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Resilience and Economic Growth in the Sahel – Accelerated Growth

(REGIS-AG)

VALUE CHAIN AND END MARKET ASSESSMENT: POULTRY



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

VALUE CHAIN AND END MARKET ASSESSMENT--POULTRY

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Acronyms

AGRA	Alliance for a Green Revolution in Africa
ATP	USAID Agribusiness and Trade Promotion project
AI	Avian influenza
CAADP	Comprehensive Africa Agriculture Development Plan
CILSS	Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel
CNFA	Cultivating New Frontiers in Agriculture
CRS	Catholic Relief Services
CRSP	Collaborative Research Support Service
DOCs	Day-Old Chicks
DPRA	Burkina Faso National Directorate for Veterinary Services
ECOWAS	Economic Community of West African States
ETLS	ECOWAS Trade Liberalization Scheme
E-ATP	USAID Expanded Agribusiness and Trade Promotion project
FCFA	West African franc
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

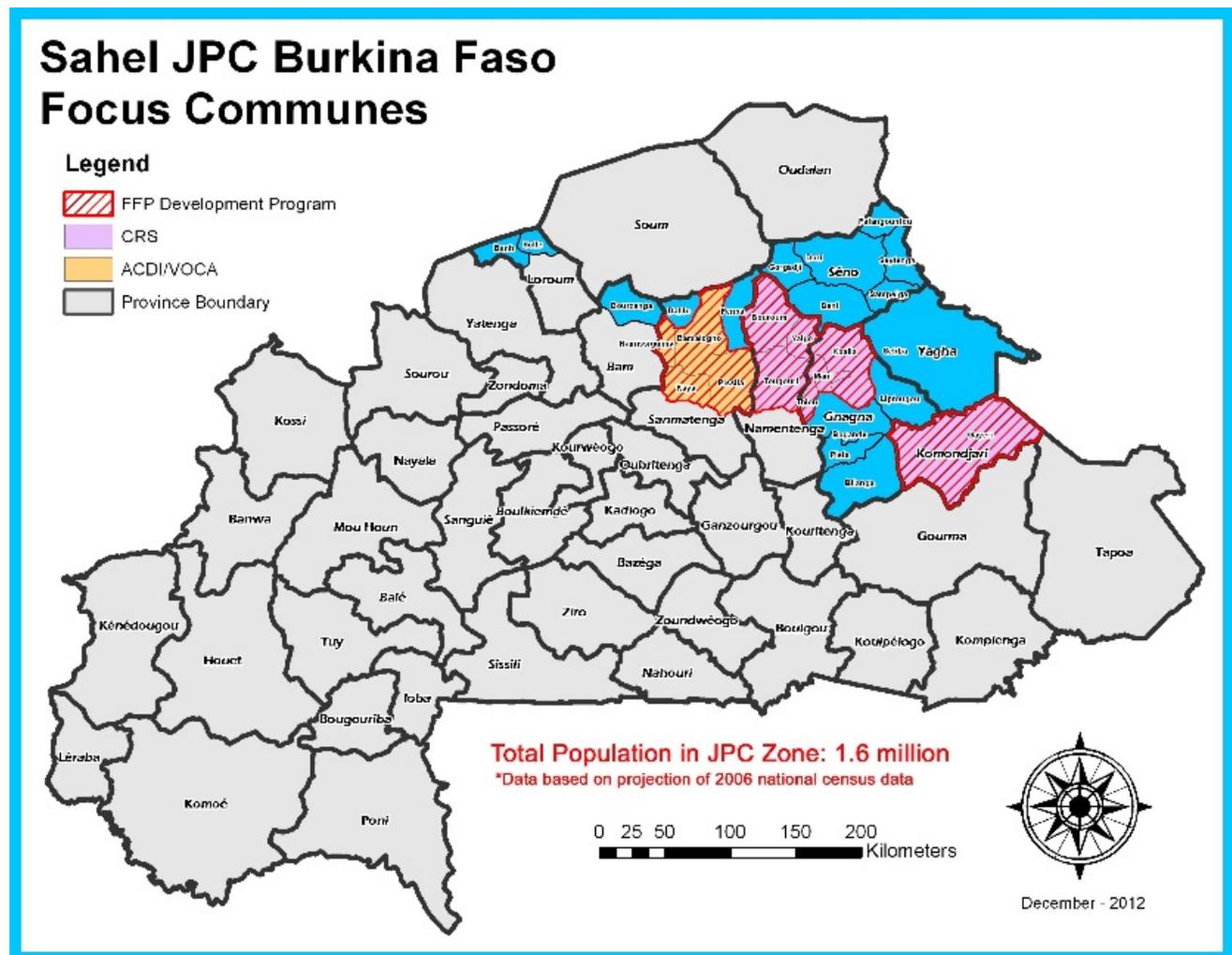
I. Introduction

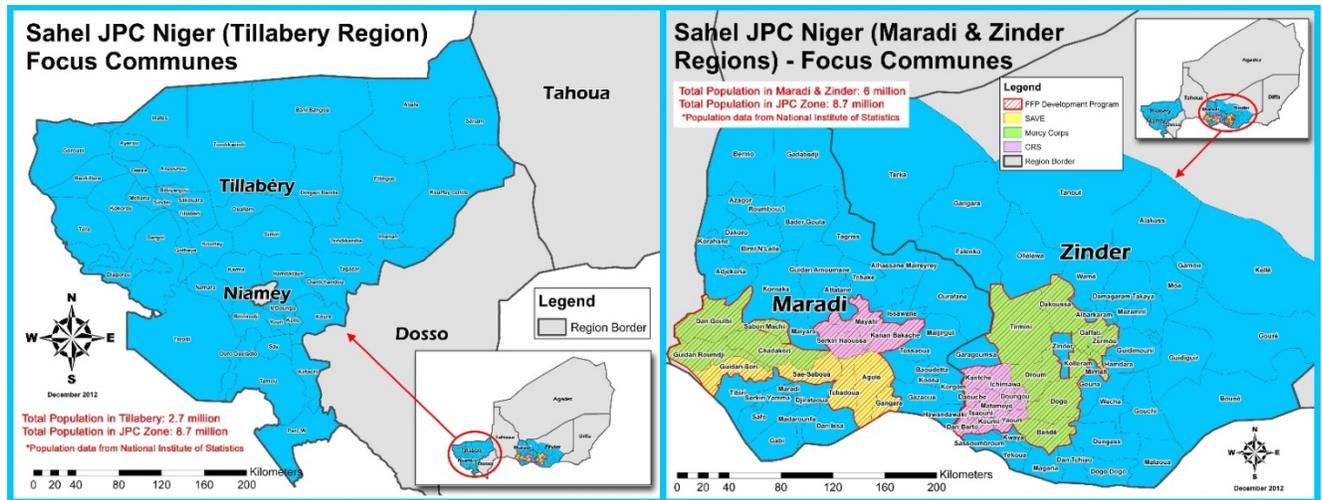
Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG)

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 a value chain approach, REGIS-AG works with producers, input suppliers, transporters and other marketers, and processors, linking with national officials and with partner projects to spur development of profitable markets.

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





Methodology

The work on this poultry value chain analysis was begun in April 2015, consisting of extensive literature review and participatory field work 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.

End market demand for poultry constituted an important part of the field research in Burkina Faso and Niger. Unlike for the other two REGIS-AG value chains, for which the project sent teams to Côte d'Ivoire, Ghana and Nigeria for a week's worth of study of the end markets, the outbreak of avian influenza (AI) prevented regional visits until 2016. The end market material in this report therefore relies upon desk work from a variety of sources, including reports by the USAID ATP/E-ATP project, which covered poultry as one of its six value chains from 2009-2013.

