and inclusive development process.

## 4.1 The main constraints and bottlenecks in the cassava value chain

### A. Constraints impeding emergence of modern production systems and better market access

- a. Low levels of fertilizer use and soil degradation patterns: Cassava is known to be a soil-exhausting crop. Given high input prices and difficult market access to fertilizers, the main strategy of cassava farmers lies in crop rotation and fallowing. Fallow periods are not long enough though, due to demographic pressure on land and pressures to produce food. Better input market access through outgrower schemes or other type of contractual relationships with the downstream stakeholders could enhance production.
- b. Insufficient quantities and quality of cassava seeds and material: the sector needs around 50 million cuttings, which are far from being covered.
- c. The lack of knowledge and practice of conservation techniques (and high costs): the most commonly used practice is tubers' conservations in fields, still planted in the soils, sometimes several months after full maturation. PNDRT and research institutes introduced new varieties that must however be harvested right after maturation and cannot be preserved more than 2 to 3 months in fields. These varieties must be necessarily processed so as to increase their length of conservation. After harvest, the quality declines very rapidly between 3-4 days, which necessitates marketing the by-products, and relying on processing. One priority should thus be to provide smallholders with training in basic local processing and marketing techniques.
- d. Organizational and structural constraints and problems: the cassava value chain is still characterized by current informal business practices and exhibits several coordination failures (horizontal and vertical), which entail a lack of spillover and consultation between stakeholders, reducing the scope for fruitful synergies. Furthermore, production markets are rather tight, with inconsistent flows of production, badly integrated, and with high transaction costs. Indeed, local varieties which are cultivated in production areas are in general meant to cover self-consumption needs for rural households, and only remaining surpluses serve markets. Weak organization of most stakeholders and market players, in addition to a lack of grouped sales' practices in villages, constitute a major constraint to cassava product marketing and induce high transaction costs. It is also noteworthy that production areas are mostly landlocked and end markets are located far away from those production areas. Weak access to market information (at the national and international levels) generates information asymmetries which are detrimental to most stakeholders, traders and some wholesalers. Producers and processors in turn face disincentives and more uncertainties for decision making, which is aggravated by an overall lack of information on the whole value chain (non-market information included).

### B. Financial constraints

- a. High costs of equipment/infrastructure for processing, storage, and transport: the high price of material inputs for processing and storage equipments, as well as their operational and maintenance costs, result in unaffordability for most rural producers while freight costs are a strong limitation to scale up the potential income benefits that could be derived by targeting exports on the sub-regional level (Central Africa) and to Europe.
- b. Restricted credit access: Several actions have been conducted by several donors (IFAD) and the government to ease credit access for cassava producers, with mixed results. Such actions included projects such as (i) PPMF, (ii) PADMIR, PNDRT, and so on. It has to be acknowledged that the modalities to access credit have remained rather stringent and daunting (interest rates, repayment lengths) for most cassava producers, while not being appropriate with regard to the growing season's calendar. Intra-value chain arrangements between stakeholders would be more appropriate.

- c. Insufficient working capital: Regarding difficulties in accessing credit and lack of collateral required by local micro-finance institutions, economic activities of most value chain stakeholders proceed through own funds (producers, processors, and small entrepreneurs). Uncertainties on the profitability of each marketing channel together with management problems to render working capital issues a sensitive problem, and a possible bottleneck.

### **C. Management problems**

- a. Bad administrative performance (accountancy/administration): Basic documents are often lacking and not available, from POs or small processing and marketing enterprises alike, which poses numerous difficulties when evaluating performance and performing accurate assessments of activities and of the value chain overall.
- b. Lack of knowledge and practice of management tools: Current practices in the cassava value chain are very close to those of the informal sector, which is visible as well in the groups supported by the PNDRT
- c. Inconsistencies of supplies and sourcing: Distance between urban markets and production areas, weak organization of primary collecting centers, missing market information (or unavailability), transportation problems, bad condition of rural tracks and roads, and irregular patterns of supply and demand altogether do not induce loyalty in commercial relationships between stakeholders, which reinforce the problem of inconsistent supplies and unpredictable delays for local markets
- d. Bad planning of activities: Planning, when done, is barely controlled and monitored, and largely depends on external constraints such as the timetable of buyers, sourcing, market characteristics, and so on, rather than on the true production, packaging, and marketing constraints (e.g. production cycles)
- e. Low professionalization levels of most stakeholders: business practices of the informal sector remain prominent, and a large share of stakeholders is involved in simultaneous economic activities aside from cassava so as to diversify and supplement their household income. There is almost no specialization in cassava production, processing, and marketing among the various stakeholders of the value chain.

