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Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG) VALUE CHAIN AND END MARKET ASSESSMENT: COWPEA



This value chain and end market assessment, submitted for review by the United States Agency for International Development, was prepared by CNFA under USAID Contract No. AID-625 C 14 00001, Resilience and Economic Growth in the Sahel Accelerated Growth Project implemented by CNFA.

Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG) Project

VALUE CHAIN AND END MARKET ASSESSMENT--COWPEA

**Submitted by: CNFA
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**Submitted to:
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Contents

Acronyms	4
1. Introduction	5
Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG).....	5
Methodology	6
Summary	6
2. Value Chain Assessment of Cowpeas in Burkina Faso and Niger	10
Production.....	12
Input Markets.....	17
Storage 20	
Marketing.....	23
Processing.....	26
3. End Market Assessment for Cowpeas.....	28
National End Markets in REGIS-AG Countries.....	28
The Regional Enabling Environment for Cowpea	31
Consumption Aspects	34
Regional Market Opportunities within the UEMOA/ECOWAS Region.....	37
<i>Côte d’Ivoire</i>	37
<i>Ghana</i>	38
<i>Nigeria</i>	40
4. Recommendations for REGIS-AG Project Intervention.....	44
5. References and Bibliography	45
6. Annexes	47
Annex One: Constraints and Opportunities related to Cowpea Production, Inputs, Storage, Marketing and Processing.....	47
Annex Two: Alternative Diagrams of the Cowpea Value Chain	51
Annex Three: Purdue-CRS-AGRA Summary Table on Cowpea Value Chain	53

Acronyms

AGRA	Alliance for a Green Revolution in Africa
ATP	USAID Agribusiness and Trade Promotion project
CAADP	Comprehensive Africa Agriculture Development Plan
CILSS	<i>Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel</i>
CNFA	Cultivating New Frontiers in Agriculture
CRS	Catholic Relief Services
CRSP	Collaborative Research Support Service
ECOWAS	Economic Community of West African States
E-ATP	USAID Expanded Agribusiness and Trade Promotion project
FTF	Feed the Future
IICEM	USAID Integrated Initiatives for Economic Growth in Mali
IPM	Integrated Pest Management
NEPAD	New Economic Partnership for African Development
NGOs	Non-governmental Organizations
OPA	UEMOA's Observatory of Abnormal Practices
PICS	Purdue Improved Cowpea Sacs
PROSUMA	Société Ivoirienne de Promotion de Supermarchés
REGIS-AG	USAID Resilience and Economic Growth in the Sahel—Accelerated Growth
REGIS-ER	USAID Resilience and Economic Growth in the Sahel—Enhanced Resilience
SNV	Netherlands Development Agency
UEMOA	West African Economic and Monetary Union
USAID	United States Agency for International Development

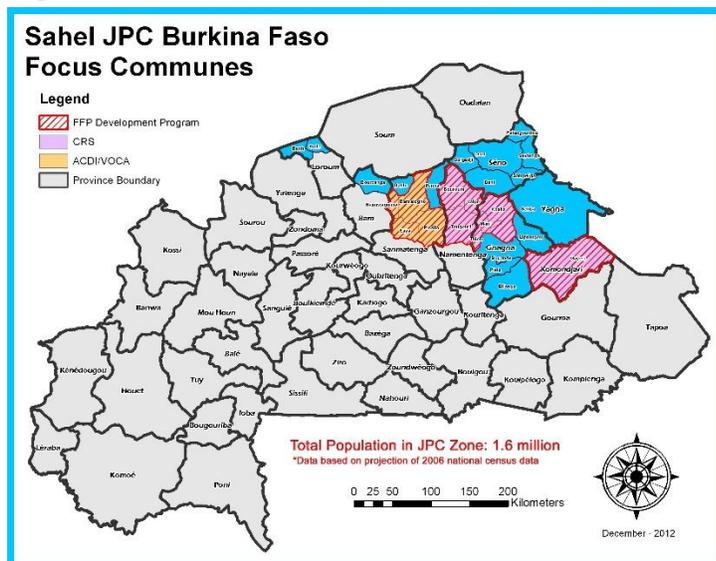
I. Introduction

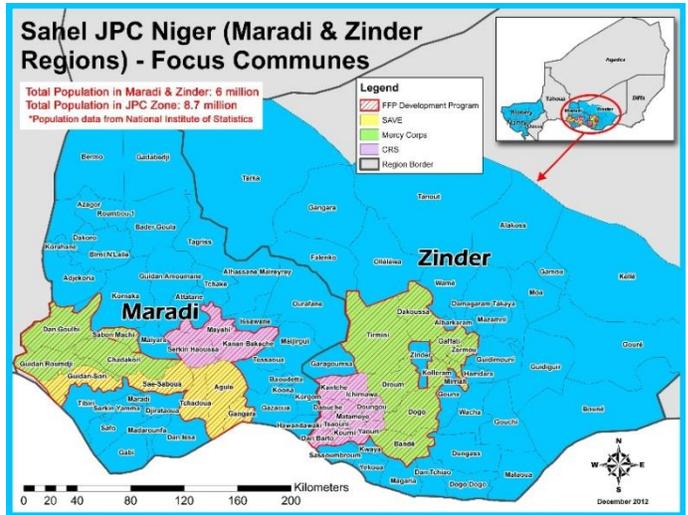
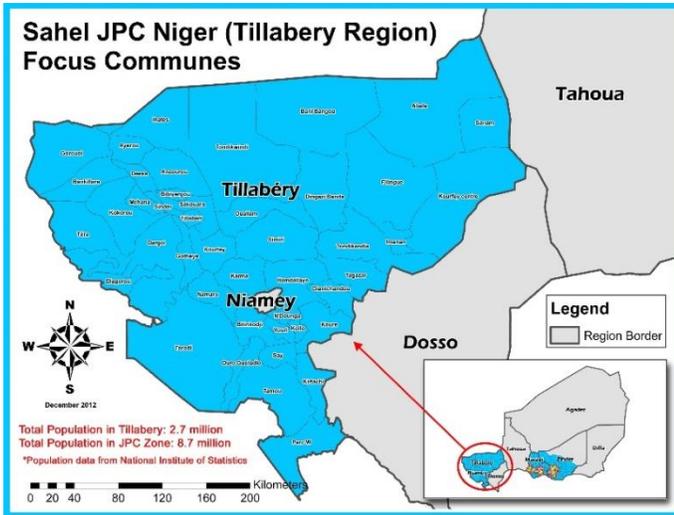
Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG)

The USAID-funded Resilience and Economic Growth in the Sahel–Accelerated Growth Project (REGIS-AG) was launched in 2015 as part of USAID’s Resilience in the Sahel Enhanced (RISE) initiative. REGIS-AG is designed to increase the incomes of vulnerable households by increasing the performance and inclusiveness of the cowpea, poultry and small ruminant value chains and thereby increase resilience in selected agro-pastoral and marginal agricultural zones of Niger and Burkina Faso.

REGIS-AG is focused on the Tillabéri-Sud, Maradi and Zinder regions of Niger and three *départements* of north-eastern Burkina Faso, specifically Dori, Kaya, and Fada (Figure I). Taking an inclusive value chain approach targeting vulnerable populations, REGIS-AG is working with producer organizations and associations, with priority to women’s associations in collaboration with USAID-funded partner projects. By linking producer organizations with value chain actors - input suppliers, transporters, traders, and processors – REGIS-AG will spur the development of profitable markets for Niger and Burkina Faso’s vulnerable populations.

Figure I: REGIS-AG Focus Areas in Burkina Faso and Niger





Methodology

The work on this cowpea value chain analysis was begun in April 2015, consisting of extensive literature review and participatory field work on the production and marketing systems in Niger and Burkina Faso to understand constraints and opportunities, relationships, governance dynamics, and the enabling environment, with an important focus on understanding the role and constraints affecting vulnerable populations, especially women and children.

The completion of the end market analysis, including components such as consumer preferences and identification of potential opportunities in international markets, was a key aspect of the field research in Burkina Faso and Niger. There have been a number of detailed studies on cowpea demand characteristics in recent years, including by the Purdue-CRS-AGRA team for IITA and by SNV. REGIS-AG sent teams to Côte d'Ivoire and Ghana for a week to study the end markets for cowpea, and held workshops in 3 different cities in Niger during which male and female stakeholders from northern Nigeria came to participate in order to learn about those markets.

Finally, after presenting the opportunities and constraints of the three value chains, this report also includes interventions for REGIS-AG that the project team will focus on during the life of the project in both Burkina Faso and Niger. The value chain and end market analyses will serve as the project foundation from which activities and technical approach are drawn from.

Summary

Production of cowpea (*niébé*) provides a steady food resource for nearly the entire rural population in Burkina Faso and Niger and is a prized part of the diet both in home preparation and at the increasingly popular cowpea vendors who provide a nutritious hot snack “to go” on the streets for urban populations. Adaptable as a consumer-ready end product, the cowpea value chain in both countries has developed a range of formats in which cowpea may be prepared and served.

The **Value Chain Assessment** found that production in Niger is throughout the country but strong in the 3 regions where the REGIS-AG project is active, Maradi, Tillaberi and Zinder, usually intercropped with millet and sorghum, with many farmers involved and very low yields. Niger’s production ranks as second largest in the world at about 1.5 million metric tons, with output about one-third as high in Burkina Faso, where cowpea production is concentrated in the regions of Mouhoun, Nord and Centre Nord, where the rainfall is lower. Both men and women grow cowpea, but women do the bulk of the harvesting and processing of cowpea. Burkina Faso is the only country in West Africa with a national representative association for cowpea, the interprofessional group for cereals and cowpea known as CIC-B.

There is a sharp seasonality to cowpea availability and prices, with the poorest consumers shut out from protein-rich cowpeas during the “hungry season” due to lack of purchasing power (lack of “access” in the food security rubric) and the higher price compared with millet or sorghum. The poorest producers are sellers too and during the lean season they have little to sell and little to eat unless they are storing their cowpea in PICS bags, which gives them the opportunity to have product available for both sales and household consumption.

Cowpea producers also face risks related to droughts, access to land and resources, and security related issues from the spillover of violence around the Lake Chad region due to Boko Haram that can cause shocks at the household level. Further, household level stressors such as health issues limit the most vulnerable to build up their resilience to successfully withstand the larger shocks from the natural, social, and political environment.

There are several layers of sellers with the poorest smallholders generally selling their cowpeas to intermediaries. The 2010 RECA Note I reports that wholesalers buy 90% of their supply from intermediaries and only 10% directly from producers. There is no widespread program for “cash aid” during the lean season, rather the government of Niger and WFP purchase cowpea (and other staple) before the lean season which is distributed as food aid along with other products. The poorest households rely on millet and sorghum rather than cowpea which is more expensive. During the 2008-2009 global food crisis, Niger’s government purchased cowpeas from producers at an attractive price to distribute for a reduced price or free to vulnerable populations as part of its food security response (SNV 2013).

The Government of Burkina Faso, under their 2003 Action Plan, has focused on smallholders producing less than three 100-kilogram bags each, accounting for more than two-thirds of the producers. The Action Plan from 2003 also calls for training for small farmers on *la culture pure du niébé* (single-cropping) in order to intensify production, as well as support for organizing the small producers (this is when CIC-B was founded as the interprofession for niébé), group

Farmers Seasonality Strategy: Situation in Chad and Niger in 2009

“In Chad and Niger, farmers tended to market their cowpea and groundnuts to earn cash while they stored their cereals to hedge against the risk of food insecurity later in the season. In some areas of Chad, primarily in the south, farmers received assistance from micro-credit providers to finance the storage of their cereals. Traders, in contrast, were reported to carry to low inventories as they faced high prices and expected supply to rise after the off-season harvest. The retention of cereals by producers and the restoration of public stocks (to some extent but well under target levels) sustained the demand and thus prevented prices from falling. The 2009 off-season cereal harvest allowed for further replenishment of public reserves before this year’s rainy season. In Niger, estimates of producer stocks were also relatively high, whereas public stocks stayed below desired levels. However, in various locations, traders’ stocks of cereals rose significantly and cowpea inventories were abundant.”

Source: FEWS NET: EXECUTIVE BRIEF: EASTERN BASIN OF WEST AFRICA, October 9, 2009. Agricultural Markets and Food Security in 2009: Summary and Updates.

purchases of small grinders (*pulvérisateurs*), and greater use of contract farming. According to the Purdue-CRS-AGRA report, cowpea processors have innovated in recent years, adopting grinding mills mixing more than one products (*moulins mixeurs*), improved stoves (*foyers améliorés*), and gas-fired cookers (*cuisseurs à gaz*). A study by CIRAD in 2010 confirms that the Burkina Faso government also accelerated support for the production of improved seeds.

The regional enabling environment under UEMOA and ECOWAS is favorable for expansion of cowpea exports from both Burkina Faso and Niger. As a basic staple food (*produit du cru*), cowpea moves duty-free and quota-free with other ECOWAS members, although road harassment continues to raise costs in terms of time and money. Cowpea was one of the priority crops promoted under the regional agricultural policy ECOWAP. Although not yet operational, the West African initiative to put in place regional food security stocks has approved the use of cowpea for the regional scheme.

The input markets for cowpea are relatively under-developed. Many farmers will use a combination of purchased cowpea seed and cowpeas saved from the prior crop for replanting. Fertilizer use is very low, often relying on animal manure to promote higher yields. Among other positive environmental attributes, cowpea fixes nitrogen in the soil, making it ideal for rotation with cereals consuming little water such as millet and sorghum. The enabling environment for inputs in both countries suffers from strong government control of access to fertilizers, which tends to limit the number of suppliers and availability overall. On the other hand, the seed companies and the agro dealers are relatively well-organized, with national-level associations.

The advent of the Purdue Improved Cowpea Storage (PICS) bags, which protect the cowpea grains or beans from weevils by including a double plastic lining, is revolutionizing how cowpeas are stored and marketed by rural producers and urban marketers in the REGIS-AG countries. Greater horizontal and vertical coordination within the supply chain for the PICS bags benefits producers, as the greater ability to store cowpeas longer during the marketing year helps smooth out the doubling of price during the “hungry season” from mid-June to mid-September.

The marketing systems for cowpea reflect the small-scale nature of production, as there are many intermediaries involved in the collection, aggregation, distribution and sales phases. The lack of organization among the producers and traders results in large quantities being marketed directly after harvest time, with producers losing out due to only limited storage options.¹ PICS bags solve the problem of high losses but the cost per bag has been a constraint on expanding usage among producers and traders. With small marketing margins, financing of post-harvest storage is essential. One recent estimate was that wholesalers of cowpea earn a gross margin of 2%, with intermediaries at 4% and 10% for the retail vendors (Purdue 2014).

PICS bags are selling in Niger, but they are not anywhere near market saturation. Lela Agro of Kano is the official supplier of PICS bags for vendors in Niger, while FASOPLAST in Burkina is focused on developing and selling their own hermetic storage bag that is not affiliated with Purdue or PICS but is similar in design and purpose. Agro is the only PICS manufacturer with sales agreements in Niger. Officially, Lela Agro sold 54,284 PICS bags to Nigerien buyers during the 2015 storage season. PICS bags manufactured specifically for the

¹. Another advantage of PICS bags is that they help prevent aflatoxin accumulation in storage. Williams, S. B., Baributsa, D., & Woloshuk, C. (2014). Assessing Purdue Improved Crop Storage (PICS) bags to mitigate fungal growth and aflatoxin contamination. *Journal of Stored Products Research*, 59, 190-196. doi:10.1016/j.jspr.2014.08.003.

Niger market are easily identifiable as they have the INRAN logo printed on them as a form of quality assurance. There are also many bags manufactured for the Nigeria market that are resold in Niger. For example, anecdotally we have heard that merchants in Sokoto buy large quantities of bags and ship them to Niger for resale. Agro's records indicate that for the 2015 season, 117,900 PICS bags were purchased by two merchants in Sokoto; that is almost 10% the total sales for all of Nigeria so there is some evidence that the Sokoto sales story is correct. It is impossible to know how many PICS bags manufactured for the Nigeria market are resold in Niger, but the hypothesis is that it is at least equivalent to the official sales. That means for the 2015 season approximately 100,000 PICS bags were sold in Niger. This is a small quantity of bags for a country where the cowpea harvest was in the range of 1 to 2 million tons (i.e. 10 to 20 million 100 kg bags).

Women and Cowpea-Based Food Enterprises

“Cowpea fritters (called "kosai" in Hausa and "akara" in some other African languages) and other cowpea based street foods are sold throughout West and Central Africa. These cowpea based snacks and meals are consumed by people from a wide range of social groups, but especially by laborers and school children. Most of these foods are produced and sold by women on the street or in simple stalls. Preliminary evidence from Senegal and Niger suggests that many women are abandoning tradition cowpea-based foods for less nutritious, but also less labor intensive wheat flour-based products that are cheaper to produce.”

Source: <https://www.entm.purdue.edu/NGICA/opportunities.html>

The processing industry is small but thriving, with product innovation a key part of expanding demand. Women's groups in the regions of Maradi, Zinder, and Tillaberi are processing cowpea into value-added products, packaging them and selling to consumers. REGIS-AG has identified two dozen formats in which cowpea can be served to consumers. Women are fully involved in the cowpea value chain. Many women entrepreneurs run their own businesses using ground cowpea to make *beignets* and other fritters.

The **End Market Assessment** for cowpea focused first on the domestic markets of Burkina Faso and Niger, then examined the enabling environment for intra-regional trade with other UEMOA and ECOWAS countries, discussing consumer preferences, and finally analyzed the key target markets of Côte d'Ivoire, Ghana and Nigeria, all of which are already important destinations for exports with strong growth potential. Both of the REGIS-AG countries have large and growing populations, and cowpea is a valued product for consumers, worth more per kilo than either millet or sorghum.