Summary

The poultry value chains in the two REGIS-AG countries meet the growing local demand for poultry meat and eggs through a mix of traditional family producers widespread throughout each country, a number of modern semi-industrial operations for both poultry meat and eggs, and substantial imports. There are significant efficiency gains possible to realize in all phases of the value chain, with ensuing benefits in terms of producer income, improved food safety and product variety for consumers, and increased benefits for women such as higher productivity for their labor and greater involvement in the value chain. The poultry value chain carries important effects for food security and poverty reduction, as nearly every household in rural areas has at least a few birds, and poultry products (particularly eggs) are typically the lowest-priced meat protein available.

As part of the **Value Chain Assessment**, this report examines trends and competitive strengths and weaknesses in poultry production, animal health, input markets, marketing and processing. It is followed by an End Market Assessment of the consumer markets in Burkina Faso and Niger, along with the most promising

potential export markets in Benin, Côte d'Ivoire, Ghana and Nigeria, although poultry at present lacks significant external markets, in part due to last year's outbreak of avian influenza (AI).

Poultry production in Niger is geared more towards production of eggs than poultry meat, with an estimated 17.1 million birds comprised of chickens, guinea fowl (*pintade*), ducks and pigeons. The bulk of production is in traditional backyard operations (*poulet bicyclette*), with even the poorest households owning 3 to 5 birds. The REGIS-AG gender analysis noted significant differences in the role of men and women in poultry production, as men are considered to be the owners of the birds, while women (with some help from youth) are responsible for the main tasks related to raising the birds. There are only about 50-60 modern-type operations raising poultry under intensive or semi-intensive conditions, which was estimated to represent only about 3% of production (DANIDA 2013). Based on statistics from Niger's Ministry of Animal Resources, both production and producer prices have been growing in recent years.

The national flock in Burkina Faso was estimated at 35 million birds, accounting for about 15% of total production of meats and fish (USAID ATP/E-ATP 2010e and FAO 2008). Production conditions in the traditional sector suffer from low productivity of the local breeds, poor feeding practices—when farmers feed the birds at all—and the near-total absence of any chicken coops to prevent household contamination and illness and to protect the birds from predators, theft and animal disease. The modern sector for production of poultry meat and eggs is more developed in Burkina Faso than in Niger, with modern hatcheries and animal feed manufacturers in the capital Ouagadougou and elsewhere in the country. Modern semi-intensive poultry meat operations, a minority share of domestic production, are at risk from the competition presented by world market frozen poultry meat imports, while backyard production and egg operations are less vulnerable due to the distance from the maritime ports and relative isolation of the Ouagadougou and Niamey. In both countries, new semi-intensive egg operations have been started in recent years through self-financing, with producers generally raising 100 layer hens, although not all are following the necessary procedures for ensuring animal and human health.

Poultry can often serve as a valuable economic activity for vulnerable households and specifically women due to their lower investment costs (chicks vs. goat kid for example), the ability to easily sell the birds when stressors or shocks hit a household and their potential for nutritional benefit through egg laying. However, health risks due to illness due to poor animal health practices or contamination from chicken excrement can pose potential risks to smallholder producers if they are not prevented or mitigated.

The enabling environment for poultry production is not terribly encouraging in either country, characterized by limited government involvement, virtually no access to credit, and substantial risks. In Burkina Faso at least, there is also a bit of a cultural bias against poultry production, as the Peul ethnic group shows a preference for raising ruminant animals. Animal health issues are a major impediment to expanding the poultry sector, particularly avian influenza (AI), Newcastle Disease, and the weaknesses in the system for traceability. All of these factors favor imports off the world market for segments of the population that can afford higher cost frozen, fattened birds.

Input markets in both countries contribute greatly to the inefficiencies in the poultry value chain. Producers rely upon supplies of day-old-chicks (DOCs) from their own farms or other traditional operators, or imported from Europe and other countries in West Africa, specifically Nigeria in the case of Niger and from Senegal and

Mali in the case of Burkina Faso (which also has its own hatcheries). The transport of DOCs to the farms is problematic, leading to high mortality rates due to the informal nature of the trade and fragility of the chicks. In both countries, compound feed scientifically adapted for poultry is considered to be expensive and hard to find, with most backyard operators giving their birds very little in the way of feed or simply occasional handfuls of mixed grains. A new network of feed-mixing operations is needed in both Burkina Faso and Niger in order to expand meat output and layer hen productivity. For the medium to large scale operations, under-watering due to availability and cost is also a factor limiting the productivity of poultry rearing in the two countries.