***As a result of the afore-mentioned constraints, the cassava value chain exhibit the following weaknesses:***

- a. Low farm yields
- b. Improved varieties for better/more efficient processing are unavailable
- c. Inconsistent supplies of cassava by-products
- d. Difficult market access/significant market access constraints
- e. Low levels of value chain organization
- f. Low levels of competitiveness of Cameroon's cassava by-products in developed countries

## **4.2 Cassava producers and processors' organizations**

POs are a significant institution that can help upgrade the value chain organization since they allow stakeholders to build critical mass that is required for marketing and processing given products (especially those with higher value) and by-products, to centralize and share information, reduce transaction costs (e.g. input grouped purchases, grouped sales) and may induce more loyalty/trust-building/formalization of commercial relationships between producers/processors and other stakeholders such as the ones involved in the marketing channels (wholesalers, retailers, institutional customers, traders, industrial firms, or exporters). They also have an insurance and risk-sharing role regarding production risks and income. Below are presented two specific case studies of *groupings*.

**Box 1. Processor women group FEDDMA (around the Mbouda market)**

Processing fresh cassava tubers is an activity that is carried out by a group of around ten women located at the Mbouda market in the Mbamboutos district where the bulk of produced cassava is marketed (not self-consumed). Those women process cassava cossettes to produce cassava flour. Raw cassava is purchased on the market or in neighboring localities, and then processed and marketed on the spot. There are several bottlenecks for sourcing cossettes (high local demand, inconsistent supplies, storage losses) and several marketing risks (bad sales, lack of organization, horizontal coordination failures). Interesting opportunities stem from the presence of exporters and the existence of several potentially high income marketing outlets.

When working on an individual basis, each woman faces constraints arising from limited individual working capital and equipment for processing and marketing. Hence, the FEDDMA GIC was established by the PNDRT in 2005 so as to remedy those problems and overcome those constraints through collective action for both processing and marketing activities, and by pooling the financial means of each woman (addressing the issue of limited working capital). Now each woman pays annual fees amounting to 25,000 CFAF and puts 400,000 CFAF in the common working capital of the group, in addition to a monthly participation of 50,000 CFAF in the group's ROSCA. This scaled up working capital enables substantial investments and better sourcing, with significant marketing income, once organizational, processing, and management capacities were strengthened and upgraded under specific PNDRT supporting and training activities. Several facilities were provided to the GIC such as a warehouse (12 X 8 m) which can hold 30 tons of cossettes (representing 250 bags of 120 kg each), two trolleys, one scales (2 tons capacity), and grinders. Regarding marketing, the GIC handles this on its own, but marketing outlets are still restricted. PNDRT planned to support the group through proximity support organization (OAP) and workshops in order to train its members in market negotiation developing their business.

Marketing and processing cossettes is by now a regular activity which takes place over 9 months from from November to August. Since 2010, GIC has attempted product diversification by starting fufu production (waterfufu). Gross annual income of the group has undergone a dramatic increase from 22 million CFAF up to 60 million CFAF and the GIC has achieved a net profit of 5.5 million CFAF in 2010.

Establishment of the GIC enabled substantial efficiency gains and allowed each processor to better satisfy her clientele, ensure consistent supplies, and source new income enhancing markets and customers. Such experience shows how additional profits can be generated thanks to critical mass building and how GICs can perform well in terms of small scale processing and marketing.

### **Box 2. Producers' women group of the Bityili CVC (Coordinating village committee)**

Coordination failures are also a significant bottleneck between local producing units of cossettes and markets and customers, such as in Bityili, close to Ebolowa. There is a significant gap between supply and demand in quantities, type of products, and timing of deliveries. Better horizontal coordination among producers would enable them to better serve local markets, achieve income gains and transaction costs savings. Transactions are not organized upstream and proceed through specific spot market transactions. Marketing contracts would rather ensure consistent sourcing and secure income for producers. In this fertile region, cassava is also grown as a cash crop under traditional cultivation techniques with low yield levels.

The main wholesale market is the Ebolowa market for fresh roots and processed products such as cassava paste, flour, tapioca, cassava sticks and semolina. On average, failed sales are acknowledged to be the main marketing issue. There are interesting opportunities for producers provided local producers' organizations are more formalized. For instance, border markets are served by Western producers whereas local production benefits from advantages in terms of transportation and marketing costs.

The CVC Bityili association (Comité de Concertation Villageois) was established on 11 May 2006, according to the provisions of the PNDRT. This association is composed of 100 registered members with 62 active members and a start-up capital of 695,000 CFAF held on deposit with a micro-finance institution. PNDRT provided the CVC with improved varieties and extension support for multiplication techniques and better production practices through demonstration fields.

Since 2010, the association has acquired processing equipment from PNDRT, such a wood dryer, cossettes-making machines, moisturizing tanks, and successfully launched processing activities (cossettes, fermented paste, and sticks). The by-products are sold in the Ebolowa market, but also in the border markets with Gabon, and Equatorial Guinea. Gross annual income has grown from 2 million CFAF up to 10 million.

Acquiring processing equipment has also enabled the CVC to overcome storage problems and improve the conservation lifespan of its products, and to improve negotiation capacities of processors in relation to other stakeholders, such as traders and retailers. The collective organization has allowed processors to increase returns to investment, improve marketing and income from transactions, and induce some market repositioning onto more lucrative markets.