In both countries, cowpea is consumed in all regions and among all socio-economic groups. In Fada N'Gourma, the second-largest city in the REGIS-AG project area in Burkina Faso, women vendors are successfully selling packaged flour mixes containing cowpea, cassava and cereal flours. There is virtually no sale of cowpea in supermarkets, although this is a natural next step for high-quality, consumer-ready products. In Niger, products flowing from rural areas to meet urban and export demand must pass through multiple intermediaries before arriving in the end markets.

The regional enabling environment under the ECOWAS Trade Liberalization Scheme (ETLS) provides for free trade in cowpeas between the REGIS-AG countries and their principal export markets. The official ECOWAS free trade rules regarding fees and documentation for the cowpea, the vehicle, and the driver to cross the border are succinctly laid out in the Trader-Transporter Card, a communications tool developed by prior USAID projects. Yet there continue to be widespread difficulties with unfair policies and practices on the roadways that cause daily headaches for traders and transporters and ultimately raise prices for end consumers.

Consumer preferences for cowpea in West Africa have been the topic of a number of recent studies building on foundational work by the USAID Cowpea/Bean CRSP a decade ago, with a general preference for white beans of uniform color with solid black eyes. There appears to be a wide variety of preferences, with some consumers preferring red- or black-speckled cowpeas while in Nigeria some consumers favored honey-colored cowpeas. As for processed foods, a particularly appealing new value-added product is specially blended milled flours suitable for newborns, diabetics, and those with compromised immune systems.

Cowpea trade flows from the drier inland areas to the more humid and densely populated coastal areas. Niger and Burkina Faso are the largest and second-largest exporters in the world. Excellent opportunities exist in the urban markets of the REGIS-AG countries' ECOWAS partners as REGIS-AG interviews there revealed that much like the *Violet de Galmy* onion, the quality of their cowpeas are greatly appreciated by consumers.

Côte d'Ivoire is a traditional market for cowpeas exported from Burkina Faso, with the added advantage over Ghana and Nigeria of sharing a common currency, the FCFA. Côte d'Ivoire's national market for cowpea is in structural deficit, with output at under 2,000 tons per year and demand at least 5 times that. The opportunity to develop new cowpea preparations and snacks is great in Abidjan as consumers are looking for inexpensive but nutritious food.

Similarly, Ghana's cowpea production of 57,000 tons is inadequate to meet estimated demand of 169,000 tons, opening the way for imports from the Sahel (Purdue 2009). Consumers and traders with whom REGIS-AG spoke in Ghana stated a clear preference for cowpeas from Niger first off and then from Burkina Faso, suggesting exports of high-quality beans free of foreign material to Ghana would fetch a good price. In Ghana, they reportedly like small-sized beans.

Nigeria is the largest cowpea country in the world, tops in production, consumption and imports. While per capita consumption data is scarce, and not overly reliable, Nigeria's apparent consumption of 18 kilograms per person is far higher than Ghana (9 kg/pc) and Côte d'Ivoire (1.8 kg/pc). Nigerians prefer large-sized beans. All told, if the marketing inefficiencies internal to Burkina Faso and Niger as well as those experienced crossing borders to engage in trade can be reduced, the chance to increase producer income in rural areas through expanding cowpea exports is very promising.

2. Value Chain Assessment of Cowpeas in Burkina Faso and Niger

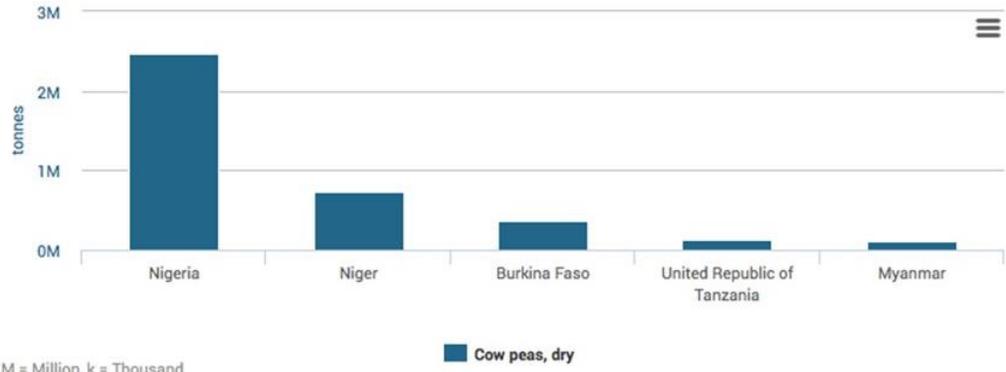
Cowpea, widely known as *niébé*, is a quintessential West African product, with 3 of the top 5 global producers within the UEMOA/ECOWAS region, led by Nigeria (Figure 2). *Vigna unguiculata* is the most important indigenous grain legume in West Africa, followed by other commonly found products such as tiger nuts (*pois souchet*) and various dry beans such as *haricot blanc* and red lentils. Rich in protein and other nutrients, West Africans rely on cowpea as "the poor man's meat" (*naman talaka* in Hausa). The entire plant is consumed, with the beans consumed as a food product and the leaves and stalks used as fodder for small ruminants and other animals.²

Cowpea is grown both for on-farm consumption, part of the household livelihood strategies in a region wracked by frequent droughts and food insecurity, and for marketing outside the household. One of the

² Some of the green shoots are consumed in sauces during the course of the growing season and harvest period.

emerging economic strategies for rural producers in Burkina Faso and Niger is to grow greater quantities of cowpea than needed solely for domestic needs, in order to meet the demand of growing urban populations in both countries and in Nigeria.

Figure 2: Top 5 World Producers of Cowpea (1993-2013 average)



Source: FAOSTAT.

Much like animal products, which have been cited as “the leading vector for regional integration” after oil and natural gas (IRAM 2014), cowpea plays a key role in the integration of Burkina Faso and Niger into the much-larger Nigerian economy. That longstanding role, rich in positive outcomes in terms of greater opportunities for participation by women and girls, greater food security and concrete poverty reduction, can be further reinforced by improving the efficiency of operations throughout the cowpea value chain through greater understanding of *market segmentation*, i.e. fine-tuning each step in the value chain.

Cowpea is a key element of the national economies in both Burkina Faso and Niger, the second- and third-largest cowpea-producing countries in the world, and is growing in both countries. Cowpea production in Burkina Faso and Niger is only a fraction of that in Nigeria, which accounts for 45% of world production, followed by the two targeted REGIS-AG countries, with 15% of world output for Niger and 6% for Burkina Faso.

With its large and relatively wealthier population, Nigeria is also the largest consumer of cowpea in the world, and the largest importer, primarily from the two REGIS-AG countries, which rank as the world’s #1 (Niger) and #2 (Burkina Faso) exporters. The Nigerian market, along with other target export markets along the coast in Côte d’Ivoire, Ghana, Togo and Benin, is discussed in the end market assessment further on in this report.

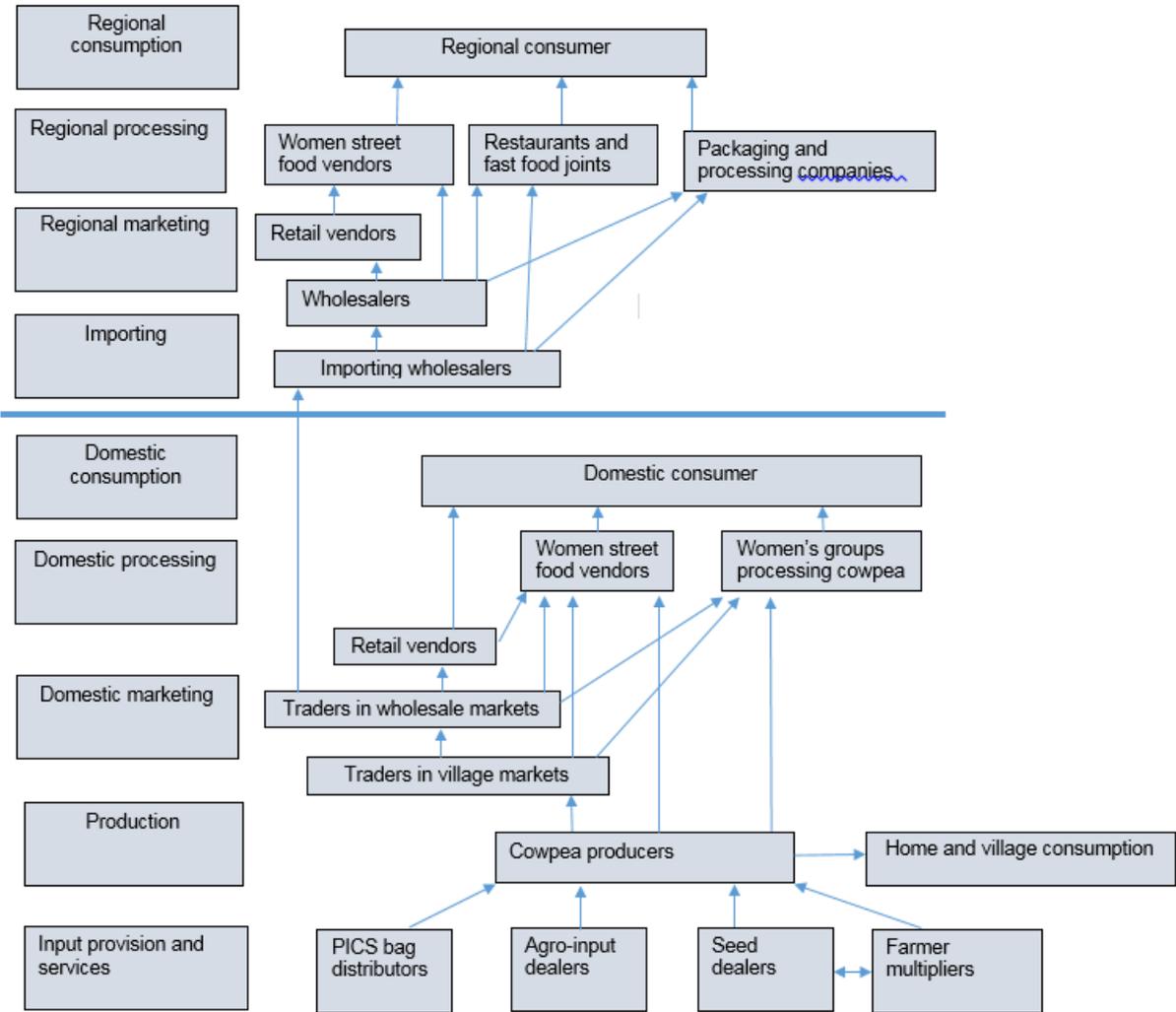
Table 1: Typology of Actors in Cowpea Value Chain

Type of actor	Description of roles
Producers	Ensures the availability of cowpea in Burkina Faso and Niger
Traders	Purchases from farmers and re-sells to users (consumers, processors, and other traders)
Processors	Purchases bulk cowpeas and produces value-added processed products, whether ready for immediate consumption or requiring additional processing in the home
Input suppliers	Ensures the availability of inputs and equipment throughout the value chain

Source : SNV (2014).

The cowpea value chain involves a range of actors with different roles, as shown in Table 1. Figure 3 below shows the REGIS-AG schematic diagram of the cowpea value chain, while Annex 2 contains cowpea value chain diagrams produced by SNV, Purdue-CRS-AGRA (2014).

Figure 3: Schematic diagram of Cowpea Value Chain in Niger



Source: REGIS-AG.

Production

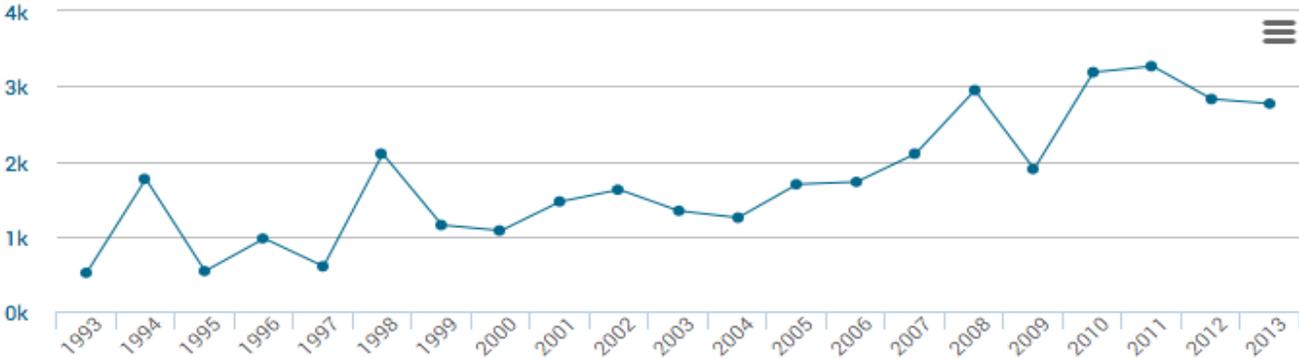
Cowpea production is one of the traditional rural activities in both Burkina Faso and Niger. Cowpea grows with little water, making it ideal for the Sahel. As cowpea also fixes nitrogen in the soil, it is a common choice for rotation with millet and sorghum.

As can be seen in Figure 3 above, production activities, the traditional focus of extension and agronomic efforts on cowpea in the region, are only an initial link in the complex network of activities in the entire value chain. Niger’s farmers have managed large increases in cowpea production since independence, and especially

during the period 2000-2010, when they tripled production. Production data for cowpea are not regularly reported, often unreliable, and sometimes derived from surveys which then extrapolate to Burkina Faso or Niger as a whole. In recent years, Niger has been producing about 1.5 million metric tons of cowpea, with Burkina Faso at about one-third of that level.

A 2009 Purdue study mixing a variety of data sources (some of them already a decade old then) showed cowpea yields to be astonishingly low at 110 kg per hectare, with Burkina Faso (777 kg/ha) and Nigeria (494 kg/ha) both far more productive. . FAO data show rising cowpea yields from 1993-2013, with strong increases over the past decade to about 300 kilograms per hectare (Figure 4).³

Figure 4: FAO Data showing Cowpea Yields (100's) in Niger



Source: FAOSTAT. Scale is in hectograms per hectare. Recent years are near 300 kg/ha.

Yields differ widely whether cowpea is planted by itself in a single-cropped field, or intercropped, whereby 4 rows of millet are alternated with 4 rows of cowpea. The two plants are complementary in that cowpea fixes nitrogen in the soil and the millet roots contribute to greater soil conservation of water. RECA in 2010 estimated average yields of the cowpea beans of 136 kilos per hectare in Niger, with additional kilos comprised of the leaves and shoots of the cowpea, which make for good animal feed. Soil productivity differs widely as well throughout the country. As mentioned above, smallholders growing cowpea regularly intercrop with millet or sorghum, although mono-cropping of higher-value cowpea varieties is becoming more common. A combination of family and hired labor makes up the workforce, the latter especially important during the peak labor seasons of planting and harvest.

Yields in Burkina Faso are higher, even double. In Niger, cowpea is grown throughout the country, while in Burkina Faso cowpea is grown mostly in certain limited areas in the North, with less intercropping and greater planting intensity and input use. A 2009 Purdue study showed Niger’s yields at 110 kg/ha, with Burkina Faso at 777 kg/ha. However, the 2003 Burkina Faso Action Plan for Cowpea noted cowpea yields under intercropping systems at 300 kg/ha.

Both men and women grow cowpea, but as reported from the REGIS-AG field study, from a *gender equality perspective*, women’s role in cowpea production is secondary to men’s role. Men tend to have the larger fields,

³ Under the FAO methodology, crop yields are a “residual” derived from statistics on area harvested and production. A surer method for estimating crop yields accurately is in-field surveys, which can then be compared with the derived crop yield estimate. In Burkina Faso and Niger, it is not a precise science.

but it is very common for women to have their own small plots of land where they grow cowpea. Women play the leading role with respect to the harvesting of cowpea both on their own small plots as well as on the larger plots owned by men. The low-growing cowpea plants are cut in the fields and then typically the women thrash the beans from the shells in the initial phase of processing.⁴ Often, the women receive payment in kind for this work, bringing a steady supply of cowpeas back to their homes for household consumption, animal fattening, and trading in small quantities. As women’s economic gains result in higher contributions to the household, these in-kind payments oftentimes serve to feed the most vulnerable groups who rely on their support including children, the elderly, and handicapped persons. One way in which REGIS-AG supports women to have access to land to produce and therefore have larger returns and impact on the family is working with REGIS-ER to secure lands for women’s producer groups who currently cultivate or desire to cultivate on land that is owned or controlled by public and private actors. Through negotiations with local governments and/or private land owners, REGIS-AG and REGIS-ER are able to collaboratively secure land donations and loans for women producers of cowpea in Niger and Burkina Faso.

Vulnerable small-holder farmers, REGIS-AG’s target population, make up the vast majority of those growing cowpea, with labor making up about 70% of the costs of production (Langyintuo *et al* 2003). A baseline survey produced by Purdue University for the regional body IITA found that 45% of the farmers are illiterate and only 4% have secondary school education (Purdue 2014). These vulnerable populations targeted by REGIS-AG face many stressors and factors at the household level that limit their ability to anticipate, adapt to, and recover from the effects of environmental, social and political shocks and therefore be successful entrepreneurs in the cowpea value chain. These households are food insecure facing high childhood malnutrition and

underdevelopment which puts them at higher risk for household level shocks such as disease. Prime among the conditions that impact households’ ability to be successful producers and therefore maintain a moderate income level is the lack of education. These low education levels hamper efforts at greater technology adoption since modern inputs require the ability to read

Why is Cowpea important for Smallholder Farmers?

- It is a profitable cash crop;
- It is a nutritious food crop;
- Early in the season, the green pods represent an important food source, “the food for the hungry season;”
- Cowpea foliage provides fodder for animal feed;
- Cowpea plants provide nitrogen fixation to improve soil quality;
- Cowpea plants grow quickly, providing ground cover suppressing weed growth, preserving moisture and enriching plant residues;
- Cowpea plants’ deep root systems help to stabilize the soils regions plagued by desertification.

and complete dosage calculations. In order to improve farmer’s ability to understand use of inputs and financial decisions related to their production, investment and sales, REGIS-AG will implement functional literacy trainings in coordination with local institutions, REGIS-ER and DFAP projects in the project implementation area.