Veterinary services are generally available in both countries, although traditional producers are hesitant to spend money on vaccines and medicines. Gender plays a role on this issue too, as women tend the birds and understand the risks of disease but men control the decisions on spending money. The Ministry of Animal Resources in each country does make government veterinarians available to poultry producers in most regions, but there are obstacles to the needed growth in private sector veterinary services, para-veterinary professionals and village inoculators.

As for marketing, both countries exhibit an overlapping multi-layered system with the product changing hands many more times than is optimal. Traditional farmers typically sell on-farm directly to consumers or at village markets. Collectors who accumulate from 20 to 100 birds, usually for 1,250 to 1,500 FCFA per chicken and 2,000 to 2,500 FCFA per guinea fowl, and sell to wholesalers. Semi-Wholesalers/Retailers are found mostly in urban areas and may buy from villagers, collectors or wholesalers, making a profit of 250 FCFA per bird selling onwards to roasters, hotels, restaurants and direct consumers. Transporters move live birds by any variety of means, on foot, by bicycle or motorbike, or in a vehicle. The marketing segment of the poultry value chain lacks both vertical and horizontal integration, reducing its efficiency and its potential (DANIDA 2013).

The processing of poultry for consumption in these countries is still mainly done in the home, primarily by women. The two main types of businesses involved in the processing industry are chicken roasters and restaurant operators. A number of weaknesses in the present system for chicken roasting are clearly evident, as the operators typically slaughter the live birds onsite and lack sufficient quality infrastructure to separate the process of bleeding, plucking and evisceration from the cooking phase, presenting substantial hygiene risks. REGIS-AG can point to some best practices in the project area in north-eastern Burkina Faso, such as invest in freezers or cooking whole birds or cuts so they are ready before customers arrive at the shop.

The **End Market Assessment** for poultry benefited from REGIS-AG field research in Burkina Faso and Niger, but project staff were unable to visit the other target markets (Benin, Côte d'Ivoire, Ghana and Nigeria) as import restrictions due to avian influenza presently hamper export potential. Information about those markets is mainly derived from ATP/E-ATP reports. What is clear is how different the poultry end markets are in two Sahelian REGIS-AG countries compared with the coastal West African countries, where the interplay between the national poultry industries and the role of rapidly growing imports has led to many policy disputes.

In both the Burkina Faso and Niger end markets, there is a notable seasonal variation in demand for poultry products oriented around holidays such as Ramadan, Tabaski and New Year's. Consumers in both countries seem to prefer "traditional" poultry meat, usually from spent layer hens or males of layer breeds raised for meat. The main competitors for sales of poultry products in Burkina Faso and Niger are frozen whole birds

and parts imported off world markets, as well as consumers turning to alternative types of meat and non-meat protein such as cowpea (*niébé*).

Both men and women are involved in providing labor for the poultry end markets in both countries. The grilling of chicken to be sold is generally entirely done by men, while women are engaged as food vendors or as caterers preparing food with poultry products. There is a substantial roadside grilling industry in Burkina Faso and Niger, along with different types of “fast food” restaurants and more formal “sit-down” places.

The regional enabling environment on paper provides for trade in basic staple foods such as live poultry and fresh eggs under the ECOWAS Trade Liberalization Scheme (ETLS) and the rules of UEMOA, with the primary and secondary legislation detailed in the relevant section below. In reality, trade between Burkina Faso and Niger, and with their ECOWAS and UEMOA partners, is greatly hampered by unfair policies and practices, which have been analyzed by a number of USAID and other projects, including the series of West Africa Trade Hubs and ATP/E-ATP. At present, national import restrictions due to avian influenza (AI) present yet another barrier to poultry exports from the REGIS-AG countries.