## **4.3 Processing and marketing capacities of cassava producers**

### **A. Past experiences**

Several actions were conducted at the beginning of PNDRT operations (1995-2005) by individuals and producers' groups to increase marketing and processing incomes. Several lessons can be drawn from past failures (we will also cover more recent successes):

Amongst those endeavors, irrespective of being supported by public or private funds, the following organizations have been involved: GIC UTRAM of Souza, the Alek firm from Douala, the GIC PROTRAVICAM from Douala, the processing cassava firm of Lek from Pouma, the GIE FAM from Ngoumou, the UPMAN group from Nkenglikok (Yaoundé), the cassava processing unit from Pouma (see details in Horus, 2010 for conditions and observations about those experiences).

In a nutshell, the main causes of past failures can be classified as follows:

- Inconsistent cassava sourcing, caused in general by (i) erratic farm production, (ii) lack of adequate collective/transportation means (own or rented vehicles), (iii) high purchase prices of tubers bought from producers, (iv) and insufficient working capital (not to mention lack of loyalty in commercial relationships with providers and clients and absence of forward contracts in commercial transactions).
- Inadequate equipment with regard to production scale, demand, or technical capacities (often oversized), which is often inherent in a lack of knowledge about their maintenance and utilization, technical bottlenecks in the production process (often at the drying stage of production), and lack of technical performance/yields of the machinery.
- Too high production costs for starch compared with maximal price affordable by industrial customers, which is likely due to inadequate cassava varieties regarding farm yields and starch contents<sup>9</sup>, and bad performance of the machinery with regard to starch extraction capacities.
- Constraints and inefficiencies in marketing: lack of useful market information and information on most stakeholders (business viability, reliability, and so on), low products' diversification of marketing and commercial stakeholders, competition from the informal sector on the delivery of semi-industrial traditional high-quality by-products (fufu, gari), the lack of industrial outlets for starch production driven by payment delays from most potential customers (and their limited payment capacities), including pressing customers, and which decrease marketing margins and increase working capital requirements, liquidity constraints in the context of restricted credit access for most traders and retailers owing to the time interval between tubers' purchases and products' sales (on credit), and a lack of knowledge of market conditions and demand (market studies not very reliable).
- Lack of initiatives/motivation of the main beneficiaries: some experiences (UTM Pouma, GIE FAN from Ngoumou) highlighted a lack of motivation from women growers who were supposed to have access to new facilities, and overly relied on the project's promoters for development purposes. GIC members are not necessarily well suited to take responsibility in managing semi-industrial processing units. Promoting rural entrepreneurship, leadership, and small firms' management, together with provision of adequate information services, appears as a key prerequisite.

## **B. Access to and management of market information systems**

Several technologies are currently available to ease access and use of market information services by cassava producers and their groupings: (i) local radio stations, (ii) newspapers, (iii) internet services, (iv) cell phones, and so on. Among those communication means, rural radio stations and other community-based FM radios appear as the most adequate means to convey relevant information and messages on agricultural value chains. Nevertheless, cell phones are emerging as the most appropriate communication means on that matter, given their rapid expansion in Cameroon over the last ten years, regardless of whether in urban or rural areas. Diffusion of relevant information through cell phones would be very efficient for the management of inputs from information platforms (Esoko or whatever platform proving to be well functioning), by means of SMS exchanges.

## **C. Credit access to professionalize processing and marketing**

The most salient observation made when interviewing producers and their groups, whether being supported by PNDRT or other organizations, is that most producers are seeking to expand their processing and marketing activities but they face limited financial means, and credit access is only marginal. Some

<sup>9</sup> Most of the reviewed experiences occurred at the beginning of the PNDRT program by 1995- 2005, before the distribution of improved cassava varieties.

only benefit from own funds which are however insufficient to address their financial needs (investments, working capital, etc.). Apart from a few exceptions, most groups do not have access to credit from financial institutions, and do not make spontaneous requests, although they do need it. Even when the response was positive, financial institutions would only agree on partial provision.

It is therefore a pressing need to emphasize structure and organization of POs so as to reinforce their organizational, management, marketing, and other relevant capacities, and to assist them in sending financial request and credit application which are likely to provide them with finance and access to credit. This would be an additional guarantee for credit repayment to financial institutions.

On the other hand, the rural microfinance environment is rapidly evolving driven by the launch of the PADMIR project framework, funded by IFAD and the government's attempts to establish and make an agricultural bank work by 2012. It is therefore of crucial importance to put an emphasis on capacity building programs for producers' groups and to enable them to (i) identify on their own financing opportunities, (ii) prepare business plans of their activities and documents for financing requests which are solvable, (iii) manage and implement activities according to a rigorous predetermined time line, (iv) gain confidence regarding their credit repayment capacities, and (v) improve their perception of the economic and financial environment and their capacity to anticipate changes. Training and capacity building programs should also seek to improve their market access capacities, diversify their clientele and commercial partners, and better negotiate contractual arrangements, and so on.