Youth populations in Burkina Faso and Niger have greater literacy than in decades past and can also play an increasingly important role in accelerating the efficiency of the production-level link of the cowpea value chain. Youth unemployment in both countries is high and REGIS-AG will target youth through this lens as an entry point for increasing employment in that age group.

Smallholder farmers also experience low bargaining power due to their limited output and poor quality of

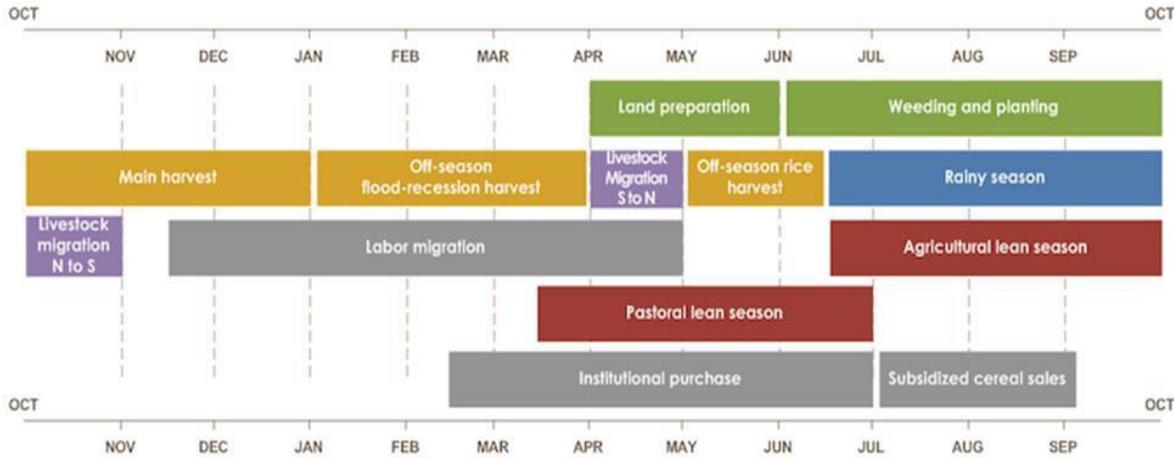
⁴ Losses are estimated at 2% for cowpea in the threshing and cleaning phases of harvesting (Purdue 2014).

product. This results in less financial gain for their economic activities which puts vulnerable families at risk, having less income and savings to deal with stressors and shocks. REGIS-AG works to address this through working with producer groups formed and supported by REGIS-ER and DFAP programs which serve as aggregation points and increase their bargaining ability with the purchase of inputs, provision of service, and sales.

In spite of cowpea’s adaptability and appropriateness, production of cowpea faces several shocks which challenge building the resilience of these smallholder producers and their households. The harsh growing conditions include erratic rainfall, high soil temperatures, low soil fertility and degraded fragile soils that can negatively impact the production levels and therefore income of the household. Other challenges during the growing season include parasitic weeds, diseases induced by fungi, viruses and nematodes. Insect pests in the field and during storage constantly challenge cowpea production as well as preservation throughout the marketing year.

West African countries producing cowpea follow a similar seasonal production calendar given their shared climate and geographic location within the Sahel. Figure 5 below demonstrates the yearly cycles of harvests, lean seasons and rainy seasons affecting both producers and consumers.

Figure 5: Seasonal Crop Calendar for Cowpea in the Sahel



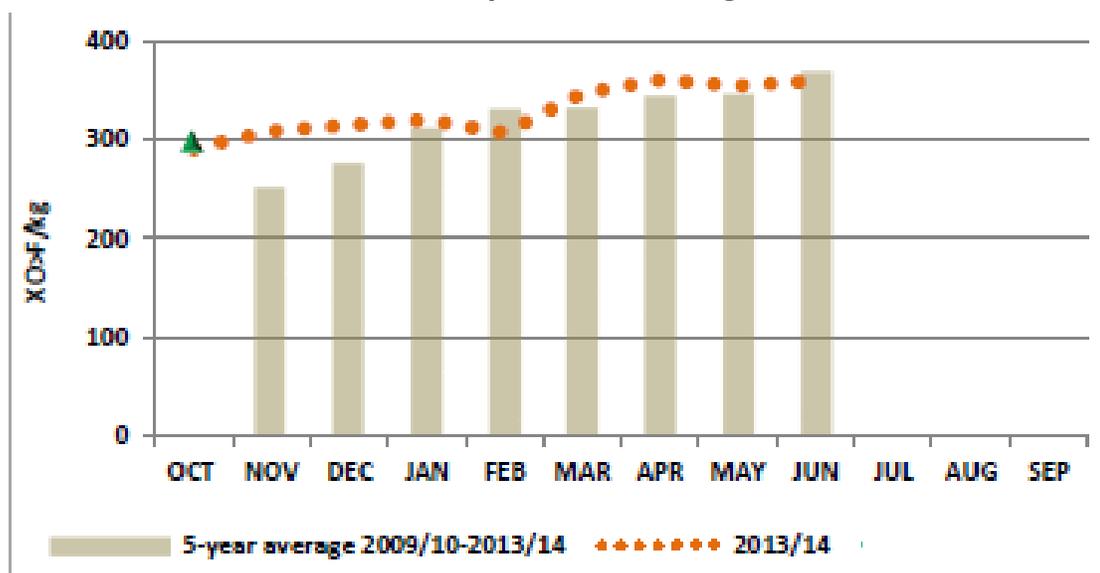
Source: FEWSNET (2015).

Cowpea production is concentrated in the dryer, Sahel regions of West Africa, the geographic cut-off being at the 300mm rainfall isohyet (Purdue 2007). In Niger, the majority of cowpea is produced in the regions of Maradi, Zinder, and Tillaberi. In Burkina Faso, cowpea production is concentrated in the regions of Mouhoun, Nord and Centre Nord, where the rainfall is lower (CIRAD 2010).

Much like production data, price data for cowpea are typically anecdotal and more or less unreliable.⁵ The 2014 SNV study noted the poor quality of cowpea sales price data, with one expressed weakness among existing market price reporting techniques in their experience being that all sales are considered to be in 1-kilogram bags sold for 1,000 FCFA without variation across the seasons.

⁵ This of course limits the ability to estimate the responsiveness of cowpea producers to changes in price, i.e. the price elasticity of supply.

Figure 6: Nominal Retail Prices for Cowpea in Maradi, Niger



REGIS-AG field work in mid-2015 observed prices in both Burkina Faso and Niger as being about 200 FCFA (approximately USD\$0.34) per kilogram at harvest and about 400 FCFA/kg (approximately USD\$0.69) during the lean season. Thus, cowpea prices can double based on the time of year.

While not quite doubling over the course of the marketing year, Figure 6 does show the steady price increase for cowpea in Maradi, Niger from the post-harvest marketing season starting in November through to the période de soudure or “hungry season” starting around the month of June. Obviously, without reliable price data, any calculation of gross margin or profit for different operators in the cowpea value chain should be considered illustrative at best.

Most smallholder cowpea farmers in Burkina Faso and Niger are connected to local, national and international markets via intermediaries. Under the CAADP Pillar II framework for agricultural development agreed to by all African countries under the NEPAD process, it can be said that cowpea producers in Burkina Faso and Niger lie in between Position 1 and Position 2, as they are integrally involved in the value chain, providing the bulk of supply, but have difficulty in adding value to their product given the lack of knowledge about the benefits of storage capability.⁶ In Burkina Faso, the cowpea farmers are represented by CIC-B, but a similar commodity-specific association does not yet exist in Niger.

Farmers connect via vertical linkages with value chain actors in both directions along the value chain (upstream input suppliers and downstream marketers and processors). In some areas, farmers’ organizations have

⁶ According to the CAADP Pillar II framework, a smallholder producer may fit into 4 positions along the value chain. Position 1: Smallholders are out of the value chain, typically in the case of products with high quality requirements or strong demand for technology.

Position 2: Vertical Integration: Small farmers will add value to commodities without involvement in the management of the chain activities.

Position 3: Horizontal Integration: Small farmers are specialized in production and participate in the value chain management.

Position 4: Value chain co-owner: Small farmers develop ownership in the chain by promoting management activities and others along the chain.

evolved, providing the opportunities of horizontal linkages such as improved bargaining power with input suppliers and traders as well as access to technical and market information. The well-established West African markets found in every sizeable village or town, often on a weekly basis, feed into the aggregation markets in regional capitals and into the daily wholesale and retail markets in Ouagadougou and Niamey. In this way, given its longstanding prominence in the national economies of both countries, cowpea benefits from an excellent supporting market system for household, local, national and export outlets.

As for the enabling environment, or that set of national and regional policies affecting the production-level link in the value chain, cowpea receives very little government support. Cowpea figures as one of the priority basic staple foods (*produits du cru*) under the ECOWAS regional agricultural policy ECOWAP and UEMOA's Agricultural Policy of the Union (PAU). However, the regional-level programs have brought little to bear directly in terms of increased investment in the cowpea sector, with most agricultural production activities in West Africa still the domain of national-level policies (USAID ATP/E-ATP 2010b). During the 2008-2009 global food crisis (and in some years since) Niger's government intervened for food security purposes by buying up stocks of cowpea for reduced-price or free distribution to targeted vulnerable populations. In 2011, the West African countries participating in the Réseau pour la Prévention et Mitigation des Crises Alimentaires (RPCA) decided to permit the use of cowpea as a food suitable for storage under the initiative to create regional food security stocks.

Burkina Faso brought greater prominence to cowpea in its agricultural development plans by formulating an Action Plan for Cowpea Development in 2003 (CIRAD 2010). These are certainly small farmers being targeted, as 68% of the Burkinabé growing cowpea at the time produced less than 3 100-kg bags each, while the remainder produced no more than 10 bags (one metric ton). Starting with the 2010-2011 production and marketing year, Burkina Faso included cowpea in its 5-year national agricultural development program, the *Projet d'Amélioration de la Productivité Agricole et de la Sécurité Alimentaire*, or PAPSA (USAID ATP/E-ATP 2010b).

Input Markets

Input markets for cowpea in Burkina Faso and Niger function relatively well in a difficult *enabling* environment. Government controls on the free movement of improved seeds, fertilizers and plant protection materials aim to protect licensed producers and sellers from sub-standard quality products, often imported, appearing on national markets. Farmers obtain inputs of seed, fertilizer and chemicals for cowpea production from agrodealers representing a *vertical linkage* in the cowpea value chain. The agrodealer system of businesses is limited with respect to the size and number of businesses in Niger due to low usage levels of inputs. The market for seeds is a mix of traditional practices and modern scientific methods. For example, about half of the households in Niger report carrying over stocks of cowpea seed from one year to the next (WFP 2015). Farmers receive higher yields from the use of improved seeds, including new varieties requiring few additional inputs and resistant to drought or flooding (SNV 2014).

Both Burkina Faso and Niger have domestic seed-reproduction industries, although the quantity of cowpea seed produced each year is not known. Privately owned seed companies obtain foundation seed from Niger's

INRAN (the National Agricultural Research Service) or ICRISAT (CGIAR Center). In interviews with REGIS-AG, the working relationships between the seed companies, the national agricultural research services and the CGIAR center were reported by the seed dealers to be good. Seed dealers then contract with groups of specially trained farmers who produce (multiply) cowpea seed under controlled conditions. The seed dealers or the multipliers then sell to smallholder farmers throughout the country. One constraining factor is that governments in West Africa tightly control the free movement of nationally produced improved seeds to keep them in the country. In 2009, Burkina Faso refused to approve a Burkinabé multiplier's crop of rice seed because he intended to export some to Ghana (USAID ATP/E-ATP 2010a).

AGRA (Alliance for a Green Revolution in Africa) supports independent seed companies by using the foundation seed to produce certified seed with farmers on a contract basis. The certified seed is purchased from the farmers following harvest and then cleaned and stored by the seed company until just before the planting season. In order to preserve the quality of the cowpea seed, which is extremely susceptible to damage from bruchids (weevils), the seed dealers reported storing the cowpea in PICS bags, another vertical linkage in the cowpea value chain. As planting season approaches the seed is packaged into smaller packages and sold to the farmers in time for planting. NGOs and the government are also important purchasers of seed from the seed companies and provide a supporting market for the immediate and short term. However, long-term sustainability of the seed industry does depend upon farmers adopting the practice of buying improved seed each planting season and not relying on government and NGO programs.

The process of seed production in Burkina Faso and Niger has many important elements. An important vertical linkage is the contract between the seed company and the farmer producing the certified seed. Interesting aspects of these contracts provide insight concerning value chain governance. These contracts typically specify the number of kilograms that the farmer is expected to deliver to the seed company, which means that the farmer, the most vulnerable value chain actor with the least access to credit and risk-reducing mechanisms, takes on all of the production risk associated with the contract. In May of 2015, the seed companies reported offering a price of 500 FCFA per kg. of seed supplied by the farmers. Another important component of the contract was the stipulation of agronomic inputs (types of fertilizer) that the farmers must use during production. To adapt to the smallholder structure of cowpea production in both countries, the seed dealers identified the importance of packing seed in small packages. Farmers looking to purchase seed (often for the first time) may not be willing to purchase a large quantity of a new seed or simply may not have the cash. Thus, the seed companies were packaging seed in 1-kilogram packages.

As for fertilizers and plant protection materials, most of the materials sold through commercial markets in Burkina Faso and Niger are imported, typically from outside the region. Within ECOWAS, Côte d'Ivoire, Ghana and Nigeria have small but growing fertilizer companies using raw materials (NPK) off the world market.

Despite efforts from AGRA-funded projects in Burkina Faso and Niger, the overall retail network in the two countries is still not well developed. Most wholesalers and retailers are concentrated in urban centers, forcing farmers to travel long distances to purchase inputs. The dealer network development is often constrained by the limited skill of potential dealers, limited availability of affordable credit facilities for all market participants,

and the poor capitalization of potential retailers and the small-scale and dispersed farmer-clients in rural areas. Furthermore, the government tender system (particularly in fertilizer and in Niger), which creates opportunity for bulk importation, accounts for a large share of the total fertilizer market. With such a large market share, tendering introduces an element of uncertainty regarding the foreign exchange risk associated with fertilizer inventory resulting from making an investment in fertilizer importation only to find out that the enterprise has failed to win the tender. Such an occurrence would force importers to carry unnecessary fertilizer stocks. As a result, most importers do not place their order until the tender results are issued.

Furthermore, tenders have often been awarded at the time when international prices of fertilizers are high and supply usually come in later than when farmers need the product the most. Finally, the system tends to create opportunities for rent seeking and corruption, which in the end affect prices. It needs to be rendered more effective or simply eliminated, and the private enterprises should intensify their effort in marketing their products. In particular, input traders need to reach out to farmers through network development and promotional strategies involving product image with trademarks and logos.

Imports of fertilizers and plant protection materials are regulated in Burkina Faso and Niger, but only few dealers have the required license to operate legally. The small number of licensed dealers with enough financial capacity to play a role in the national market dominated by government tenders often gain unjustified economic rents due to the lack of real competition in the tender system (DFID 2015). Enforcement of national regulations has been limited.

Furthermore, at the regional level, in an effort in to build an integrated regional market for seeds, fertilizers and pesticides, West African governments have been working through ECOWAS and UEMOA for several years to develop harmonized trade rules and quality control procedures designed to increase farmer choice, bring prices down, improve buyer confidence, and otherwise make input trade easier, faster, and cheaper (Dimithe, 2014; Keyser *et al.*, 2015). Specific Regulations have been enacted⁷ since 2008. They are directly, immediately and simultaneously applicable in all Member States, and they are binding on all and in all its elements.

However, these Regulations have not been enforced and most countries (including Burkina Faso and Niger) do not currently have the physical capacity or institutional structures needed to implement the agreed trade rules which will take considerable time and investment to develop (Keyser *et al.*, 2015). As a result, non-registered or non-certified products are commonly found in local markets in both countries. Plant protection products coming from China or Nigeria present human and animal health risks for producers and consumers because regulations are not enforced. In village markets, inputs are often removed from the formal packaging and sold to producers in small piles or scoops, a practice which encourages more widespread use but defeats the purpose of the detailed usage and safety instructions on the original packaging.

Farmers often have limited access to inputs either because they lack the necessary cash or because the inputs are not readily available in their markets at the appropriate time. From the perspective of value chain

⁷ Regulation C/REG.4/05/2008 that harmonizes rules governing variety release, seed certification and quality control in West Africa.

Regulation C/REG.3/05/2008 on the harmonization of the rules governing pesticides registration in the ECOWAS region.

Regulation C/REG.13/12/12 relating to fertilizer quality control in the ECOWAS Region.

governance, farmers may find themselves in a position where the balance of market power is not in their favor. Farmers are small in size, large in number and often need to conduct business in geographically remote areas. Thus, input suppliers and traders often have greater negotiating power than the farmers.