As for the coastal export markets, seasonal demand plays as large if not a larger role than in the Sahel as the Christian holidays of Christmas and Easter come into play to a much greater extent. The 2010 “Overview of the Poultry Value Chains in Selected West African Countries” by ATP/E-ATP offered a number of illuminating insights about consumer demand for poultry in general within the ECOWAS zone. These include:

- West African consumers prefer to buy live birds and render them at home, fearful of hygiene issues.
- Imported frozen poultry meat off world markets is easier to breakbulk for retail sale.
- Consumers are accustomed to buying other meats not by weight but in piles (*des tas*).
- Eggs are more accessible to lower-income consumers, as they can be sold individually.

In terms of individual country markets, Benin often appears in statistics as the largest poultry-importing country in West Africa, but much of their trade is in fact transshipped to Nigeria by road or by the lagoon between the 2 countries. Côte d’Ivoire has perhaps the best-organized poultry sector on the whole continent and is a major importer of both poultry meat and eggs, but also practices a number of restrictive import policies such as an additional fee of 1,000 FCFA per kilo on poultry from all sources (including its ECOWAS partners). Ghana has seen its national poultry sector, once thriving and growing, crippled by competition from low-priced imports, and now mostly focuses on egg production. Nigeria, by far the largest market in West Africa in terms of population and economy, imposes an outright import prohibition on poultry products in order to protect its national industry, a clear violation of its commitments under ECOWAS and the WTO. Nevertheless, poultry imports continue to make their way into Nigeria.

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

While there are many sources of information, two key sources are mentioned here. The UN Food and Agriculture Organization (FAO) last conducted reviews of the poultry sectors in Niger in 2010 and in Burkina Faso in 2010. The USAID ATP/E-ATP included poultry as one of its 6 value chains—along with maize, onions, ruminant livestock (ATP) and millet-sorghum and rice (along with poultry, the other E-ATP products). ATP/E-ATP found it particularly challenging to boost intra-regional trade in poultry products, in no small measure

because of the continued application of import restrictions by the ECOWAS countries due to avian influenza.¹ This report draws from a number of ATP/E-ATP reports, specified in the section on References and Bibliography.

As part of the Value Chain Assessment, REGIS-AG has identified constraints and opportunities in production, inputs, marketing and processing of poultry for Burkina and Niger. These are found in tables in Annex One.

Production

In the two REGIS-AG countries, the poultry sector comprises at least five separate types of production activity:

- Breeding of hens and roosters of local chicken breeds under extensive conditions (non-confinement) for the production of fertilized eggs, which after natural gestation with the hens sitting on them, result in chicks, raised for several months before being sold to collectors who supply rural and urban markets in the country and for export to other countries in West Africa, particularly those on the coast.
- Breeding of other types of poultry (guinea fowl, pigeons, ducks, etc.) under similar non-confinement conditions.
- Semi-intensive fattening of young male birds, that is, male chicks of foreign layer breeds sold by local hatcheries as a by-product of their sales of the more-valuable female chicks.
- Intensive or semi-intensive fattening of broiler chickens of foreign meat breeds based on chicks coming from local or foreign hatcheries (in Africa or Europe).
- Intensive or semi-intensive breeding of layer hens for the production and sale of table eggs based on chicks coming from local or foreign hatcheries (in Africa or Europe).

Unlike many other parts of the world, in West Africa the poultry sector revolves more around the production of eggs than broiler meat (World Bank 2015). Tastes and preferences have developed in Burkina Faso and Niger such that many consumers prefer the texture and flavor of meat from spent hens and males from layer breeds rather than from meat breeds capable of producing larger-weight birds with more muscle meat.