### **Box 3. Few examples of successful groups in credit, processing, and marketing**

**a) CVC of Biatombo:** This is a group located in the Mbangasina production basin (at a 60 km distance from Bafia, the local PNDRT office of Ebolowa), supported by the PNDRT since 2006. This cassava producers' group is made of around 200 members, 80 percent of them are women, and has been benefitting from several PNDRT types of support since 2007, such as improved cuttings, 4 drying areas (100 m<sup>2</sup> each), small agricultural facilities and equipment, one warehouse for cassava cossettes, built in the midst of the weekly market.

This group managed to invest 2 million CFAF in the building of its warehouse (amounting to 20 percent of the grand total) and has been able to expand its activities and scale up incomes by taking advantage of the PNDRT investments to the extent of becoming (since 2009) the main collecting place for cossettes in the Mbangasina basin. The good performance of grouped sales' organization allows them to deliver around 10 trucks of 7 tons a week. Having experienced increases in demand, cultivated land, and farm yields, the main challenge was to scale up processing, especially drying cossettes. The 4 drying areas provided by the PNDRT became insufficient to address the needs and production volumes of producers. The CVC then turned to CEPI, a rural microfinance institution to acquire individual credit for the purchase of moisturizing and drying facilities. Production and processing are handled by individuals while marketing is done collectively. Biatombo CVC which has by now sufficient organizational capacities, no longer relies on PNDRT support for the pursuit of its activities.

**b) Cassava traders in the Ebolowa market:** These are women traders in cassava by-products in the Ebolowa market. Thanks to PNDRT support, they were grouped together in 2007 within a GIC. They are also forming the CCM (Comité de Concertation du Marché). They purchase cassava by-products from all the producer villages in the same area, store them and sell them to wholesalers from Yaoundé or neighboring countries. They also do retailing to local consumers from Ebolowa and its surroundings. The main marketed products are cassava cossettes and gari.



**Box 3. Few examples of successful groups in credit, processing, and marketing (Cont.)**

In 2008, PNDRT provided them with several marketing facilities such as a marketing warehouse and small transportation equipment to ensure better handling within the market. Thanks to capacity building support from PNDRT, the GIC acquired by 2009 a credit of 6 million CFAF from a local microfinance institution (MUFFED), which was then fully reimbursed. In 2010, the GIC obtained a second credit amounting to 10 million CFAF from the same institution, which is almost entirely repaid. Good organization of the GIC enabled trust-building between members and financial partners. Good management practices and adaptation capacities to a changed environment turn out to make the group a sustainable market player which does no longer require support from PNDRT to pursue its activities and economic expansion.

- c) Current situation of advanced processors (Horus 2010):** Only one semi-industrial processor provides starch to Plasticam and exports to Asia. Its success is rooted in the securing of sourcing and consistent deliveries in raw cassava from its own field, completed by some external purchases. Others had difficulties in terms of sourcing cassava. GIC FEEDMA experienced inconsistent exports over the last few years, to a lack of secure sources and a restricted set of customers. Processors from Centre and Littoral have engaged into semi-industrial processing activities by promoting and implementing better and more secure sourcing and market information use strategies, but still face daunting challenges in terms of equipment and financing (GIC PAB, GIC Odefcom, GIC BY, GIC UTRAM, GIC Cedam, Coopérateurs, and Alek firm).

## 5. Policies and initiatives to revamp the Cameroon's cassava value chain

### 5.1 Current policies for Cassava in Cameroun

Cameroon is gradually recovering from an economic crisis which started in the mid-80s, and has been considered as an LDC (least developed country) so as to benefit from a debt relief program from the IMF and World Bank. In 1997, a strategic framework was set up, yielding the DSRP for poverty reduction strategies which sought to enhance economic recovery and equal distribution of the gains from economic growth. Notwithstanding, this achievement of the LCD initiative<sup>10</sup> did not coincide with a completely successful implementation of the DSRP. Further, the financial and economic crisis starting in 2008 has led Cameroon to revise its policy strategy.

The implementation of the rural sector development strategy has not induced significant production increases since 2003, mainly because of a lack of effective rural infrastructures, adequate financial services, and inappropriate fiscal policy. The contribution of the rural sector to GDP growth and economic development has remained substantial though.

The DSCE, strategic frame for growth and employment, was set up in 2009 and well reflects the new vision of the government whose strategic orientations envision Cameroon as “an emerging economy, democratic, and promoting its diversity with unity”, by 2035.

<sup>10</sup> It was a condition of partial national debt reduction to recycle reimbursement resources for poverty reduction.

State disengagement from productive sectors, following privatization induced by structural adjustment plans, has resulted in significant declines in production quantities and quality, as well as in agricultural finance and funding, which was not counterbalanced by contributions from the private sector. The incidence of those impacts is stronger in the food crop sub-sector.