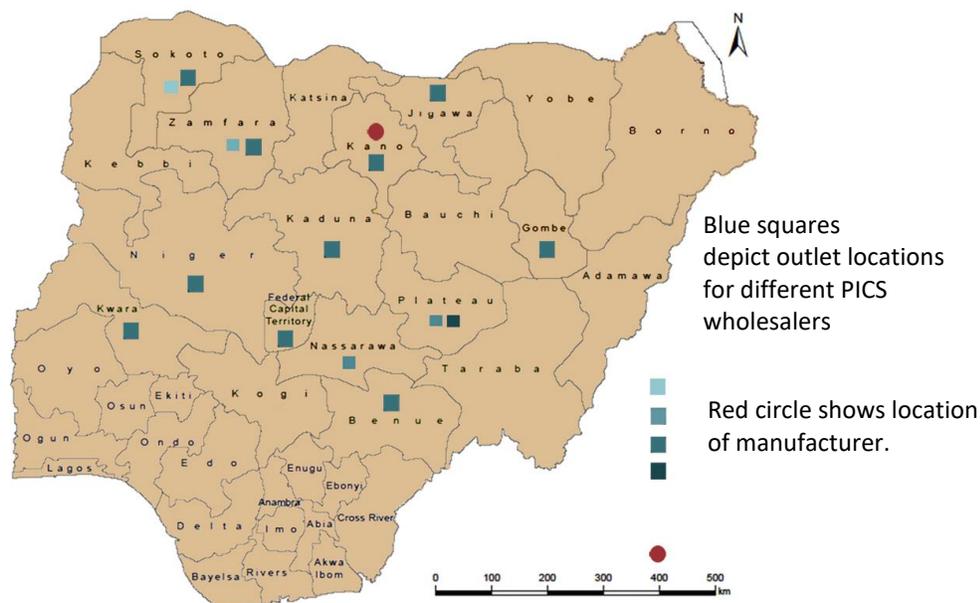
REGIS-AG addresses these issues of size and reach to farmers through organization of cowpea days where input suppliers and producer groups come together and exchange on what the requirements are from the producers, what products are available through the input suppliers, and organize purchases at the group level which is beneficial for both the supplier and the producer. The project also devotes efforts in working with the government to strengthen the national quality control systems (including effective enforcement) to address the challenge of poor quality products that can be found in the market in both countries.

Storage

The importance of improving cowpea storage as a strategy for achieving greater efficiency of the value chain cannot be underestimated. Recent progress is encouraging, but greater adoption of modern storage techniques would improve income for farmers and result in higher-quality products for consumers. The function of storage in cowpea marketing has changed over the past 5-7 years in Burkina Faso and Niger, especially from the perspective of the farmers. Cowpea is very susceptible to damage from weevils (bruchids) during storage. The larvae of the bugs are on the grains as they come from the field. During storage, the bugs quickly hatch and eat holes in the cowpeas. A bag of cowpeas can be completely destroyed by weevils in the course of just a couple of months. Historically, farmers sold their cowpea right after harvest as they had no way to protect their product from weevil damage. But in doing so, farmers were unable to take advantage of the annual price increase over the course of the marketing year.

The traditional practice was that traders would fulfill the storage function, making extensive use of insecticide to avoid insect damage while storing cowpea, but research revealed that hermetic (air tight) containers are effective for cowpea storage. In Senegal, farmers adopted the use of metal drums (that were obtained from the shipping industry) to store cowpea with a reported 80% of farmers using this effective storage and taking advantage of higher prices later in the marketing year (USAID Bean/Cowpea CRSP 1999). Triple-layer plastic bags were proven to be an effective storage method for farmers in other regions of West Africa without access to metal drums. The PICS (Purdue Improved Crop Storage) project, which started in 2007, has played an important role in changing cowpea storage, especially for producers. The PICS initiative involved village-level demonstrations to show farmers how to effectively use the triple-bag technology, broadcasting radio spots and other communications to spread the word, and working with plastic bag manufacturers and distributors to show them the strong sales possibilities.

Figure 7: Location of Manufacturer and Wholesalers of PICS Bags in Nigeria



Source: Purdue University. File is called “PICS-Nigeria-Flowchart” in .pdf

During the REGIS-AG cowpea stakeholder meetings, producers and processors proved very familiar with PICS bags and were quick to claim that they worked very well for cowpea storage. Two commonly voiced concerns about PICS bags were that: 1) they cost too much, and; 2) they are not always available. PICS bags, at roughly 1100 or 1200 FCFA per 100-kg bag, require a significant investment for cash-poor small and medium-size farmers in rural areas with poor access to credit. Despite the perceived high cost, some farmers have adopted PICS bags and are pleased with the results. Farmers reported that previously they sold their cowpea right after harvest, but with greater storage capability through the use of PICS bags, are now waiting and selling their cowpea in May or June when the price is often double the price immediately after harvest.

Adoption of the new technology represented by hermetic PICS bags faces different challenges at each level of the value chain. PICS bags could be a salient vector for improving *vertical linkages* throughout the cowpea value chain, as the economic operators learn to communicate amongst each other regarding the number of bags needed in each local market and when (harvest time varies slightly throughout the two REGIS-AG countries). REGIS-AG and other cowpea sector development efforts can substantially improve the *inter-firm relationships* by providing public-private dialogue opportunities to promote adoption of PICS bags. The PICS bags in use in Niger and Burkina Faso are manufactured in Nigeria, where a network of wholesalers and distributors has arisen (Figure 7). The PICS bags distributors play important roles in the value chain selling PICS bag for effective cowpea storage to farmers, traders, processors and government and NGO programs. There is undoubtedly also a secondary market developing for the transport, sale and re-use of used PICS bags

While many farmers have adopted PICS bags, it appears that traders in Niger are not generally using PICS bags. In meetings with REGIS-AG in mid-2015, they reported that it is cheaper for them to use traditional storage bags with insecticide. Seed dealers in Burkina Faso and Niger reporting using PICS bags, but both the

seed dealers and private sector operators dealing and distributing PICS bags throughout the ECOWAS region told REGIS-AG that the manufacturer is not yet producing enough bags to meet demand. REGIS-AG will focus on promoting the greater adoption and availability of PICS bags for farmers in Niger and Burkina Faso. One opportunity for project development is to develop and promote a scheme whereby PICS distributors in Nigeria supplies bags on credit to farmers and wholesalers in Niger in return for a promise to bring them back after harvest filled with cowpeas.

The PICS project showed that women often have a significant role when it comes to decisions related to the storage of cowpea, and when to market the stored product (Purdue 2014). Women were quick to embrace the PICS technology. In West Africa, women are considered to be better at saving money than men and thus readier to see the advantages from adopting PICS bags and storing cowpeas until a more-favorable moment to bring them to market.

One possible angle for encouraging greater use of the PICS bags is the human health and environmental concern related to the widespread use of storage chemicals for cowpeas to prevent weevil infestation. Cowpea traders could follow the lead of onion traders, particularly in Burkina Faso and Mali, who over the past 5 years have switched *en masse* from old 100kg jute coffee bags in favor of smaller, product-adapted polyethylene bags for onions and shallots.

To encourage producers to adopt the PICS bag technology, Cowpea Days and specific trainings on the benefits and use of PICS bags should be organized. During the Cowpea Day events, input suppliers who carry PICS bags should be available to present on the technology and take orders from producers. Further, under Component 4, producer groups who meet the criteria to participate in the warrantage scheme should be supported in the preparation of loan requests to banks in order to store their cowpea utilizing the technology to gain access to the higher prices after the supply of cowpea at the end of harvest have diminished and the market demand for cowpea has risen.

PICS Bags: Frequently Asked Questions

- **How durable are PICS bags? How many seasons do they last?** – If farmers are careful they can use the PICS bags for several storage seasons. Data from Niger indicates that on average PICS bags are used for three seasons there. One key management practice is to keep the bags out of direct sunlight because polypropylene is degraded by ultraviolet (UV) light. PICS specifications do not require UV stabilizers, but some manufacturers use those additives to enhance durability.
- **Can rats chew through them?** – While it is physically possible for rodents to chew through PICS bags, Purdue reports that there is little trouble with rodent damage. For example, among the approximately 150,000 PICS bags of cowpeas in storage demonstrations in over 30,000 villages in West and Central Africa in the PICS I project, only a handful showed rodent damage. Those 150,000 bags were stored in grain banks, farm storage rooms and other common grain storage areas with only simple rodent damage prevention (i.e. stack on a pallet, don't stack against a wall, keep a cat). One hypothesis is that because of the triple layer plastic bag rodents are less likely to smell the grain and be attracted.
- **Can they be sealed if only partially full?** – Yes, PICS bags can be sealed with any amount of grain. It is a simple matter of tying off the bag at the grain level.
- **Can smaller sizes be made?** – Yes, smaller sizes can be made. Fifty kg PICS bags are regularly made for seed, for food security programs (e.g. World Food Program) and in countries that have prohibited 100 kg bags for worker safety reasons (i.e. Malawi). Twenty Five, Ten or Five kg bags could be made. The constraint is cost. The cost per kilogram stored drops dramatically with larger bags. For example, the cost of a 50 kg PICS bag is only about 10% less than that of a 100 kg bag. Or to state the relationship from another perspective, going from a 50 kg bag to a 100 kg bag doubles storage capacity for only about 10% more total cost per bag.
- **Do they rip easily, for example if dragged on the ground or stored on the ground instead of a pallet?** – Because of the exterior woven polypropylene sack, PICS bags are quite robust. Obviously PICS bags can rip if hooked on a nail or another sharp object, but they are often dragged over smooth surfaces with no problem. Stacking PICS bags on the ground is more a question of grain quality, than bag robustness. Stacking PICS bags temporarily on smooth ground is not a major problem. The polyethylene liners prevent grain from absorbing moisture from the ground, so it would be much better than stacking ordinary woven bags of grain on the ground. Stacking PICS bags on sharp rocks or other objects risks punctures. With long term on ground storage, rodents or insects are more likely to burrow up through a PICS bag if it is stacked on the ground rather than on a pallet or rack.
- **If yields are 300 kg/ha, and PICS bags hold 100 kg, then three or four farmers could share one. That doesn't seem all that difficult to manage. What's the obstacle, if the warehouse manager can write their names on the bags?** – Yes, this is possible if the farmers trust each other. They or the warehouse manager could write the name and amount each stored on the bag. However most farmers (worldwide) don't like to pool grain. They are convinced that their neighbors will put in poor quality grain and they put in good quality. In many cases the farmers would prefer to each buy a PICS bag, put their grain in the bag and tie it off at the grain line. Bags from each farmer can be marketed with the farmer's name and he or she can reclaim them or sell them.

Marketing

The marketing segment of the cowpea value chain in Burkina Faso and Niger encompasses many steps in a process to transport the product from the farm to another location for storage, processing, wholesale or retail sale. The End Market Assessment further on in this report touches on many aspects of marketing beyond those covered in this section of the Value Chain Assessment, including issues related to the free movement of the basic staple food (cowpea) and processed foods (cowpea flour and other products) within the UEMOA and ECOWAS zones.

Cowpea farmers in Burkina Faso and Niger keep some cowpea for family consumption and also trade some cowpea in informal markets directly to consumers. The bulk of cowpea production is sold by farmers to traders who come to weekly village markets to buy cowpea directly from farmers. As for the 40% of the traders interviewed reported they always buy cowpea directly from farmers. Nearly half (46.7%) responded they often do so but 13.3% noted they never buy directly from producers (Purdue 2014).

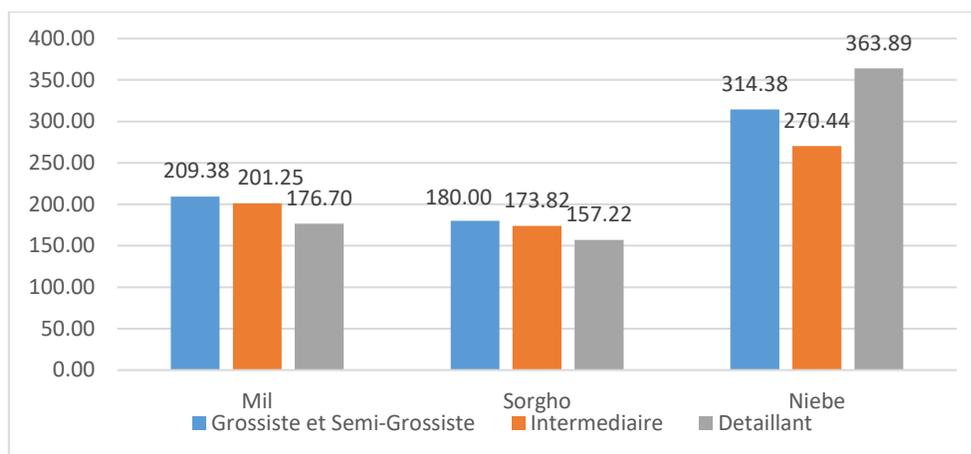
Cowpea is traded in traditional open markets ranging from the weekly village markets in the rural areas, to open air or covered wholesale markets where large quantities of grain are aggregated in larger towns and villages, and retail markets in the urban areas. Informal sales and purchases along the roadside are also an integral part of the system. Vulnerable smallholder farmers, the target population for REGIS-AG interventions, often have limited product to sell to buyers and cannot establish more formal relationships and sales with buyers and require support in aggregating their product with other similar producer groups to gain access to greater buying power.

Throughout West Africa, the standard unit of measure for cowpeas amongst the traders is 100-kilogram bags. In wholesale markets, re-bagging of cowpeas is common. While inefficient in terms of requiring additional time and labor, with low labor costs, it is worth it for traders to inspect the quality of the cowpea and also apply insecticide in order to preserve the value of their product by protecting it from weevils (bruchids). Traders typically carry mixed loads, including some cereals (particularly millet) and other basic staple foods (which have negative implications on how cross border movement of cowpea is tracked). In a 2014 Purdue study in collaboration with CRS and AGRA, 59% of the traders surveyed market cowpea. In this way, cowpea has competitors for “shelf space” in the traders’ transport vehicles, whether truck, donkey cart, or walking load. The higher value of cowpea per kilogram relative to its “competitors” is shown in Figure 8. Traders also often will store cowpea throughout the year, to take advantage of differences in consumer prices over time. It is customary for both buyers and sellers to visually inspect the cowpea to verify there are no stones and the cowpea is not damaged with weevil holes. Price is determined by negotiation on the spot between buyer and seller. The markets have their own rules of operation that create relatively efficient trading environments, although there is a noted lack of paper money and coins in circulation in many areas.

Agricultural inputs are traded as well, typically moving in the opposite direction of the bags of cowpea, urban to rural. Imported inputs move from the coastal ports to the capital cities, often under UEMOA/ECOWAS in-bond transit arrangements, for wholesale distribution to the sub-national capitals of Burkina Faso and Niger’s *régions* for sale there and onward transport to smaller demand centers in the towns and villages.

The recent Purdue-CRS-AGRA study for IITA provides insights on the relative positions of the different levels of traders and handlers in the marketing process (Figure 4). Their findings suggest a gross margin of 2% for the wholesalers of cowpea, 4% for the intermediaries, and 10% for the retail vendors (Purdue 2014).

Figure 8: Average Purchase Price per kg from 2013-2014 Season in Niger



Source: Purdue with CRS and AGRA (2014). FCFA per kilogram.

Farmers may face an imbalance of market power in comparison to the traders since during any given weekly market, farmers are relatively small in size, large in number and geographically isolated. Thus, while the traders in that instance may have an advantage, overall the *Value Chain Governance* is one of competition amongst the traders. The traders are actively competing with each other and that activity drives the marketing margins down. Traders are thus operating on low marketing margins.

Retail traders buy cowpea from wholesale traders using a “just in time” management practice, thereby procuring cowpea as needed every day or every week. Some retail traders have small storage areas and purchase cowpea on a weekly or bi-weekly basis, while other traders buy from wholesalers every day. Women typically make up the bulk of consumers purchasing cowpea from the retail traders to use in dishes prepared at home. In what seems like an “extra link” in the marketing chain, there exist many traders who buy from retailers in central markets and transport even just a few sacks of cowpea to sell to neighborhood consumers in the *quartiers* of larger cities. Most of the marketing of the early-season green pods, used in sauces or for animal feed, is done by women (Purdue 2012).

The 2013 DANIDA study singled out cowpea marketing as the most-promising link in the value chain. Cowpea production rated only 6 out of 10 for both employment effects and profitability, but DANIDA gave the sector a strong rating of 9 for expanding market potential.

As is common in many economic sectors in Burkina Faso and Niger, one inefficient aspect of the marketing system for cowpea is the existence of intermediaries between the wholesalers and the purchasers, someone who will bring them together in return for a commission. Participants in the June-July 2015 REGIS-AG workshops on the market possibilities in northern Nigeria raised this issue many times as raising costs in terms of both time and money.

The seasonal aspect of cowpea marketing has limited the system’s effectiveness in spreading out consumption of the product throughout the full calendar year. Cowpea is traded during the “short season” of June-September, but at much-higher prices, meaning the very-poor eat better during the main cowpea marketing season of October-May. Consumers purchase cowpea in very small quantities, often just enough for the family meal that day.

Retailers provide the *vertical link* to the consumers along with the important functions of cleaning the cowpeas to remove stones, sticks, and pieces of hulls/dried pods, and sorting to remove those cowpea beans that are damaged with weevil holes. This cleaning/sorting function was most prevalent in markets catering to higher-income consumers. Ideally, the cleaning of the cowpeas would be done as close to the point of production as possible, for example by women at the edge of the fields, in order to capture a greater share of the value added in the rural areas and to avoid the costs and effort of transporting rocks and sticks.⁸ A system of *grading* for cowpeas could provide a higher-value cowpea product meeting defined standards for cleanliness and appearance that would fetch a premium.

Processing

In both Burkina Faso and Niger, the processing of cowpea into value added food products is controlled by women and can be categorized into two areas: women operating as individual entrepreneurs selling street food from cowpea, and women's groups processing cowpea into value added products packaged for sale to follow-on women entrepreneurs and individual consumers.

While there is production data on cowpea and staples grains, data on the consumption of small – scale processed grains and legumes (milled and cooked by street vendors) is not collected in Burkina Faso and Niger. REGIS-AG is planning to conduct a food preference survey that will show consumption trends for processed cowpea (fritters are the most widespread).

Raw cowpea or dried beans are eaten on the farm, and sold into the market for consumption in villages, towns, and the large end-markets. Cowpeas can be cooked whole with some oil, onions, and spices – or cooked mixed with rice and a sauce added for flavoring. This is typical beans and rice meal eaten in the morning or noon time.

In the home, cowpeas typically undergo little processing and are boiled and mixed

with other cereals. Cowpea is very versatile when it is ground up into cowpea flour of differing textures. The beans are ground, whether by mortar and pestle or by a grinder (*moulin* or *pulvérisateur*). The crushed beans are then dried on a tarp (SNV 2013). Evidently, the insides of the beans will not dry properly unless they are ground up. Grinding allows the beans to aerate and not spoil as quickly.