Women and youth play many significant roles in the poultry value chain in these 2 countries, particularly in raising the birds on the farm and around the home and local neighborhood. Women also participate in end markets as egg sellers, food vendors and food preparers (caterers) in restaurants and hotels. REGIS-AG's gender analysis found that women in the poultry value chain face significant constraints in terms of control of resources and decision-making power (USAID REGIS-AG 2015b). Alleviating gender-specific constraints and improving the well-being of women in these vulnerable communities is critical to the success of the REGIS-AG program and the RISE initiative.

Niger

¹ As a result, E-ATP activities under the poultry value chain were dropped before the others.
CNFA

The poultry value chain figures prominently in the business and everyday lives of nearly everyone in Niger. A 2011 survey of households by the National Statistics Institute (INS) found that there were approximately 17.1 million poultry in the country. Chickens make up about three-quarters of that total, followed by a substantial number of guinea fowl (*pintades*) and lesser numbers of ducks and pigeons raised for food. About 56% of the poultry in Niger are found in the three target regions of the REGIS-AG project, with Tillaberi, the large region surrounding the capital Niamey, with nearly a quarter of the country's total flock at 4.1 million head, followed by Zinder with 2.8 million and Maradi with 2.6 million (INS 2011). Niger producers are used to raising hens that brood only three times a year, laying an average of twelve eggs per clutch. Such production is characterized by high mortality of hatchlings (REGIS-AG September 2015 VCA draft).

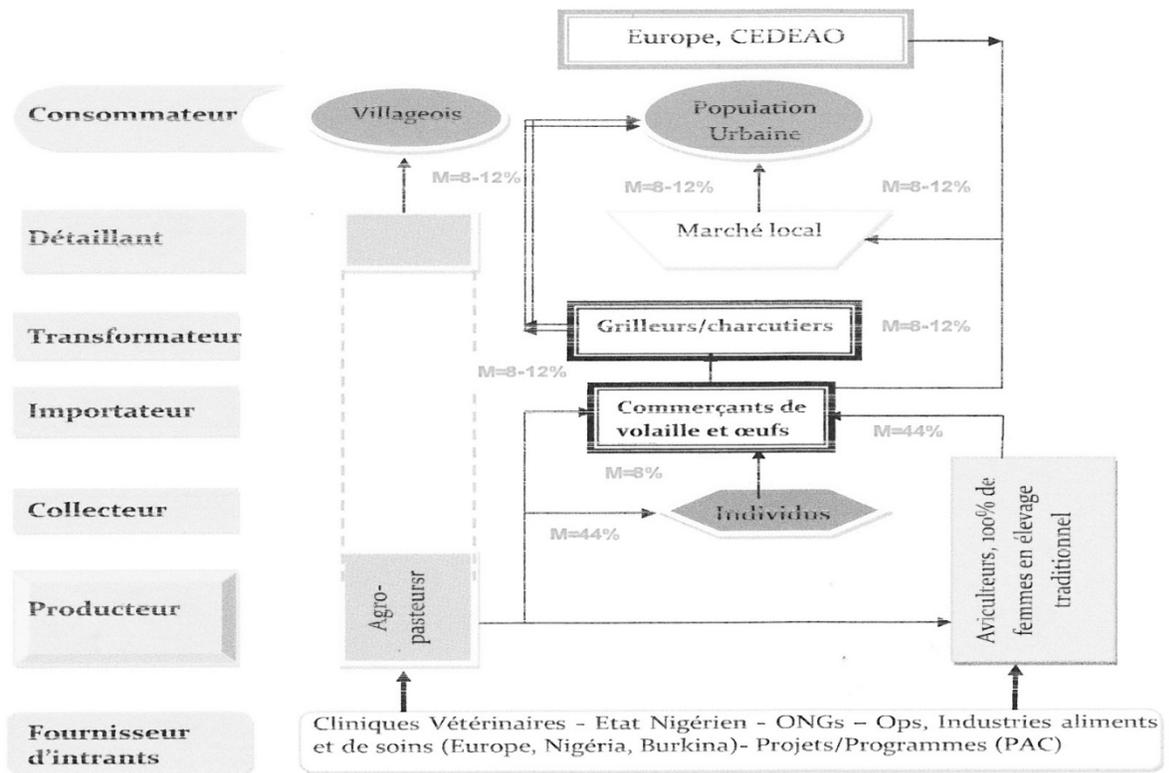
Backyard poultry rearing dominates poultry production in the target regions of REGIS-AG and throughout Niger, but semi-intensive production is increasing with the presence of some semi-industrial production units. The 2013 study done by NIRAS for the Danish aid agency DANIDA estimates that in Niger the modern intensive-type of production operation only accounts for less than 3% of the national flock, or about 840,000 head per year (DANIDA 2013). That study estimated about 50 farms in the semi-intensive sector, but REGIS-AG now believes there are about 60 modern producers in Niger.