In this context, the Cameroon government adopted a new agricultural policy (NPA) in 1990, within the global framework of the IMF-World Bank Adjustment structural plan, which was based on gradual privatization of agricultural activities, professionalization of producers' groups and associations, and on diversification of agricultural production. In 1994, the FCFA currency devaluation resulted an increase in food import costs, in turn encouraging consumption of locally produced crops. Food crops such as plantain or cassava then underwent significant increases in production and consumption, and received significant support within the agricultural development strategic framework.

Cameroon thus launched a broad agricultural diversification program for farms (PDEA) in the early 90s, within its NPA framework. Government strategy set the goal of a 30 percent increase in farm yields and in cultivated acreage over the next 15 years, compared with 2005 levels, in order to ensure food security and rural employment.<sup>11</sup>

Following bad outcomes of the NPA, a new strategy was adopted in Cameroon, still geared towards productivity increases but centering on a restricted set of commodity sectors having a leading role in agricultural growth and employment creation. This comprises the rice sector, maize, banana, plantain, sorghum, palm oil, cow peas, legumes, and cassava. In 2003, a new rural development strategic document was launched to address new challenges, among which are (i) strengthening of the agricultural sector as a growth engine and a key driver of economic and social development, (ii) promotion of professional and inter-professional organizations of the different stakeholders which are the main actors of agricultural development; (iii) improvement of food security driven by increases in production and rural incomes. Specific projects such as PNDRT (for roots and tubers in general, cassava in particular) constitute the main intervention tools of the government for the implementation of agricultural policy in the focused commodity sectors like cassava.

## 5.2 Initiatives required to revamp Cameroon's cassava value chain

### A. Information and market mechanisms

In the base PNDRT documents, it was envisioned to make operational a stand-alone market information service that would have been linked to a national observatory for root and tuber value chains. The overarching goals were to reduce information asymmetries between the main stakeholders, encourage information sharing on markets and within the value chain, and improve the flow of commercial exchanges and relationships.

Following difficulties implementing such a stand-alone organization, IFAD operated a strategic change by 2007 to incorporate the services provided by DESA (Direction des Enquêtes et Statistiques Agricoles) of MINADER to the functions of this market information service. This was to increase access and visibility, and its sustainability by including all agricultural products of Cameroon in the information collecting network.

#### **Current situation of the MIS of PNDRT/MINADER**

Esoko Networks signed a contract to provide the MIS platform to the PNDRT through SMS by 2009. Following the kick-off workshop for training surveyors and other MIS managers in October 2009, the

<sup>11</sup> Document de Stratégie de Croissance et d'Emploi (DSCE).

#### **Box 4. The National Program of Roots and Tubers' Development (PNDR)**

In order to avoid spreading and duplication of means and efforts to upgrade the cassava sectors by several programs and projects, the government has established the PNDR in 2004, assisted by IFAD, within which cassava represents 80 percent of activities and funding. The initial goals that were set at inception were:

Strengthening the organization of the commodity chain of roots and tubers through capacity-building of producers and processors' organizations (as well as other stakeholders), promoting an inclusive and inter-professional sectoral development in a sustainable fashion, improve the marketing channels and market access of producers and processors' organizations at the local, regional, and sub-regional levels, for both fresh and processed products; Improve processors' response to increases in the market demand of products' quality and quantities through a better access to information services and appropriate communication technologies, post-harvest and processing technologies, at the various stages of the marketing chain; Contribute to sustainable intensification of roots and tubers' production through the use of upgraded technologies which are adapted to farmers' capacities and means, especially women, so as to enable them to better address market requirements.

The downstream part of the value chain has been subject to several changes driven by the PNDR program, among which have been observed the following:

**Regarding processing and equipment providers:** (1) The long-term sustainability of semi-industrial processing units which would be specialized in traditional by-products appears as very uncertain because of (i) the fierce competition from artisanal lowly-priced production, (ii) difficulties to have consistent sourcing in sufficient quantities, which are yet necessary requirements to achieve expected economies of scale and build critical mass, (iii) constraints in terms of the populations' purchasing power, which cannot induce any improvement in quality with enough valorization (monetarily); (2) The real impacts of extension and support services of PNDR to villages and small rural enterprises of the cassava sector are not significant. Hence, support to processors should first prioritize assistance to well-screened producers' organizations so as to acquire equipment.

**Regarding market access and finance sourcing:** Several POs which have benefitted from substantial support for equipment still face difficulties to achieve full development. Indeed, their expansion could be sustained only on condition that they can source sufficient tubers' quantities, have appropriate collecting means, and rely on well-organized marketing sources and channels, with some management and prospective support.

MIS has undergone two major phases:

- 1) October 2009-June 2010: information on market prices and quantities prioritized by PNDR were collected on a weekly basis by 25 surveyors from DESA and released on the Esoko platform through the internet network. Absent partnership with a local mobile phone operator (being negotiated at that time) meant difficulties when accessing market information through cell phones.
- 2) July 2010-December 2010: Information, while still being collected, was no longer released on the Esoko platform, and not available from PNDR either. Failures were apparently due to a lack of financial incentives for workers and managers, according to DESA executives.