At the industrial level, at least one female-owned company in Niamey uses modern industrial milling methods, producing 1-kilogram bags of *farine de niébé* in clear plastic with the company name and telephone number (DFID 2015). In Burkina Faso, SODEPAL incorporates cowpea into biscuit for schools and supermarkets. Both businesses have expressed interest in collaborating with development partners.

Cowpea Value Chain Gross Margins

RECA in 2012 noted a gross margin of 30% for cowpea producers in Dori (Burkina Faso) and 60% in Pouytenga after 6 months of storage (RECA Filière Niébé Note 6, April 2012). Investing in storage is estimated to have a Return on Investment (ROI) of 14% in Dori and 28% in Pouytenga. The 2014 Purdue-CRS-AGRA study estimated gross margins for intermediaries of 4%, wholesalers of 2% and retailers at 10% for cowpea, while noting they “are very difficult to determine” as respondents are only focused on cost items representing obstacles to profitability not only a picture of the full horizon of costs.

⁸ The need to clean the grain earlier in the marketing process was one of the lessons learned under the transport components of the USAID regional project ATP/E-ATP and the USAID bilateral project Mali-IICEM.

Women also play a primary role in selling products to consumers in the REGIS-AG countries. Female entrepreneurs purchase cowpea on a daily basis, either from a central market or in their neighborhood, and pound the cowpea into flour to make food that is sold on the street. Two common dishes are cowpea-and-rice and cowpea *beignets* (or donuts), with different names depending upon the region and the local language (*kossai*, *kakena*, *akara*).⁹ By processing the cowpea into consumer-ready formats, these women provide *form utility*, creating an important source of accessible, low-cost nutrition for the local population.

Each woman's business is small in size, but as a group they are an important part of the economy and process a significant amount of cowpea, each using an average of 2.5 kilograms of cowpea per day (Otoo 2011). As part of the informal sector of the economy, they are not recognized as a business and not included in government statistics. It was reported that there would be about 2 women per village producing and selling *kossai/kekena* every day. Some interesting research showed that there were over 1300 women in Niamey selling *kossai/kekena* in 2005, but over 1600 by 2009 (Ibro 2005; Otoo 2011). One can imagine that number has grown since.

Reinforcing the market power of these women selling processed cowpea products could yield significant positive effects in terms of reducing household vulnerability and food insecurity. The women's groups involved in value-added processing of cowpea interacting with REGIS-AG are asking for assistance and training to gain new skills and grow their businesses.¹⁰ Their ultimate goal would be to expand their sales in neighborhood-level markets and begin to sell to supermarkets and higher-end markets.

Most often, the women purchase the cowpea from a trader in their *quartier* close to their home. The fact that her home is also typically her place of business creates a vertical link in the cowpea value chain but can place strains on intra-household relations, necessarily involving the household's children in supporting the economic activity of their mother. Most of the women have no transportation and must pay more for the cowpea, palm oil, firewood and spices used in the food production process than if she could travel to the central market. Generally, these women operate as individual entrepreneurs with no horizontal linkages evident. This work is labor-intensive and difficult.

Getting the cowpea ground into a paste, from which the different types of fritters are made, is especially difficult for the women, for reasons related to value chain governance. The women depend upon the services of an entrepreneur with a grinding machine, which can be a severe constraint. The women are small in size, many in number, and need to get wet cowpea beans (a perishable product in the hot conditions of West Africa) ground. The owner of the grinding machine often holds monopsony power over the women and, all things being equal, would often prefer to not serve the women at all and reserve the machine for grinding millet and sorghum as these cereals go through the grinder dry and do not require taking the machine apart to clean after grinding. The 2013 DANIDA study suggested pairing cowpea milling operations with those for millet and sorghum, with concurrent production and similar techniques, but apparently there is resistance to that idea.

⁹ In Niger the deep fried beignets are known as *kossai* in the Hausa language and *kekena* in the Djerma language.

¹⁰ The needs emerging from the stakeholder dialogues included the technical aspects of production, achieving higher standards of hygiene and quality assurance for their products, organizational management, business planning, marketing planning, and staff development. Encouragingly, these women's groups see the benefit of engaging in activities to become more efficient and more competitive.

Women's groups in the regions of Maradi, Zinder, and Tillaberi are processing cowpea into value added products, packaging them and selling to consumers. The products include: cowpea flour for kossai/kekena, cowpea biscuits, cakes made from cowpea, and flour for dan waké. The women have formed horizontal linkages by organizing groups to share the work of production and marketing and take advantage of larger-scale purchases of inputs. Some of the women's groups are now packaging and labeling their products and securing space in central markets for their products to reach a broader customer base. In terms of improving their market power and value chain governance, if these women's groups were able to purchase larger quantities of inputs at any one time, they would have greater bargaining power in the market and be able to get their inputs at a lower price.

From the perspective of *supporting markets*, these women's groups have benefited from the services of INRAN and the Africa Vert program. During the stakeholder meetings and interviews, the women identified the following constraints and opportunities: lack of access to high-quality machinery for processing; lack of knowledge of how to improve quality assurance and hygiene; and how to penetrate markets. Above all, they demonstrated a desire to share ideas and learn from other women's groups in the country and throughout the West African region.

REGIS-AG will support these women processors through a combination of activities aimed at improving the quality of their product, packaging, and connections with end markets and buyers such as supermarkets and urban markets. Consumer preference analyses are essential for establishing the demand for processed cowpea products and this will be gauged through a combination of tasting events at fairs and project activities, market preference surveys, and observations of product sales at key locations in Burkina Faso and Niger. These successful products and respective processors will receive support from REGIS-AG on food safety, product quality and consistency (are buyers purchasing the same product each time), packaging and marketing at events such as market fairs and matchmaking between processors and buyers.

3. End Market Assessment for Cowpeas

National End Markets in REGIS-AG Countries

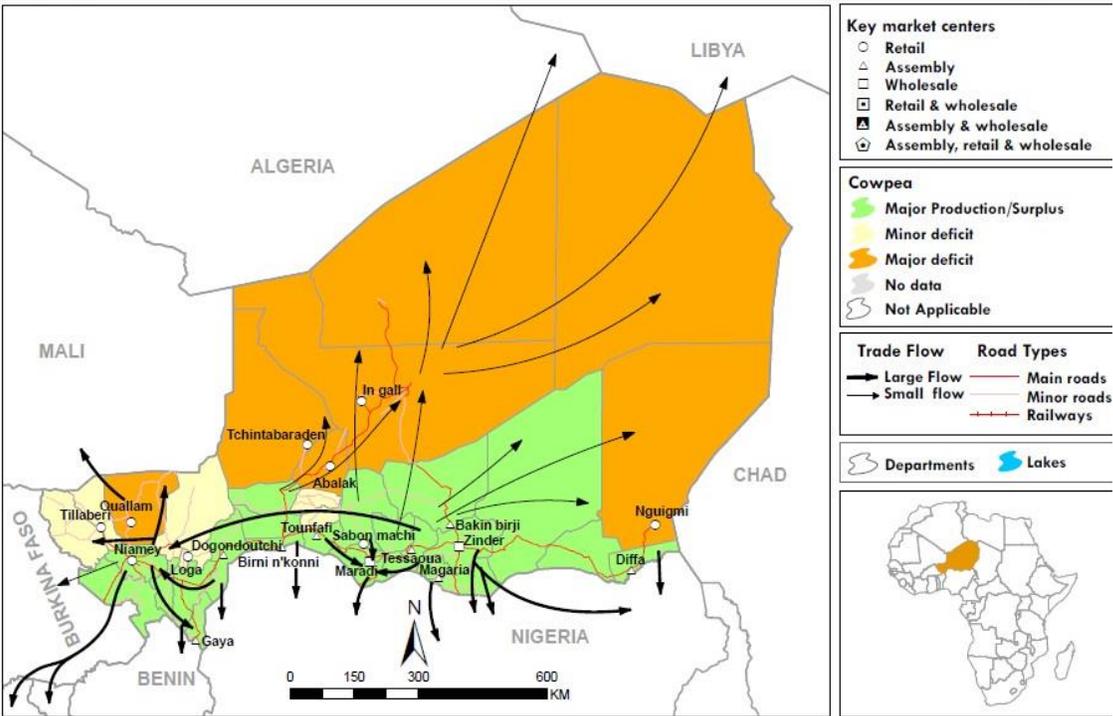
Cowpea is an extremely important crop to consumers in Burkina Faso and Niger as it can be stored for long periods, the sale quantity can be easily adjusted, and the legume offers an impressive nutritional package per kilogram. Strong demand by all segments of the population makes cowpea attractive for value-added product diversification. Millet, sorghum and cowpea comprise the principal food-security base of the population in Niger (Purdue-CRS-AGRA study 2014).

In the two REGIS-AG countries, cowpea is an everyday food for most of the population. While Niger more than Burkina Faso shows a regional concentration of cowpea production, in both countries cowpea is widely consumed throughout the country. One notable trend is the emergence of value-added dishes appealing to higher-income consumers, a phenomenon that will require upgrading the skill and equipment of the processors and food preparers.

Easily transportable in different quantities, cowpea moves in all directions both within Niger and outwards towards export markets (Figure 9). Along with uranium, livestock and onions, cowpea is a leading export item for Niger, with approximately 70% of production exported, typically via informal traders (Niger’s Ministry of Agriculture 2015). Aside from Nigeria, the world’s largest importer, Ghana and Côte d’Ivoire are important destination countries for Nigerien and Burkinabé cowpeas.

To date, intra-regional trade has been based entirely on whole beans in 100-kg bags, but with the coming growth in cowpea processing at an industrial level in West Africa, trade in value-added cowpea products will increase along with the accompanying trade disputes related to TBT and SPS issues such as packaging, quality, standards and metrology with other ECOWAS and UEMOA partner countries undoubtedly to come in the next few years.¹¹ Potential exporters can prepare in advance for such challenges as part of their efforts at market penetration.

Figure 9: Domestic and Export Market Flow Map for Cowpea in Niger



Source: USAID/FEWSNET.
<http://www.fews.net/west-africa/niger/production-and-trade-flow-maps/january-2009>

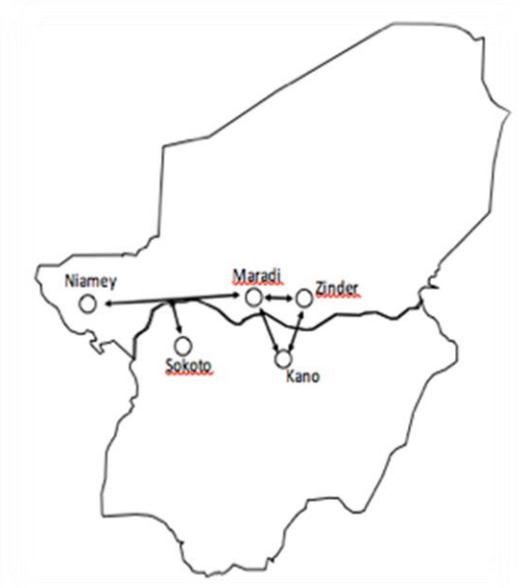
Marketing for export requires moving through a number of steps through collecting markets, gathering markets, consumption markets, and cross-border markets. The REGIS-AG list of collection and grouping markets in Niger includes Maradi, Zinder, Bada Guichiri, Tounfafi, Chadoua, Konni, Saban Machi, Chaké,

¹¹ The DFID 2015 Political Economy Analysis of trade in staple foods between Niger and northern Nigeria noted the aggressive campaigns undertaken by Nigeria’s product quality and standards body NAFDAC in recent years, predicting that value added products such as cassava flour produced by one industrial growing-milling operation in Niger would face increasing scrutiny.

Magaria, Matameye, Gouré, Mainé Soroa, Azaoua, Tessaoua, Alléyara, Kollo, Ayourou, Akko, Kargi Bangou, and Koré Mairowa.

Transit markets are key as cowpeas pass through on the way from collection and regrouping markets to consumption markets. The actors include intermediaries, wholesalers and semi-wholesalers who sell to those exporting to Nigeria. Most of the cowpea transits through these markets. They are Dan Batta (on the Zinder-Kano route), Djibiya (border town between Maradi-Katsina), Illéla (Tahoua-Sokoto), Kamba (Dosso- Birni Kebbi), Damasak (Diffa-Maiduguri). These markets typically have 60-85 traders, and 60-75% of the cowpea traded there is estimated to come from Niger, with the rest from Nigeria.

Figure 10: Major Crossing Points between Niger and Nigeria



Source: DFID 2015.

Dawanau Market in Kano in northern Nigeria, the largest cowpea market in West Africa and indeed the world, is a destination for many of the cowpeas produced in Niger. Other important aggregation markets include Zinder and Maradi in Niger as well as markets in Sokoto and Maiduguri in northern Nigeria (Figure 10). With security concerns in northeast Nigeria, due to Boko Haram, some traders have avoided the Maiduguri market. However, several traders in Ibadan, Nigeria and Lagos, Nigeria reported that they had good business partners in that region and indeed were sourcing their cowpea from Maiduguri.

Some cowpea is traded informally throughout Niger in transactions outside of organized markets, such as farmers selling cowpea directly to friends or frequently to a family member come to visit from the city interested in purchasing cowpea at lower prices and avoiding traders' mark-ups.

At the macro level, both Niger and Burkina Faso have large and growing populations that demand cowpea. Both countries are experiencing population migration from rural to urban areas and with them they bring their traditional tastes and dishes that require cowpea. These dishes are consumed by people from all areas of the country (rural and urban) and all socio-economic groups.

In Niger and Burkina Faso, there is virtually no sale of cowpea products in supermarkets, although REGIS-AG has facilitated test orders for supermarkets in Niamey and Maradi through trade fairs. Women's groups sell packaged foods from their places of business, selling to friends, family, and others. Women in Zinder sell their products on a consignment basis from stalls in the central market. During the course of field work, the REGIS-AG team noted that women in the large market city of Fada N'Gourma in Burkina-Faso had large stocks of a variety of packaged products made from cowpea amid locally grown grains that they were selling. In the future, supermarkets could represent a real potential outlet for these women's groups' consumer-ready products, as the customers are likely to be better-educated and interested in helping women's groups, making the labeling attraction critical in the marketing of these highest-value local products.

The Regional Enabling Environment for Cowpea

The ECOWAS and UEMOA regulations on the free movement of basic staple foods represent a well-established enabling environment for expansion of trade in cowpea and cowpea products. As one of the ECOWAS products, cowpea may circulate freely throughout the 15 countries of ECOWAS without paying Customs duties, other import-related fees, or Value-Added Tax (VAT).

The ECOWAS and UEMOA rules are nearly identical. There remain slight differences between the ECOWAS and UEMOA regulations in the application of Value Added Tax (VAT) related to the cross-border movement of staple foods (USAID ATP/E-ATP 2010a). The UEMOA VAT rate is 18%, although Niger has a derogation permitting a 19% rate. The full menu of primary and most relevant secondary legislation for both ECOWAS and UEMOA can be found in Table 2:

Table 2: Applicable Regional Legislation for the Free Movement of Cowpea in West Africa

ECOWAS

- Revised ECOWAS Treaty (1993), Articles 3.2d, 35 et 36.2
- *Décision A/DEC.6/7/92 relative à la mise en application d'un schéma unique de libéralisation des échanges de la CEDEAO*
- Decision C/DEC.8/11/79 of the Council of Ministers on the liberalization of trade in basic agricultural products (*produits du cru*)
- Convention A/P4/5/82 relating to Inter-State Road transit of goods (introduction of *Carnet TRIE*)
- Single Customs Declaration (SCD) (ECOWAS C/REG.4/8/99)
- 2003 Protocol on the Definition of Originating Products (A/PI/1/03)
- 2009 Directive on the harmonization of VAT, not entirely in application.

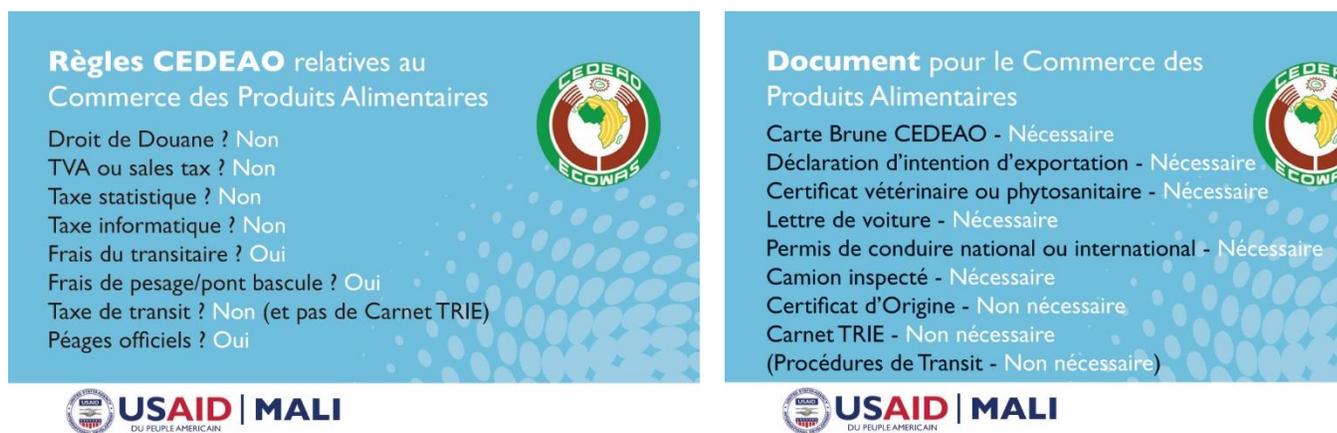
UEMOA

- *Traité UEMOA révisé (2003): Articles 4, 77 et 78*
- *Directive TVA révisée (02/2009/CM/UEMOA)*
- *Décision n°7/2001/CM*
- *Décision du 1 juillet 1996 libéralisant le marché commun pour les produits du cru*

Source: Mali-IICEM (2013). NB: UEMOA regulations are only valid in the French language.