As an example of how widespread poultry rearing is in the rural areas, the DANIDA study noted that 100% of women in rural areas participate in traditional poultry raising (*poulet bicyclette*). These are individuals or families who allow the birds to roam around the yard or the neighborhood and often provide the birds with few inputs before selling them for slaughter shortly after they reach puberty at the age of 6 months. Men are most commonly considered owners of the poultry, women are the main gender involved in the production of traditional poultry (USAID REGIS 2015b). Youth also participate in the raising of poultry, fetching them from outside when there is the danger of predators in the area, or simply to bring them back closer to home.

These backyard operations are very small in nature, each household having only a handful of birds, for example 3 to 5 per household. This observation is readily evident to anyone who visits Niger, even in urban areas. A 2009 study by Save the Children in the Dakoro department in Maradi found the following breakdown of flock size by economic strata:

- The very poor owned on average 3 to 5 head of poultry
- The poor owned 6 to 7 head of poultry
- Those with medium and higher resources owned 10 birds (Save the Children, 2009).

Figure 2: The Poultry Value Chain in Niger



Légende

- : Flux des produits de la volaille et des œufs
- M : Marge brute réalisée à chaque type de transaction du produit
- (thick) : Base de la chaîne de valeur –relation entre fournisseur d'intrants et producteur
- ⇒ (double) : Flux produits transformés

Source: DANIDA (2013).

As can be seen in Figure 2, this widespread micro-production of poultry in Niger quickly initiates a whole stream of value-adding activities providing substantial upstream and downstream economic output. In terms of jobs, there is a wide range of labor involved, ranging from unskilled farmers and their children to skilled veterinarians, input manufacturers, factory operators and food preparers. As poultry meat and eggs are two of the cheapest sources of animal protein available in Niger, the overall impact of the poultry value chain on food security and household survival strategies cannot be underestimated.

The Africa-wide development plan known as CAADP in its Pillar II provides a framework for categorizing how smallholder producers fit into 4 different positions in the value chain.² For poultry,

² According to the CAADP Pillar II framework, a smallholder producer may fit into 4 different 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.

smallholders in Burkina Faso and Niger fall into Position 1, as they generally have only a few birds around the household, slaughter the animals themselves for home consumption or sell them in the neighborhood, and infrequently add value by regular feeding. In Burkina Faso, smallholder producers benefit only indirectly from activities by the *Maison de l'Aviculture* and only the larger operators participate in the poultry regional representative association UOFA. Niger lacks a commodity-specific representative association for the poultry value chain. To promote poultry producers and build relationships between producers, input suppliers and buyers, REGIS-AG and partners such as PPVAO (in Niger) and REGIS-ER have hosted poultry fairs starting in 2015.

Niger's Ministry of Animal Resources collaborates with the UN's Food and Agriculture Organization (FAO) to provide poultry sector statistics, although these figures can at best be viewed as only rough estimates. The most recent FAO review of Niger's poultry sector showed annual poultry slaughter in Niger between 2003 and 2008 at about 13-15 million birds (Table 1). Poultry meat production was estimated at an average 28,405 tons per year from 2000 to 2006 (FAO 2010).

Table 1: Poultry Slaughtered in Niger, 2003-2008

Year	2003	2004	2005	2006	2007	2008
Niger	14.260	14.450	14.635	13.170	13.350	13.300

Source: FAO (2010). In millions of birds.