Since June 2011, value chain information access and access to information on prioritized roots and tubers' markets were suspended, awaiting effective payment for the usage rights of the annual license.

### ***The suggested operational approach***

Following the contract between DESA and the MIS (providing 25 surveyors in prioritized markets), in order to make the MIS operational, we suggest the following approach:

- 1) The CCM should be implemented or strengthened on the 25 markets of PNDRT.
- 2) Within each CCM, one resource person should be identified and trained in information collecting and transmission for each market.
- 3) Within each CVC, one resource person should be identified and trained in information collection and transmission regarding the value chain at the village level, and work in close collaboration with the nearest agent and the supporting organization connected with the village, which in turn would be in charge of releasing the information.
- 4) Regional business delegates would take responsibility, in addition to their coordination and implementation role for information collection by surveyors, of monitoring and cross-checking all information being transmitted before final validation and release on the platform (internet and cell phones).
- 5) The national delegate observing body to be responsible for information compilation from all information gathered by regional offices and for regular analyses and projections on prices and other relevant variables and information for commercial relationships among the value chain stakeholders.

### ***Required means***

To optimize the MIS, the following necessary steps are required:

- 1) The fees for the usage rights of the Esoko platform license should be paid for as soon as possible.
- 2) Training workshops for the numerous market information purveyors should be effective for surveyors, CVC, proximal agents, CCM, commercial delegates, PNDRT executives.
- 3) Logistic and physical means that are required should be effectively provided to all the involved labor force (above mentioned): vehicles for field visits, cell phones for communication, measurement machinery, and so on.

## **B. Strengthening the role of equipment providers in the value chain**

Around 15 equipment providers for cassava products have been supported by PNDRT since 2006. A document called "Catalogue of processing facilities for cassava in Cameroon" was prepared in 2008 by PNDRT, after a study funded by IRCTM and IFAD. PNDRT and IITA ordered a hundred cossettes-making machines by 2009 from national providers. Theoretical and practical training (design and construction of grinders) was provided in 2010 and 2011 to a dozen manufacturers, among whom some were not within the initial list displayed in the PNDRT catalogue.

The survey carried out by CIRAD in 2010 showed that most equipment providers face significant constraints, which are often related one to each other:<sup>12</sup>

- 1) A lack of achievement of critical mass: facilities' orders are often for one unit, which increase manufacturing costs and training workshops tackle this problem any further.
- 2) Innovativeness and innovation capacities: most providers only reproduce models they have already produced and have limited capacity to improve existing ones. Very few of them have the necessary innovation capacity to produce new facilities based on plans.
- 3) Lack of working capital, which poses constraints on the size of their inventories for the main production inputs (consumables, components, and other pieces, steel pieces) and possibilities the

<sup>12</sup> Horus (2010) provides many details on categorization of facility providers, according to operational scale, constraints, and opportunities.

- option to take advantage of special offers and prices for given inputs to store them in advance.
- 4) Lack of knowledge about the activity: equipment providers barely know how to determine their production costs and marginal price, and are often unable to identify their levels of activity.
  - 5) Lack of facilities: there are some shortages for certain machineries, which ultimately affect the final quality of produced equipment.
  - 6) Wrong building shape (size, isolation, maintenance, access): this also poses a problem of final quality that is deliverable.
  - 7) Frequent use of temporary labor: this necessitates frequent training for person hire, which limits accumulation of knowledge capital and experienced labor.

Strong support in the form of capacity building for management of credit access, cassava specific facility construction, standardization of processing equipment, and labor organization/human resources are to be envisaged.

### **C. Credit access for groups of producers/processors**

PNDRT is not meant to be an explicit subsidizing instrument for income generating activities and stakeholders. However, upon beneficiaries' request, the program has means to enable them to receive support and extension services regarding their financing needs. The local microfinance institutions, in general, own sufficient liquidities, from their own funds or re-financing by formal banking institutions, to finance this type of credit. But credit schemes for cassava groups are often considered by MFIs as relatively riskier than more classical credit for traders and commerce, for the following reasons: the credit scheme is to finance a new activity whose profitability is lower than wholesale or retailing, and (ii) new borrowers who appear less trustworthy. This does not induce MFIs to diversify their finance portfolio towards riskier sectors (regarding repayment risks).

To overcome those constraints, a risk fund (RF) of around 100 million CFAF was established to cover MFIs' perceived risks and facilitate credit granting to cassava groups in the midterm with the overarching goal of promoting roots and tubers. The RF was set to share repayment risk related to agricultural production and processing between MFIs and PNDRT, and to insure against insolvent clients/credits by partial coverage. Unfortunately, terms and conditions for risk coverage under the RF which should have been discussed and agreed upon with MFIs and under PPMF's guidance have yet to be finalized and RF is not operational, as for now, in spite of a renewed interest and financing requests made by beneficiary POs. The following reasons may be invoked: (i) operational difficulties of the PPMF (Microfinance promotion project), (ii) weak organization (and inefficiencies) of supported POs by PNDRT, (iii) low levels of RF funds, (iv) PNDRT's willingness and capacities to make RF work, (v) MFIs' reluctance to allow preferential conditions/rates for the supported groups, (vi) strategic orientations made by the MINADER to gear PNDRT activities towards production increases and national food securities after the 2008 winter's food riots.