For many years, USAID regional and bilateral programs have participated in the initiative to ensure the free circulation of basic staple foods such as cowpea, under the ECOWAS Trade Liberalization Scheme (ETLS). A 2008 West Africa Trade Hub Gap Analysis laid out the body of rules and procedures for intra-regional trade in goods. A 2010 ATP/E-ATP report spelled out the relevant ECOWAS and UEMOA legislation related specifically to intra-regional trade in basic staple foods and addressed policy and implementation issues (ATP/E-ATP 2010a). ATP/E-ATP and the IICEM-Mali project produced ECOWAS Trader-Transporter Cards as part of its outreach to involve stakeholders in its advocacy efforts, disseminating roughly ten thousand of these cards in English and French throughout the basic staple food value chains in the countries covered by those projects (Figure 11).¹²

Figure 11: ECOWAS Trader-Transporter Card for Staple Foods



Source: IICEM-Mali project.

These cards refer only to basic staple foods (*produits du cru*). For processed food products, such as flours made from cowpea or mixed with cassava or maize, the ETLS requires that producers register their products and provide information about their production methods, costs, and industrial capacity to the National ETLS Approval Committees, which meet once a year or more often as part of the ECOWAS ETLS Approval Committees. If the determination is made that the non-staple food product utilizes sufficient West African content in the value added process, then that product can travel duty-free and quota-free as under the Trader-Transporter Card above. Processed food products do not automatically move freely between the countries of ECOWAS.

Despite the well-established framework within which free trade should occur within West Africa, for cowpea as for most other products, many barriers to trade still exist, costing traders and transporters substantially in terms of both time and money. These daily headaches provide a great disincentive to engage in intra-regional trade.

¹² These plasticized cards, suitable for keeping with one's passport, were distributed to value chain stakeholders in Burkina Faso, Niger, and other ECOWAS Countries under the ATP/E-ATP and Mali-IICEM projects from 2011-2013. The main target audiences were national and regional policymakers, particularly the private sector representative associations at the national and regional levels. In 2015, the Market Access Division of CILSS chose to reproduce these cards with the logos of ECOWAS, UEMOA and CILSS all appearing together.

The region-wide 2013 Food Across Borders Conference was oriented around finding solutions to 5 main issues hampering intra-regional trade in basic staple foods such as cowpea. The following topics were the subject of working groups which devised solutions for national and regional stakeholders to take:

- 1) Road harassment
- 2) Non-equivalence of SPS certificate
- 3) Continued requirement for Certificate of Origin
- 4) Problematic implementation of VAT
- 5) Export restrictions.

In addition, a number of non-product specific fiscal, physical and technical barriers to increasing intra-ECOWAS trade were also identified, many if not all of them also applicable to cowpea:

- Corruption on the roadways
- Extra charge by Customs officials for “overtime”
- Difficulties in transferring funds across borders
- Burkina Faso’s “computerization tax” (1%)
- Ghana’s “processing fee” (0.25%)
- “Parking tax” imposed by local authorities in Bitou, Burkina Faso.

To address a glaring lack of available information about corruption on the roadways and statistics on the overall flows of basic staple foods between the countries of West Africa, for roughly the past 15 years USAID/WA has supported the collection and dissemination of two main streams of data related to the movement within the ECOWAS-UEMOA Customs Union. As a result, the 3 successive West Africa Trade Hubs, the staple foods-oriented ATP/E-ATP, and activities with the regional agriculture-environment-food security body CILSS, brought to light ample concrete evidence of unfair policies and practices on the roadways hampering the efficiency of intra-regional trade.

The series of data on road governance—added costs in terms of time and money due to delays and the need to pay bribes to uniformed officials at road checkpoints along key corridors for intra-regional staples food trade—was for many years made available to the public quarterly using data collected by the West Africa Trade Hub under the aegis of UEMOA’s *Observatoire de Pratiques Anormales* (OPA). That function is now the responsibility of CILSS working in combination with UEMOA.¹³ The series of data on shipments from key markets of livestock and cereals, formerly collected and published by USAID ATP/E-ATP, is also now the responsibility of CILSS, and those reports are readily available to the public.

While national and regional staple food representative associations for the 6 ATP/E-ATP value chains were reinforced or created between 2008 and 2013, there is no region-wide representative association for cowpea, although cowpea is included in the mandate of perhaps the most successful national cereals representative body, Burkina Faso’s *Comité Interprofessionnel pour les Céréales et le Niébé du Burkina* (CIC-B). In Niger, no representative grouping exists specifically for cowpea, meaning the value chain is represented by the umbrella *Chambre d’Agriculture* and for larger-scale operations the *Comité National du Patronat*.

¹³ There have been coordination difficulties between CILSS and UEMOA such that the road governance data, which is still being collected, has not been made available to the public in more than a year.

Consumption Aspects

Cowpeas are largely consumed in traditional dishes throughout the region prepared by consumers in their homes, by women entrepreneurs who sell the different preparations as street food, and served in restaurants and fast food outlets, especially in the urban areas of Nigeria. One of the real comparative and competitive advantages of cowpea is the wide variety of processed cowpea products possible). In addition to popular products such as spaghetti, couscous, Wassa-Wassa, cakes and biscuits, intermediate products are widely sold too. Individuals and small businesses regularly purchase the ingredients for home production, such as ordinary flour suitable for making donuts (*beignets*) and Dan Waké, and specially blended milled flours suitable for newborns, diabetics, and those with compromised immune systems. The following box shows nearly two-dozen processed food items made from cowpea.

Cowpea cannot be eaten raw and is best when dried and then soaked before cooking. From a nutrition standpoint, cowpea is rich in protein, vitamins and minerals. Estimates of per-capita demand can vary widely, anywhere from 1 kilogram to 13 kilograms per year, as examined in CIRAD 2010. There are 2 main methods for estimating per-capita demand: a) through a survey of a limited population; and b) interpolation of apparent consumption from aggregate national-level figures of production divided by the estimated population.

List of End-Products Made from Nigerian Cowpea

- | | |
|---------------------------|----------------------------------|
| - Alala | - Alkaki |
| - Beignets | - Biscuits de niébé |
| - Boulettes | - Confiture de niébé |
| - Couscous de niébé | - Dambu |
| - Dan watché (waké) | - Dunguri hari-hari |
| - Dunguri tayo ou jimhiri | - Fura ou donu |
| - Gabda (dubani) | - Galette |
| - Gurguzu | - Kossay ou Tchachena (friture) |
| - La semence certifiée | - Le bérroua ou wassa-wassa |
| - Le gâteau de niébé | - Le niébé grain de consommation |
| - Les farines enrichies | - Lubaye |
| - Mottol-baali | - Moin moin |
| - Niéné brisé | - Niébé fourrage |
| - Pâtes | - Pousses de niébé |
| - Purée de niébé | - Spaghetti de niébé |
| - Vitamil | - Watché de tchinkale |

Demand for greater quality and consistency are anticipated to increase. As consumers begin looking to restaurants, fast food outlets, and supermarkets for cowpea, there will almost certainly be demands for greater consistency and quality of the cowpeas on offer (consistent size grains, no insect damage, consistent variety, and no mixing of varieties). Smallholder farmers struggle mightily with ensuring a consistent quality. Therefore, an opportunity exists for REGIS-AG and other programs to encourage

farmers to cooperate in groups or associations to address these demands. Working in associations, farmers can agree to use a common seed for a common variety and work together to learn about use of appropriate inputs, as well as the benefits of cleaning rocks and sticks out of the shipment of cowpeas going to market.

The question of consumer demand preferences for cowpea has been the subject of several very useful studies in recent years, building on the USAID Bean/Cowpea CRSP research effort. There are no conclusive answers relating to precise characteristics most valued by consumers, as the research suggests that consumers hold strong opinions about personal tastes but not in uniform fashion. The main varieties available on the open markets in West Africa are white cowpeas with a black eye, but in some areas red or black speckled cowpeas are preferred. Key factors include grain damage, bruchid holes, the grain eye color, and the smoothness of the skin. Smooth skinned cowpea are best for foods which use whole cowpea. Rough textured cowpea are easier to dehull and hence are preferred for foods requiring milling.

Every study reviewed tells a slightly different story about quality characteristics desired by consumers. Research by Ibro *et al* a decade ago showed that consumers in Niger prefer cowpeas that are larger in size and have a shorter cooking time. The 2007 Purdue study on consumer preferences notes that in some markets in northern Ghana, consumers prefer small-seeded traditional cowpea grains, presumably because of the taste. The 2007 Purdue study looks at the impact in the Ghanaian, Malian and Nigerian markets of the grain size, texture, color, eye color, and bruchid-damaged grains on cowpea market prices. That report states that consumers everywhere are willing to pay a premium for white cowpeas with uniform black eyes, but another report by Kormawa *et al* says that in the Nigerian markets they studied, generally consumers prefer brown-colored cowpeas grain over white-colored grains.

The 2014 SNV study also makes a number of interesting observations about consumer preferences in the region, noting that in Niger, there is a preference for dishes mixing rice and the red variety of cowpea, offering better taste and appearance than either product served on its own (SNV 2014). According to that study, women in particular prefer white cowpea for dishes based on cowpea flour. Another way cowpea is used is to mix millet with both fresh cowpea leaves and stewed cowpea leaves. Cowpea can be incorporated as whole or broken grains in different sauces to serve on top of cereals as a protein-rich substitute for meat. When boiled, consumers prefer cowpea with a sweeter taste and so often add sugar. SNV reports that agronomic efforts are underway to increase the sugar content of the cowpea itself, obviating the need for adding sugar as an additional ingredient.

The 2013 Danida study provides excellent insight on consumer preferences for value added cowpea products, citing the strong potential for couscous, spaghetti and macaroni made from cowpea and an intermediate paste-like product called *béroua* easy to cook in the home. The study notes that consumers pay attention to product norms such as the organoleptic quality, the technical quality (caliber, shape of the grains, color), and that due to food marketing publicity in Niger they are sensitive to external signs of quality, such as labels, the product name and geographic indications. As an example of the steady existing market for cowpea-containing products amongst consumers, the DANIDA study analyzed the institutional demand for cowpea in Niger, for example schools, hospitals, and child nutrition programs.

The most popular products are fried, best when served hot. Urban consumers, with many vendors to choose from, will shop around to find the ones they like best.

All in all, the more-recent findings confirm those found in the work of USAID's Bean Cowpea Collaborative Research Support Project (CRSP), which studied cowpea demand characteristics in 22 markets across 6 countries for over 5 years (summarized in Purdue 2007). That research aimed to quantify the quality characteristics of cowpea that consumers valued. These research results have influenced subsequent work on cowpeas; for example, seed multipliers now include the size of the cowpea grain as one of the targets, with larger-sized beans preferred. The main results are that:

- Consumers prefer cowpeas where the bean size is larger
- Consumers will discount from the first hole (women retailers while waiting for customers sort the cowpeas to remove husks and those with holes)
- Regional preferences exist with respect to bean color, eye color and variety.

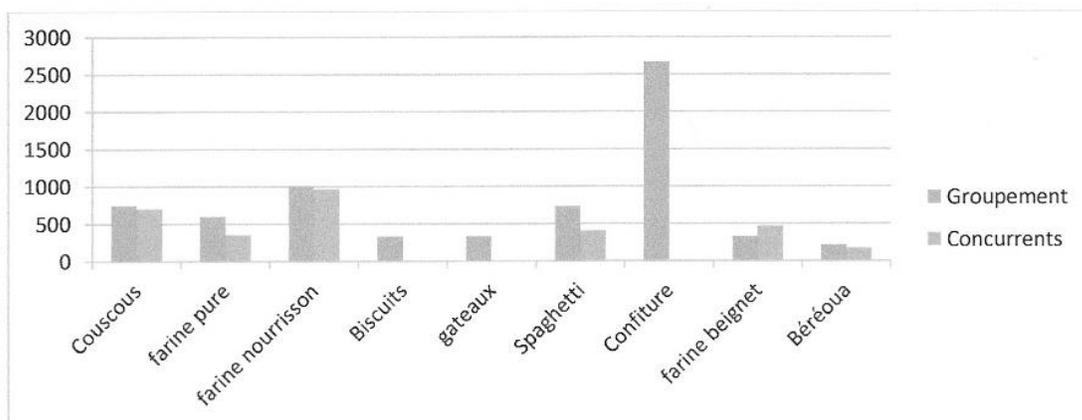
Cowpea markets generally operate efficiently in meeting the desired consumer demand characteristics.

Consumers can easily purchase different types and quality of cowpeas at a competitive price when they want,

or ask the vendors for an individual formulation. Prepared cowpea food products, such as the fritter at 100 FCFA for 5 pieces, are in general accessible to even the poorest and most-vulnerable consumers.¹⁴ From the consumer side at least, one can conclude that there are few if any issues at the consumer level concerning *supportive markets* and *value chain governance*.

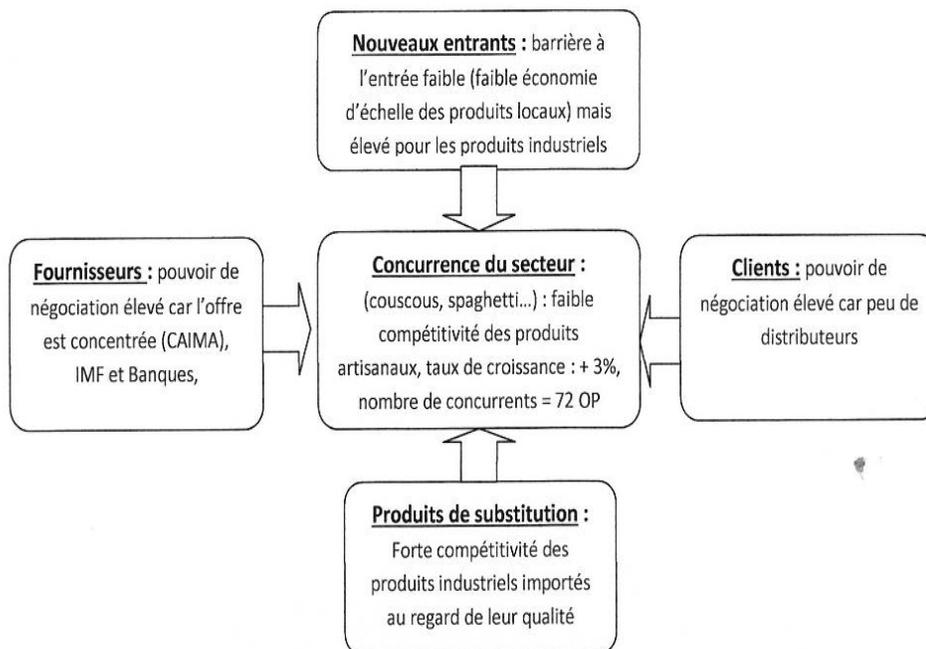
The DANIDA study also provides a graph with retail prices for 9 different value-added cowpea products based on whether the seller is part of a cooperative or grouping, or a competing individual or small business (Figure 12). That study also makes an ambitious attempt to outline the competing actors in the growing market for spaghetti and couscous made from cowpea (Figure 13).

Figure 12: Average Retail Prices in Niger for Consumer-Ready Products made with Cowpea



Source: DANIDA (2014). FCFA per kilogram.

Figure 13: Competitive Market Position for Spaghetti and Couscous made from Cowpea



Source: DANIDA (2014).

¹⁴ Or about USD \$0.04, four cents for a day's worth of protein. CNFA

In the same vein, SNV makes proposals to improve the marketing strategy for selling to end-use consumers, including greater use of labels, brand names, and indications of geographic origin (SNV 2014). SNV proposes to try to combine the milling operations for cowpea with those already extant for millet and sorghum grown locally.

Data limitations necessarily restrict the type of consumer demand analysis possible for this REGIS-AG End Market Assessment. While it is typically desirable to present the price elasticity of demand for consumers, the lack of reliable data beyond anecdotal survey data (often covering only a single year and much of the data already 12-15 years old) limits what conclusions can be made. REGIS-AG staff, in conducting field work for this end market assessment, reported simply from personal observation that in West Africa the income elasticity of cowpea consumption is definitely positive and relatively high.

Regional Market Opportunities within the UEMOA/ECOWAS Region

As one of the ECOWAP products, cowpea grains, in an unprocessed state but cleaned and dried, may circulate freely throughout the 15 countries of ECOWAS without paying Customs duties, other import-related fees, or Value-Added Tax (VAT). Processed cowpea, such as flour mixes and baby food, would be eligible for duty-free treatment in shipment to other ECOWAS countries under the ECOWAS Trade Liberalization Scheme (ETLS),

Côte d'Ivoire

Cowpea is a commonly found food in Côte d'Ivoire, especially in the urban areas and along the major paved roads. Women vendors sell cowpea both cooked as whole beans mixed with rice or as beignets eaten with a hot sauce, the two main cowpea products in Côte d'Ivoire. In Abidjan, cowpea fast food is popular with urban consumers in Abidjan who need to eat a quick and filling meal. One estimate, from the ASTI/IFPRI database for West Africa, shows Côte d'Ivoire domestic production covering 3,000 hectares. With typical yields averaging 500 kg/ha for local varieties, and one ton/ha for improved varieties, the 3,000 hectares mixed between traditional (73%) and improved varieties (27%) would total just over 1,900 tons per year. Local production does not meet consumer demand, opening the way for substantial imports.

As part of its 2009 analysis, Purdue University researchers estimated that Cote d'Ivoire registered an average domestic supply deficit of 8,000 tons during the period of 1990-1999 and could not fulfill demand solely from domestic supply (Purdue 2009). Average per capita consumption during the same period registered at 1.8 kg per year.

Due to the low production in-country, Côte d'Ivoire imports most of its cowpea from Burkina Faso and to a lesser extent Mali. Most cowpea is transported by truck in mixed loads with other grain products and, because of irregularities at the border, information on imported quantities is limited. There are no specialized traders in cowpea but grain traders typically also sell a variety of grains and pulses to buyers such as the female entrepreneurs involved in processing for end consumers.