### **D. Improving women's groups' efficiency to raise income and productivity**

The cassava value chain is dominated by women who represent around 90 percent of the main involved stakeholders and who hold key positions and functions along all value chain segments, from production to marketing. In spite of PNDRT's re-centering activities on 1 200 prioritized villages, organization and structure of CVCs and of the inter-professional association have not been fully achieved, due to a lack of sufficient human

resources and capital mobilized within the project.<sup>13</sup> Likewise, village development plans which were designed on a participative mode together with beneficiaries have been barely implemented.

We here suggest that local close extension services should be supplied to women's groups by NGOs and other specialized agencies or institutions with expertise in capacity building. The overarching goal is to increase labor productivity and income through better dynamics of women's groups and the build-up of a strong inter-professional structure inclusive of all value chain stakeholders and actors. Clear rules and modalities should set out to ensure participation of all involved stakeholders.

### **E. Creating value for locally demanded cassava by-products**

PNDRT conducted several activities to evaluate local supplies towards local demand and consumption (for both domestic and industrial uses), sub-regional, and international demand of cassava by-products such as starch, gari, chikwangue, frozen cassava leaves, unfermented flour, etc. but impacts are difficult to measure and hardly sizable. This has several causes, including the weak organizational efficiency of the value chain (at the inter-professional level),<sup>14</sup> the lack of sufficient supply of by-products (especially starch, flour and paste) which is directly related to inconsistent supplies and irregular sourcing, and the lack of appropriate follow-up on the conducted activities.

The main activities were (i) organizing meetings between supplies and buyers of cassava starch, paste, and leaves, (ii) organizing several commercial/selling fairs and field visits in all neighboring countries (West and Central Africa), and (iii) support for local producers' groups to scale up and improve packing and packaging of cassava crisps, dried cassava leaves, and other higher value products, (iv) source new customers and marketing partners, (v) conduct market and feasibility studies for marketing new products such as "pre-cooked and vacuum-packaged cassava", unfermented cassava flour, and so on.

For traditional domestic by-products (sticks, fufu, cosettes, etc.), potential demand is by and large superior to real supply, which might increase their value and price. The added value is nevertheless kept far from its full potential due to organization and coordination failures in the value chain, constraints and uncertainties pertaining to marketing (risks and other shadow costs). This also applies to the by-products which are marketed through local industries such as starch, unfermented flour and cassava cosettes for animal feed. Furthermore, the local supply of those products, which is marginal, has to compete with imported substitution products, some of which are subsidized (wheat flour, maize or potatoes' starch, soy flour, etc.)

To ensure the sustainability and visibility of those promotional and value adding activities, there are some prerequisites such as sufficient supplies of processed cassava by-products (critical mass), strong inter-professional structure capable of lobbying governmental bodies and inducing them to adopt protectionist policies for local markets and small scale industry. This would give local firms engaged in the cassava value chain with a more long term vision on their income expectations and let them some time to grow before being able to compete with other countries and on domestic, national, and global markets.

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<sup>13</sup> Specialized NGOs were expected to support and assist the beneficiaries in markets and villages, but have only been fully operational since 2011.

<sup>14</sup> A study on cassava products' marketing was carried out by PNDRT and IRCTM/IFAD in 2008 for CEMAC region and for some European countries. The study showed that there is a huge potential demand for certain products such as chikwangue or frozen cassava leaves.

## F. Expanding intra-regional trade: strategies and actions

- (i) **Organizing field visits and trips between traders:** Unfortunately, this activity was not considered as a priority within the PNDRT and no field trip has been ever organized.
- (ii) **Rehabilitating border markets:** PNDRT has built marketing and storage warehouses on ten border markets, which has successfully enabled some traders and producers to better respond to regional demand.
- (iii) **Market information systems and practicing on markets:** Expansion of mobile phones enables the functioning of rapid information-sharing on all CEMAC markets. If all CEMA countries were to be connected to the Esoko network, this would allow one to have access to all useful market information from all relevant places. IFAD, through IRCTM, has envisaged drawing on lessons from PNDRT experience and applying them to all IFAD projects in the CEMAC region so to improve the functioning of market information systems. But effective functioning is yet to be restored in Cameroon first.
- (iv) **Developing/Scaling up communication infrastructures (roads, telephone).** In the base documents of PNDRT, it was envisaged to devote one fourth of the overall budget to the setting and maintenance of rural tracks and roads and to unlock production areas in order to decrease market transaction costs and get closer to urban consumption centers, markets, and border markets. Those funds were to be sourced from PPTTE initiative but were difficult to mobilize. PNDRT had thus to focus its effort on the most landlocked production areas located in the Center and Littoral regions. Facilitation of sub-regional and intra-regional trade has already been discussed up to the level of prime ministers and presidents. Several road infrastructure projects, including the one that seeks to connect capital cities of all CEMAC countries, are to be executed or in progress, with financial and technical participation and assistance from several donors such as World Bank, AfDB, or European Union.
- (v) **Reduction of non-tariff barriers for trans-border trade:** Improving customs and customs' administration and services, clearing procedures, anti-corruption policies and measures, harmonizing bio-safety, sanitary and quality standards.

## 6. Conclusion and general recommendations

In spite of a new focus on and a renewed interest in Cameroon's policy strategies in agriculture and in the cassava sector, most value chain stakeholders face challenging constraints and difficulties. This chapter highlighted those stakeholder deficiencies, organizational and management failures, coordination problems, and structural/infrastructural shortages, paramount to limit effective business expansion of the value chain, while potential local and regional demand is large and substantial. This is reflected in low farm yields and productivity, a lack of critical mass to ensure consistent supplies to market and regular sourcing for marketing and processing, which altogether result in a low competitiveness of cassava by-products onto local and international markets (in developed countries), and on industrial marketing outlets, with respect to other locally-produced or imported cereals.

Specific objectives of agricultural development policies sought to improve structure and organization of the value chain, standardize processes and quality of local production (complying with international norms), disseminate information and promotion mechanisms (upstream and downstream), improve retail markets and distribution networks (actual and potential markets), and expand financial arrangements and products which are adapted to cassava production and marketing and to the capacities of the value chain stakeholders.



PNDRT has then promoted increases in roots and tubers' production in the selected producing areas thanks to improved technologies resulting in a doubling of farm yields, and an increase in cultivated land devoted to cassava production.<sup>15</sup> Several difficulties have however remained, because several bottlenecks have put constraints on further development and on the scope of fruitful experiences, at each stage of the value chain (production, marketing, processing).

- (i) Distribution of PNDRT cuttings selected from improved varieties has not coincided with a significant increase in tubers and by-products on markets, caused primarily by marketing constraints which were not sufficiently addressed.
- (ii) Organization issues are still challenging. An internal investigation carried out in June 2011 showed that only 20 percent of PNDRT-established groups of producers and processors (CVCs and CMs) were considered as economically viable and sustainable. On a related note, producers' organizations should be rather offered a cooperative status (or a GIE one) and must be supported to handle processing up to a larger scale. It is regrettable to observe that PNDRT has not produced spillovers with the downstream part of the value chain (marketing/ processing/ exports). This is indeed a direct consequence of the initial focus of the program on production related matters and an excessive focus on food security, which were in turn detrimental to processing, organizational (stakeholders and value chain) and market access/participation. A more value chain focused approach could be a solution. An effective and agreed upon implementation of the main guidelines and orientations of the action plan elaborated by December 2006 within "the Cameroon's cassava sectoral strategy" document with the assistance of the ITC and other donors would be the first stage in such a solution.

The cassava value chain development can only be enhanced and sustained if some supportive policy for semi-industrial processing and marketing is designed and implemented, aside from the revitalization of artisanal and traditional processing currently within producers' groups (who need more professional structures and management), groupings, and SMEs. Such a policy should include a better promotion strategy for local supply, standardization efforts for quality, overcoming marketing constraints, seeking critical mass building through horizontal coordination, improvement of vertical relationships through contracting, trust-building, and loyalty, expansion of trans-border trade, and reduction of non-tariff barriers, and overall improvement of investment and business environments.

Some specific strategies (e.g. Horus 2010) are envisioned to scale up cassava flour processing and starch supplying to secondary and tertiary stakeholders in order to build national supply up to a semi-industrial scale, increase and expand traditional cassava ready to eat by-products' processing and marketing if they are competing with low cost artisanal products by adding value through improved quality and bio-safety, as well as expanding marketing outlets pertaining to the animal feed sector, which appears as one of the most promising outlets. Those strategies revolve around strong vertical coordination and at least partial integration between producers and processors so as to decrease processing costs and leverage economies of scale. This would necessitate relying on well performing varieties regarding not only both farm and processing performance and requirements, but also industrial yields' attributes (extraction rates, drying...), and reaching critical masses. Some support could be added by an enabling regulation which would favor the use of composite or mixed wheat/cassava flours, provided that this coincides with local and regional consumers' preferences. Last, issues pertaining to consistent supplies and sourcing, reliability and costs of facilities (necessity of serial production), information and knowledge of markets, as well as logistics, have to be included in the core of cassava value chain development strategies.

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<sup>15</sup> National statistics exhibit substantial production increases in the PNDRT-supported areas over the PNDRT intervention period : 214 percent for cassava, 187 percent for yams, and 325 percent for potatoes (see the 2010 INS report on social transfers).



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