REGIS-AG made visits to all the major markets of Abidjan – Adjamé, Cocody, Cocovico, Koumassi, Marcory, and Yopougon, revealing that dried cowpea is sold for 250-300 FCFA for a ½ kilo and 500-600 FCFA per kilo.

Beignets or *galettes* are cowpea doughnuts fried in oil and sold in batches, typically 5 for 50 FCFA, or 10 for 100 FCFA.

The cowpea market in Abidjan is informal, without any cowpea-specific commodity or trader associations or organizations. Market requirements are basic, and most cowpea sold is white, without any reference to sources or sizes. Cowpeas are sold in re-used bags of jute or plastic and there are no reports of PICS bags being used by traders. One Burkinabé company that is targeting Abidjan for exports, SECOPA, sells cowpea that meets international trade standards and specifies two varieties that they offer to the market: *Nafi*, which is drought tolerant, and *Komcallé*, a higher yielding variety. SECOPA does not explain what advantages or financial implications these varieties have for wholesalers, market vendors, and households.

Côte d'Ivoire's market for cowpea is analyzed in an unattributed study listed in the Bibliography, describing collection markets (Korhogo, Odienné, Ferkéssédougou), relay markets (Bouaké) and a survey in the 10 largest markets of Abidjan (Unattributed study). The study notes a strong seasonal price variation in Côte d'Ivoire, with prices lowest just after the harvest in October-November, with prices rising in March-April reaching peak in August-September during the *période de soudure*.

The marketing of cowpea receives very little attention in Côte d'Ivoire relative to its use and importance in the diet, but opportunities exist to improve the product image and increase consumer awareness of its attractive qualities. Cowpea is a common product that is consumed widely, but the positive nutritional aspects of cowpea are not really known or understood by consumers. The opportunity to develop new cowpea preparations and snacks is great in Abidjan as consumers are looking for inexpensive but nutritious food. SECOPA is branding their product for its quality, but it would benefit from market development and promotion aimed at women vendors and consumers.

Ghana

While cowpea is produced in Ghana, especially in the North and in the Volta Region, it is also an important import crop for Ghana. Cowpea is consumed throughout the country. Ghana imports cowpea from Niger, Burkina Faso, and Togo, with the imports from Niger transiting Burkinabé territory by road (figure 14). The figures from Purdue show that for the period 1990-1999, Ghana registered a deficit in the supply of cowpea. Average production was registered at 57,000 tons while demand was measured at 169,000 tons, showing an opportunity for cowpea supply to Ghanaian markets (Purdue 2009). Per capita consumption of cowpea at 9 kg per year, which is a similar level as Togo and Benin.

Figure 14: Major Crossing Points between Burkina Faso and Ghana



Source: DFID 2015.

In the 2014 SNV study, Accra seemed to have the highest consumer price observed among West African countries at USD\$0.54 per kilogram, offering roughly a 50% price premium over those observed in Burkina Faso and Niger.

Figure 5: Nominal Retail Prices for Cowpea in Ghana



Source: FEWSNET

Figure 15 shows FEWSNET data for monthly cowpea prices in Ghana, with prices higher for 2013/2014 than in previous years. Of interest in this graph is that cowpea prices in Ghana do not seem to go through as pronounced of an increase over the course of the year as in Niger.

Typically Ghanaian traders go to Burkina Faso and Niger to procure cowpeas and then sell those cowpeas to retailers, whether on credit or for cash. In Techiman, Ghana's largest cereals market, the great majority

(estimated at 90%) of these traders are women who make frequent trips to Burkina Faso, typically to Ouagadougou, and to Niamey and Maradi mostly in Niger. In contrast, in Tima, the wholesale cereals market next to Agblobloshie in Accra, the majority of the traders are men. At times Burkinabé and Nigerien traders come themselves to sell or supply to particular traders. Retailers typically work in the traditional markets. Packaging of cowpeas for retail is still rare, with only three businesses reported to operate in the Accra markets, selling mainly through supermarkets.

Traditional markets in Ghana operate very effectively for all exchanges of cowpea from rural to urban markets. Cowpea is also traded informally, for example when Ghanaian farmers sell directly to their friends and family members in order to avoid the mark-ups in price that middlemen traders add.

Ghanaian consumers eat cowpea regularly in a variety of traditional dishes. Consumers have clear preferences when it comes to cowpeas. Taste, cooking time, and size were cited as important characteristics during the REGIS-AG field research. Most traders and retailers reported a clear preference for the Nigerien beans, noted for their very good taste and short cooking time, and, after that, the Burkinabé ones, with good taste and ability for the beans to expand. Most consumers placed Ghanaian beans a distant size due to their relatively poor taste and long cooking times. In Accra, traders cited a preference for the “Nigerien beans” for their large size and good taste. These responses are consistent with the hedonic price research funded by USAID’s Bean Cowpea CRSP mentioned above which showed that consumers pay a premium for larger-sized white cowpeas, prefer cowpeas with smooth skin, and will pay more for cowpeas with black eyes (Purdue 2007).

There is an emerging demand for cowpea for processing. With a few companies in Ghana currently processing cowpea and selling packaged products, it is expected that there will be increased demand for higher quality and more consistent cowpeas, i.e. with respect to variety, size, texture, and no insect damage.

Given these factors, Ghana stands out as an attractive export destination for cowpeas from the two REGIS-AG countries. One area of opportunity is to serve the demand for higher quality and consistent cowpeas that is starting to emerge in Ghana and other countries. But one of the challenges to the trade in cowpeas with Ghana is the exchange rate risk. Niger and Burkina Faso use the same currency, the FCFA, while Ghana uses the cedi, which often fluctuates widely in value against the FCFA. Thus all trade of cowpea to Ghana from Niger and Burkina Faso requires currency exchange or for traders to carry large wads of both currencies. Exchange rate fluctuations present cowpea traders with an added business risk.

Cowpea has been the focus of national agricultural development efforts in Ghana, such as the recently concluded FASDEP-2 program (USAID ATP/E-ATP 2010). However, in reality there is very little government involvement in the cowpea value chain in Ghana, aside from fertilizer subsidies in recent years that were discontinued in 2015 due to economic difficulties.

Nigeria

Nigeria is the world’s largest producer and consumer of cowpea, with yields per hectare estimated at 3-4 times those of Niger. While there is a lack of current production data, Nigeria’s cowpea production far exceeded other regional neighbors during the 1990-1999 period at 1,691,000 tons, with a deficit of 469,000 tons in meeting overall demand (Purdue 2009). With half the population of West Africa and strong consumer

demand for cowpea as a cheap source of protein, Nigeria stands out as the largest importer of cowpea in the world, with Niger its biggest supplier.

In Nigeria, the enabling environment for cowpea production is considered to be more supportive than in Burkina Faso or Niger (FEWSNET—*is there a reference for this?*). The large consumer base provides a ready market for national cowpea producers, but above all the level of government intervention is much greater. Despite well-documented problems and corruption in the past, Nigeria continues to subsidize fertilizer, with the federal government providing a 25% subsidy and state governments an additional subsidy ranging from 2% to 50% (USAID ATP/E-ATP 2010). Nigeria is a leader in the region in offering agricultural insurance to producers to mitigate risk and in the degree to which Nigeria’s federal government and state governments share responsibilities.

Despite government policies and programs that are explicitly trying to increase agricultural output to replace imports from regional neighbors, Nigeria continues to import products that are being produced within the country to meet market demand, even those targeted for eventual self-sufficiency (Vaughan *et al* 2014). The import market is relatively sophisticated, centered around the largest cowpea market in the world, the Dawanau Market in Kano in northern Nigeria. Cowpea storage capacity in Dawanau Market exceeds 200,000 metric tons. Merchants from the Dawanau Market finance a network of cowpea buyers who travel throughout

Earlier research by Langyintuo *et al* (2003) suggested a clear price margin between different markets as product moves south in Nigeria. Prices in Kano—the closest large Nigerian city to Niger’s zone of production—at USD\$0.49 per kilo compared with USD\$0.57/kg in the enormous Lagos market far to the south.

Niger and the neighboring countries. Merchants from southern Nigerian cities come to Kano to purchase cowpea.

A system of traders enables the flow of cowpea from the rural production areas to regional markets and, finally, to consumer markets. Cowpea is produced in the dryer regions in

northern Nigeria and Niger. Key activities carried out by traders include acquisition, transportation, storage, and sale. Retail traders operate throughout the country buying cowpea from wholesalers and selling to consumers, food vendors, and processors.

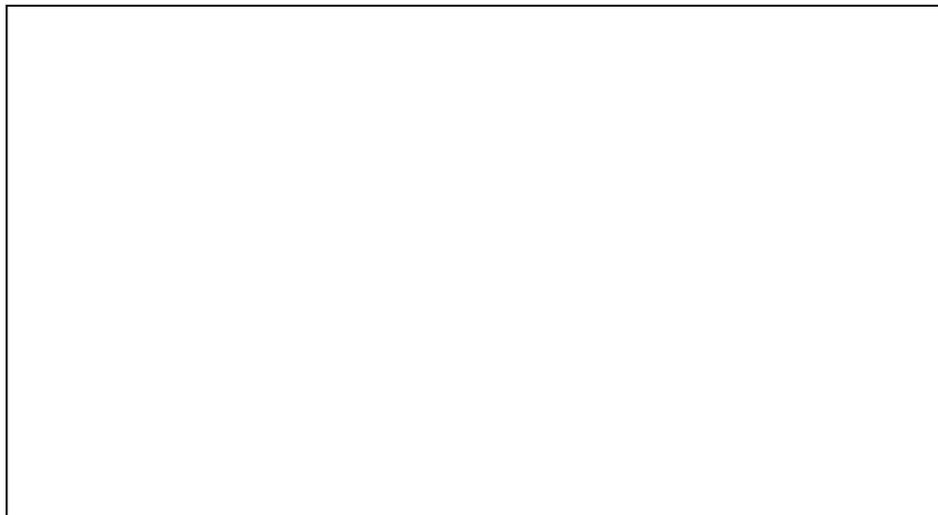
With per capita consumption at 18 kg per year, Nigeria easily surpasses all other West African countries in their level of consumption (Purdue 2009). The IITA researchers Chianu and Manyong found that the majority (72%) of urban households in Nigeria purchased and consumed 5 kg of cowpea per week, making cowpea an important food product in urban Nigerian areas (IITA 2002). In at least one study, consumers in Nigeria have been shown to continue to buy cowpea even at higher prices, as the “results of own price elasticity [estimates] revealed that cowpea was an inelastic good. The income elasticity revealed cowpea as a necessity in the study area” (Faith 2013). This is a particularly interesting finding for the REGIS-AG countries, which could thus take advantage of Nigerians’ willingness and greater ability to pay more for cowpea during the “hungry season.”

REGIS-AG conducted end market research on the markets in northern Nigeria in late May and early June 2015 by inviting stakeholders from there to attend workshops in Maradi, Zinder and Tillaberi in Niger. That research arrived at several notable conclusions:

- 1) Strengths of Nigeria as a potential export market

- Existence of markets specifically set up for cereals and cowpea in Nigeria
 - Ease of access to the wealthier markets in southern Nigeria
 - Cowpea is much-appreciated by Nigeria’s population for its rich nutritional profile
- 2) Constraints related to Nigeria as a potential export market
- The sheer volume of cowpea available in Nigeria can lead to lower prices at times than traders from Niger are willing to accept
 - Lack of well-defined market rules mean that traders engaging in the storage of large quantities of cowpea can induce scarcity and higher prices at times
 - The fluctuations in the Nigerian naira
 - Overall fears about insecurity and danger on the roadways in northern Nigeria.

A 2015 DFID study covering the flow of basic staple foods between Niger and Nigeria noted a whole range of other difficulties related to exporting to Nigeria, as in the accompanying box.



Source: DFID 2015.

As in the two REGIS-AG countries, in Nigeria consumers purchase cowpea for home use while women entrepreneurs purchase from retail traders to sell street food made from cowpea. Common dishes include rice and cowpea, *dan wake*, and *kossailakara*. As the akara vendors in the southern cities of Nigeria operate businesses that are much larger than those in Niger, using about three times as much cowpea per day, they are able to take advantage of scale economies. For example, one woman has a large-enough operation to have her own grinder. This means that she is no longer subject to waiting in line at the for-hire grinders. During field research, a few processing companies in Nigeria were found to be engaged in larger scale processing of cowpea and selling cowpea flour and packaged beans in supermarkets. These companies were also exporting their packaged products to European and North American cities for sale to expatriate communities living abroad.

The main types of cowpeas traded in the northern Nigeria markets are white and red/brown. Nigerian markets also seem to prefer larger grain size over smaller grain sizes for cowpea (Faith 2013).

The cowpea trade is predominately in traditional markets in both urban and rural areas, and function as both

wholesale and retail outlets. Dawanau Market in Kano, as well as other collector markets in northern Nigeria towns such as Sokoto and Maiduguri, set up their own market rules and traders work together in organizations. Both of these factors lead to efficient market operations, although as noted by REGIS-AG stakeholders, there is the possibility for arbitrage and price manipulation from large-scale storage.

Economic changes in Nigeria are leading to some important changes for cowpea. With increased income levels there is more demand for convenience. More food is consumed away from home, a phenomenon that embraced by fast food outlets. Tangible evidence of these changes on cowpea marketing include: finding packaged cowpea flour and cowpea beans in Shoprite supermarkets; finding cowpea-based dishes on the menus of fast food establishments; and finding cowpea-based dishes in restaurants, such as at the Lagos airport restaurant.

Cowpea dishes are a traditional part of the Nigerian diet. Cowpeas are referred to simply as “beans” in the markets in southern Nigeria. As the Nigerian economy grows and the population moves to consuming more food away from home, the fact that cowpea-based dishes are already well established on restaurant menus and in fast food outlets represents an important advantage for cowpea marketing.

The extensive use of storage chemicals by traders in Nigeria is of concern to the public, so an opportunity exists for expanding the use of hermetic storage with PICS bags. An Internet search quickly reveals several news articles over the course of 2015 about Nigerians who consumed cowpeas or food products made from cowpeas, such as *moin moin*, and became sick, or even died, from insecticide poisoning.

Other Markets

Benin and Togo represent smaller markets for cowpea exports from Burkina Faso and Niger. The plan to construct a railroad from Niger’s capital Niamey to Benin’s capital Cotonou could present excellent marketing opportunities for cowpea, as a non-perishable bulk product, to reach the coast and move west to Togo’s capital Lomé and east to the large population centers in southern Nigeria such as Ibadan and above all Lagos.

Very small quantities of cowpea produced in West Africa are exported outside of the region. The packaged cowpea products that are more and more appearing in the larger urban markets in southern Nigeria and Ghana are not only being marketed at supermarkets in those countries, but also exported to Europe and North America. This is done through small-scale traders including them in their checked luggage for airline travel, and some limited ocean freight as part of a bundle of products included in a container.

This is a very small percentage of the West African cowpea trade, but could be important from a psychological perspective. The target markets for these products are expatriate neighborhoods in foreign cities where consumers want to be able to purchase the traditional comfort foods from when they grew up. The much-higher disposable income of European and North American consumers could make this an attractive growth area for established West African traders, including some previously not involved in the cowpea value chain.

4. Recommendations for REGIS-AG Project Intervention

Proposed efforts to improve the cowpea value chain in Burkina Faso and Niger include:

Production

- Programs to assist the farmers must be adapted so that farmers can understand without being able to read and write. Visuals that include pictures and diagrams are especially useful. When appropriate basic literacy might be included with programming;
- Efforts to increase credit access to smallholder farmers, including moving to have cowpea as an readily accepted crop in warrantage programs;
- Educational programming to promote best practices (IPM as well as appropriate use of pesticides);
- Promote hermetic storage and in particular use of PICS bags;
- Promote processing of cowpea and consumption of cowpea both in the whole bean form as well as in dishes/products that use ground cowpea.

Input Supply

- Programs for farmers to learn about the benefits from input use, to increase demand;
- Input credit programs for farmers, also to increase demand;
- Training in most effective agronomic practices for farmers, to ensure best returns from investment, again for increased demand;
- Training in all aspects of business management for the players along the PICS supply;
- Sensitization of actors of import procedures;
- Diffusion of information on the approved pesticides;
- Promotion of collaboration between the points of sale for approved pesticides and producers;
- Sensitization of actors of toxic effects.

Marketing

- Increased credit access to enable producers to purchase PICS;
- Increasing availability of PICS bags through consignment approach to send individuals with PICS bags to weekly markets to sell;
- Training for the dealers/distributors of PICS bags in the areas of business management and marketing/sales; (4) Assisting farmers to form associations from which they can market their cowpea (and other products) as a group and in larger quantities, to improve market power;
- Improving storage infrastructure, which is indispensable for warehouse credit system;
- Training of producers on the pests and including use of PICS, to reduce pest infestation in grain.

Processing

- Assist the individual women entrepreneurs in forming organizations where they can make joint purchases of inputs in larger quantities to take advantage of better prices with bulk purchases, and have access to grinding machines;
- Increase women's access credit, to equipment and for buying larger quantities of cowpea, for enhanced profitability;
- Educational/training programs covering all aspects of their businesses from technical production to business planning to marketing planning;

Programming to assist the women's groups to acquire a hammer mill, learn how to make the coarse textured flour which is better for the products food vendors make, and then develop and implement marketing plans.

5. References and Bibliography

- CIRAD (2010). « *Innover pour développer les marchés : le cas de la conservation du niébé au Burkina Faso.* » Authors include Marie-Hélène Dabat, Issa Drabo, Frédéric Lançon, and Wilma Baas. September.
- DANIDA (2013). “*Etude pour l’identification des chaînes de valeur à appuyer dans le cadre du Programme d’Appui à la Croissance Economique et à la Promotion d’Emploi vert durable basé sur le Secteur Agricole au Niger 2014-2018.* » Study produced by NIRAS. File No. 104.Niger.805. March.
- DFID (2015). “Political Economy Analysis of Barriers to Trade in Cereals, Cassava and Agricultural Inputs in WAFM Countries.” Authors include Quentin de Roquefeuil and Daniel Plunkett. July.
- Dimithe, Georges (2014). “An Overview of the ECOWAS Harmonization Processes for Seed and Fertilizer: Key Provisions, Major Achievements and Challenges”. Background paper prepared for the World Bank (Regional Trade of Food Staples, PI32559), Washington DC.
- Faith, Ibrahim Debaniyu (2013). “Price Integration of Cowpea Retail Markets in Niger State, Nigeria” in *Academic Research International*. Vol. 4, No. 3. May.
- FAO (2015). FAOSTAT Agricultural Production Statistics.
- FAO (2013). “Tackling Climate Change through Livestock: A Global Assessment of Emissions and Mitigation Opportunities.”
- Ibro, G., Lowenberg-DeBoer, J., & Fulton, J. (2005). “Market value of cowpea protein level and cooking time in Niger” in *Proceedings of the 1st International Edible Legume Conference in conjunction with the IVth World Cowpea Congress*. Pages 1-7. University of Pretoria. Durban, South Africa. 17-21 April.
- IITA (2002). “Cowpea Demand and Supply Patterns in West Africa: the Case of Nigeria.” Authors include Jonas N. Chianu and Victor M. Manyong.
- IRAM (2009). “Demand for Farm Animal Products in Nigeria: An Opportunity for Sahel Countries?” Authors include B. Bonnet, Bertrand Guibert, and Christophe Benard. Accessed via www.inter-reseaux.org.
- Keyser, John C., Marjatta Eilitta and Georges Dimithe, Gbolagade Ayoola, and Louis Sène. (2015). “Towards an Integrated Market for Seeds and Fertilizers in West Africa”. Working Paper Series Number 7. The World Bank, Washington DC.
- Kiawu, James AF and Keithly G. Jones. “Implications of Food Aid and Remittances for West African Food imports” in *African Journal of Agricultural and Resource Economics*. Vol. 8. No. 1. Pages 30-44.
- Langyintuo, A. S. et al (2003). “Cowpea supply and demand in West and Central Africa” in *Field Crops Research*. Vol. 82, No. 2, pp. 215-231. Other authors include J. Lowenberg-DeBoer, M. Faye, D. Lambert, G. Ibro, B. Moussa, and G. Ntoukam.
- Ministère de l’Agriculture du Niger (MAG 2015). « *Situation de la Filière Niébé au Niger : Contraintes et Perspectives.* » Powerpoint presentation by Issifou Seyni. March.
- Olusoji, Vaughan et al (2014). “An Analysis of Nigeria Food Imports and Bills” in *International Journal of Commerce and Management*. Other authors include Afolami Afolake, Oyekale Olayemi, and Adeday Agybokiki.
- Otoo, Miriam et al (2011). “Women Entrepreneurship in West Africa: The Cowpea Street Food Sector in Niger and Ghana” in *Journal of Developmental Entrepreneurship*. Pages 16-37. Other authors include Joan Fulton, Germaine Ibro, and James Lowenberg-DeBoer.
- Purdue University (2014). “*Analyse des Chaînes de Valeur: Mil, Sorgho et Niébé au Niger.* » Produced for IITA in collaboration with CRS and AGRA. July.
- Purdue University (2013). “PICS Nigeria Flowchart.” PowerPoint file.

Purdue University (2012). "Purdue Improved Cowpea Storage (PICS) Supply Chain Study." Authors included Jeanne Coulibaly, Theodore Nuohoheflin, Casimir Aitchedji, Maiyaki Damisa, Stephen d'Allesandro, Dieudonné Baributsa, and J. Loewenberg-DeBoer. Department of Agricultural Economics, Purdue University. November.

Purdue (2007). « Consumer Preferences for Quality Characteristics along the Cowpea Value Chain in Nigeria, Ghana and Mali.» Authors include Joseph Fulgence Mishili, Joan Fulton, Musa Shehu, Saket Kushwaha, Kofi Marfo, Mustafa Jamal, Alpha Chergna, and James Lowenberg-DeBoer. Department of Agricultural Economics, Purdue University. January.

Regional Strategic Analysis and Knowledge Support System (ReSAKSS 2011). « *Etude sur la Consommation Alimentaire en Afrique l'Ouest : Rapport de synthèse.* » ReSAKSS was established under CAADP. Other collaborators include Michigan State University and Syngenta Foundation.

SNV (2014). "Crossing a Long Time Barrier to Cowpea Value Chain Development: Ensure a Quality Storage to Access Credit and Secure Incomes."

SNV (2013). « *Etude de marché des produits de la transformation du Niébé.* » June.

SNV (2010). « *Intégration de la dimension du Genre dans le développement de la chaîne de valeur.* »

Unattributed study. "Le Marché de Niébé en Côte d'Ivoire." Study in French of unknown date and authorship provided in an 8-page Word file.

USAID (2008). "A Study of the Cowpea Value Chain in Kano State, Nigeria, from a Pro-Poor and Gender Perspective." Greater Access to Trade Expansion (GATE) project. July.

USAID Agriculture and Trade Promotion Program and Expanded Agribusiness and Trade Program (ATP/E-ATP 2010a). "Trade Barriers on Basic Staple Foods within ECOWAS." August.

USAID ATP/E-ATP (2010b). "Regional and National Agricultural Policies in West Africa." Policy Brief authored by Daniel Plunkett. July.

USAID Bean/Cowpea CRSP (1999). "Adoption of Cowpea Varieties and Storage Technology in the North Central Peanut Basin of Senegal and Economic Implications." West Africa Regional Report #3. Authors include M. Faye and J. Lowenberg DeBoer.

USAID IICEM-Mali (2013). « *Gaps dans l'Application de la Réglementation Communautaire en Matière de Commerce des Céréales : Cas du Mali.* » Authors include Daniel Plunkett, Salihou Guiro and Harouna Niang. October.

USAID REGIS-AG (2015a). "Atelier Diagnostique des Marchés du Nord Nigéria, Maradi, du 31/07/2015 au 02/08/2015." Mission Report. August.

USAID REGIS-AG (2015b). "Gender Integration Plan." July.

USAID West Africa Trade Hub and African Partners Network (WATHN 2015). "Opportunities for Increasing Livestock Trade in the Mali-Côte d'Ivoire Corridor." February.

WFP (2015). "Enquête conjointe sur la vulnérabilité à l'insécurité alimentaire des ménages au Niger (décembre 2015-janvier 2015)." »

World Bank (2015). "Connecting Food Staples and Input Markets in West Africa: A Regional Trade Agenda for ECOWAS Countries." June.

6. Annexes

Annex One: Constraints and Opportunities related to Cowpea Production, Inputs, Storage, Marketing and Processing

Constraints and Opportunities Related to Cowpea Production

Constraints	Opportunities
Low level of literacy amongst cowpea farmers	As many farmers cannot read and write, programs must include visuals such as pictures and diagrams. When needed, basic literacy might be included with programming. Promoting programs that do not require being able to read instructions could be useful (e.g. hermetic storage versus storage with chemicals).
Lack of availability of inputs for cowpea production (seed, fertilizers, pesticides)	Training for entrepreneurs on business planning and marketing could include information on the benefits of utilizing modern inputs and on technical aspects of their use.
Lack of credit	Strategies for improving access to credit for smallholder farmers are needed, such as including cowpea as a readily accepted crop in warehouse receipts programs (<i>warrantage</i>).
Climate change	Given cowpea's tolerance for drought and adaptability to poor soil conditions, the challenge of climate change provides a relative advantage for cowpea over other crops. Nevertheless, breeding for drought tolerance and short season varieties will be important mitigation activities.
Insect pests in the field	Educational programming to promote best practices (IPM as well as appropriate use of pesticides).
Insect pests during storage	Promote hermetic storage and in particular use of PICS bags.
Insufficient publicity campaigns to stimulate increased demand for cowpea	Promote processing of cowpea and consumption of cowpea both in the whole bean form as well as in dishes/products that use ground cowpea.
Fluctuating selling price due to seasonal factors as well as exchange rate variations between FCFA and Nigeria naira	Programs that increase farmers' ability to store their cowpea allow them greater flexibility regarding when to market their cowpea. Currency exchange rate fluctuations have a real impact on all cowpea decision makers in the value chain and REGIS-AG can realistically only advise them on how to mitigate that risk.

Constraints and Opportunities Related to Cowpea Inputs

Constraints	Opportunities
<p>Less than 10% of farmers in Niger are using improved cowpea seed and other agronomic inputs</p>	<p>The main constraining factors were reported to be:</p> <ul style="list-style-type: none"> • lack of knowledge of the potential benefits and • availability of funds to purchase the inputs. <p>Programs that could help farmers learn about the benefits from input use, including improved seed would benefit the small-holder producers and also support the agro input dealers. In addition, programs that could help farmers obtain credit for input supply would provide further support for farmers to adopt input usage for cowpeas.</p>
<p>During the stakeholder meetings participants identified lack of credit as an important constraint. Without access to credit, farmers often do not have the necessary cash to purchase input for their cowpea production. Farmers being able to purchase improved inputs would result in two benefits – first they would have better crops and increased returns and second the agro input dealers would be stronger businesses</p>	<p>Work to develop credit markets available to farmers for purchasing inputs for cowpea production</p>
<p>It was also noted during the stakeholder meetings that farmers have insufficient knowledge about the most effective use of inputs.</p>	<p>Training for farmers on most effective agronomic practices in order to get the best return from investment in inputs for cowpea production.</p>
<p>The owners of the seed businesses reports difficulty in obtaining PICS bags to store the cowpea</p>	<p>While the seed companies reported that the PICS bags were very effective for storage of the cowpea from harvest until they also reported a problem with the availability of PICS bags, both for their own use and for use by farmers. As discussed in the section (marketing) below, training in all aspects of business management for the players along the plastic bag supply chain would be beneficial.</p>

Constraints and Opportunities Related to Cowpea Storage and Marketing

Challenges	Opportunities
Price of PICS bags	Throughout the REGIS-AG stakeholder meetings and interviews, PICS bags were thought to be too expensive, but this perception may be due instead to farmers' limited cash flow and lack of access to credit. PICS bags must be purchased at harvest time in order to store the cowpea. At this time of year, farmers have other demands for cash (often to pay back creditors who lent them money for other inputs or family needs and set the payback time at harvest knowing farmers would have money at that time). The stakeholders did not question whether purchasing PICS bags and using hermetic storage was worth the investment.
Availability of PICS bags	Stakeholders expressed repeatedly that PICS bags were not generally available for farmers to purchase. Setting up a brand-new distribution network for PICS bags (a complete value-chain for the storage bags) is far from complete. A trader in Dosso, Niger has devised and implemented successful strategies improving availability of PICS bags as well as his own profitability, including a consignment approach sending individuals with PICS bags to weekly markets to sell. Training for the dealers/distributors of PICS bags in business management and marketing/sales would serve multiple goals to improve efficiency and profitability, such as increasing the availability of the PICS bags and enabling increased storage of cowpea at the level of the farmers so they can take advantage of the price increases that occur throughout the market year – thus improving incomes for smallholder farmers and promoting poverty alleviation
Relative “market power” of the traders compared to farmers	Farmers are selling their cowpea in a dynamic where there are a large number of small farmers and only one or two traders buying cowpea, thus the balance of market power lies with the trader. Assisting farmers to form associations from which they can market their cowpea (and other products) as a group and in larger quantities will help to alleviate this problem.
Poor road conditions	Poor road conditions and road harassment are some of the biggest factors associated with high transportation costs.
Exchange rate uncertainties	Exchange rate fluctuations (between the FCFA and the Nigeria naira and between the FCFA and the Ghana cedi result from supply and demand forces in the international marketplace. As a common currency, the FCFA has facilitated trade amongst the UEMOA countries, suggesting that a common currency amongst ECOWAS countries would further facilitate trade.
Low marketing margins earned by traders	Traders are frustrated by relatively low marketing margins, characteristic of a competitive market where the traders are competing with one another and driving down the marketing margin. In general, strong competition is characteristic of a competitive market.

Constraints and Opportunities for Cowpea Processing

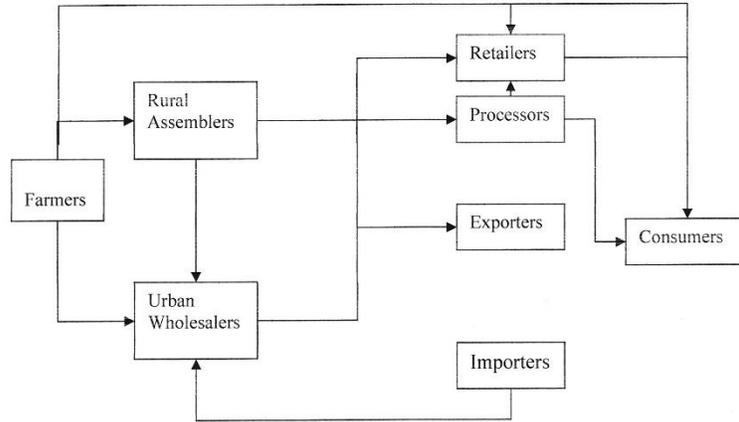
Constraints	Opportunities
Small scale of operation hampers economies of scale	Assist the individual women entrepreneurs associated with REGIS-AG in forming organizations to make joint purchases of inputs in larger quantities to obtain better prices through bulk purchases. If the women entrepreneurs could find financing to purchase their own cowpea grinding machine (as a group), there would no longer be a queue waiting for access to the grinding machine. In addition, they could use the machine to grind product for others, creating an additional source of revenue.
Access to credit	Currently the women have no access to credit, impeding their ability to operate efficiently from the perspective of acquiring inputs and obtaining capital equipment to improve their operations. Programs helping women gain access to credit could provide benefits on numerous fronts.
Knowledge and skills are lacking – both from a technical perspective as well as from the perspective of business skills	Educational/training programs covering technical production, business planning, and marketing strategy would be beneficial for all of the women associated with REGIS-AG, whether individual entrepreneurs or women’s groups. A training program bringing together women from different geographic regions is advisable, combining prepared instruction and sharing of success stories among the participants. In this way, women from different regions could return home with new ideas for business expansion and growth.
Fluctuating price of cowpea	The fluctuating price of cowpea, and in particular the rising price of cowpea throughout the market season, creates significant market risk for the women entrepreneurs. Buying larger quantities of cowpea at times when the price is lower would enable the women to enhance their profitability. Linking the women to greater access to season-specific credit would be one step in this direction.
Cowpea flour for kossai/kekena	All of the cowpea flour that the women’s groups were selling for kossai/kekena production was very fine in texture. Research has shown that cowpea flour that is coarse in texture (the texture of cornmeal in the U.S. markets) results in a superior kossai/kekena product. A hammer mill (as opposed to a plate mill – which is most common in West African markets) is needed to make the flour of coarse texture. The coarse texture is achieved by using the appropriate screen when grinding the cowpeas into the flour. Programming to assist the women’s groups to acquire a hammer mill, learn how to make the coarse textured flour, and then develop and implement marketing plans could allow the women’s groups to be “first movers” in the market with the higher-quality cowpea flour.

Annex Two: Alternative Diagrams of the Cowpea Value Chain

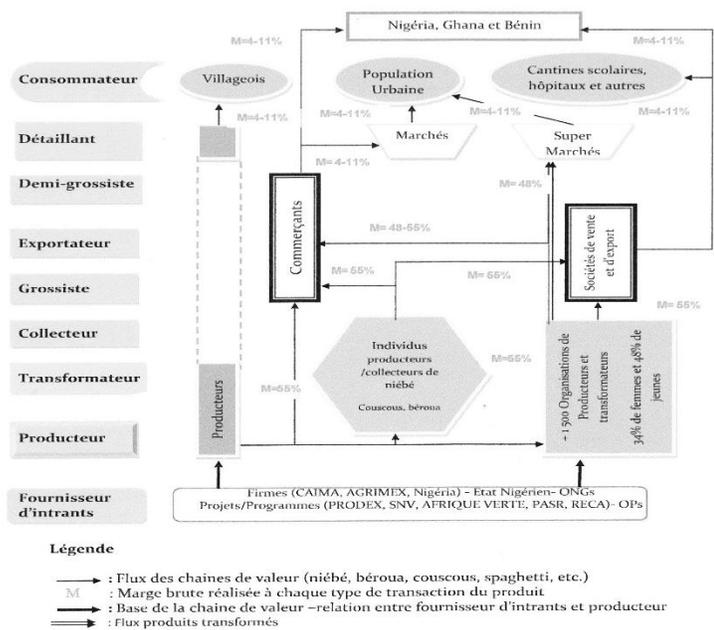


Source : Purdue (2014) in collaboration with CRS and AGRA.

The Typical Within-Country Value Chain for Cowpea in West and Central Africa



Another View of the Cowpea Value Chain Diagram



Source: DANIDA (2014).

Annex Three: Purdue-CRS-AGRA Summary Table on Cowpea Value Chain

Strengths, Weaknesses, Opportunities and Threats for the Cowpea Value Chain

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong demand for cowpea at local, national et international levels • Enthusiasm by farmers to engage in cowpea production • Existence of improved varieties • Favorable agro-climatic conditions • Availability of labor 	<ul style="list-style-type: none"> • Low level of productivity • Poor soil fertility • Limited access to credit • Strong seasonal price fluctuations • Limited access to market information systems; • High cost of improved seeds • Limited availability of improved seeds • Inadequate organization of the value chain actors • Limited availability of suitable land for cultivation • Poor storage capacity • Limited access to high-quality inputs • Very limited diversification of income sources • Farmers lack cash on hand • Rudimentary farming equipment
Opportunities	Threats
<ul style="list-style-type: none"> • Diversification of processing opportunities • Possibility to modernize the processing of cowpea into bérroua (flour meal) • Females groups involved in producing bérroua • National policies favorable to cowpea production • Improved storage techniques (use of PICS bags) 	<ul style="list-style-type: none"> • Danger of parasite infestation • Climate change, variability in weather • Drought • Floods • Depletion of soil nutrients

Source : Purdue (2014) in collaboration with CRS and AGRA.