Niger's Ministry of Animal Resources in recent years has started to publish its own annual livestock statistics in the *Rapport annuel des statistiques de l'élevage*, although unlike the FAO estimates, these do not account for the country's entire flock, only those sold in organized markets. As in Table 2, the chicken and duck categories showed increases in quantities marketed from 2011 to 2013.

Table 2: Poultry Supplied to the Markets throughout Niger, 2011-2013

Type	2011	2012	2013
Chicken	2,119,114	2,226,840	2,357,484
Guinea Fowl	609,806	691,960	718,525
Duck	62,905	45,848	55,408

Source: Ministry of Animal Resources. Number of head of poultry.

While price data are far from definitive, the evolution of prices and seasonal price changes in recent years shows several identifiable patterns. The average price recorded on the reference markets by Niger's Market Information System (SIM/B) indicate that during the last three years, the average price of poultry has been steadily increasing (Table 3). From 2011 to 2013, the average producer price in these markets increased 14% for traditional chicken, 17% for guinea fowl, and 18% for duck.

Table 3: Average Producer Prices in FCFA for Poultry, per Bird

Type	2011	2012	2013
Chicken	2,054	2,136	2,348
Guinea Fowl	2,508	2,648	2,944

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

Duck	2,266	2,307	2,669
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Source: Ministry of Animal Resources.

As with most agricultural products in Niger, there is a notable seasonal pattern to poultry prices as well. Prices increase during the rainy season from June through September, when farmers sell some fowl because of the lower production of eggs and as during these years, religious holidays such as Ramadan and Tabaski occurred during this period. From October onward, prices tend to fall until March (Figure 4). This period corresponds to the end of the rainy season and the beginning of the colder period when production conditions are more favorable.

Table 4: Monthly Producer Prices in FCFA for Chicken, Guinea Fowl, and Duck

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Chicken	2 287	2 188	2 151	2 220	2 212	2 260	2 430	2 556	2 555	2 477	2 402	2 441
Guinea Fowl	2 655	2 653	2 668	2 833	2 814	2 996	3 187	3 492	3 157	3 056	2 907	2 913
Duck	2 538	2 466	2 783	2 888	2 554	3 015	2 860	2 877	2 899	3 226	3 161	3 012

Source: Ministry of Animal Resources.

In terms of the enabling environment in which poultry production takes place in Niger, there is very little government intervention in the poultry value chain, except in the veterinary area described in the section on inputs below. Bio-safety measures, where they are in place on the semi-intensive operations, are primarily the result of operators trying to protect their investments, rather than as a result of close government oversight.³ REGIS-AG has put a strong emphasis on training poultry value chain actors on bio-safety and the risks inherent in working with poultry in order to promote best practices at all scales of production. Ensuring the implementation of bio-safety practices helps to mitigate or prevent risks to the flocks, which can have detrimental economic impacts on households when lost to disease.

The Government of Niger announced its intention to issue a Programme National de Développement de la Filière Avicole over the course of 2013, but the plan was not implemented and therefore did not progress towards the goals laid out in the plan through government supported interventions (GON 2013). In preparation, Niger sent two experts from the Ministry of Livestock on a study mission to different types of modern poultry operations in different parts of the country in 2013, covering the Tahoua-Agadez and Maradi-Zinder corridors. They reported low productivity on the farms visited due to:

- feeding practices
- the habitat in which operations take place (on-farm installations)
- poultry diseases
- hygiene
- and the non-respect of bio-security measures (GON 2013).

There is a notable lack of access to finance in support of poultry production in Niger. As modern intensive and semi-intensive farms tend to be turn-key operations requiring large upfront commitments, lack of finance is a significant constraint to the expansion of Niger's poultry sector. As demand is continuing to grow, failure to address access to finance for local producers will open the door to increasing volumes of imported poultry meat.

³ Government-mandated destruction of whole flocks due to avian influenza in 2005-2006 being a recent exception.

Burkina Faso

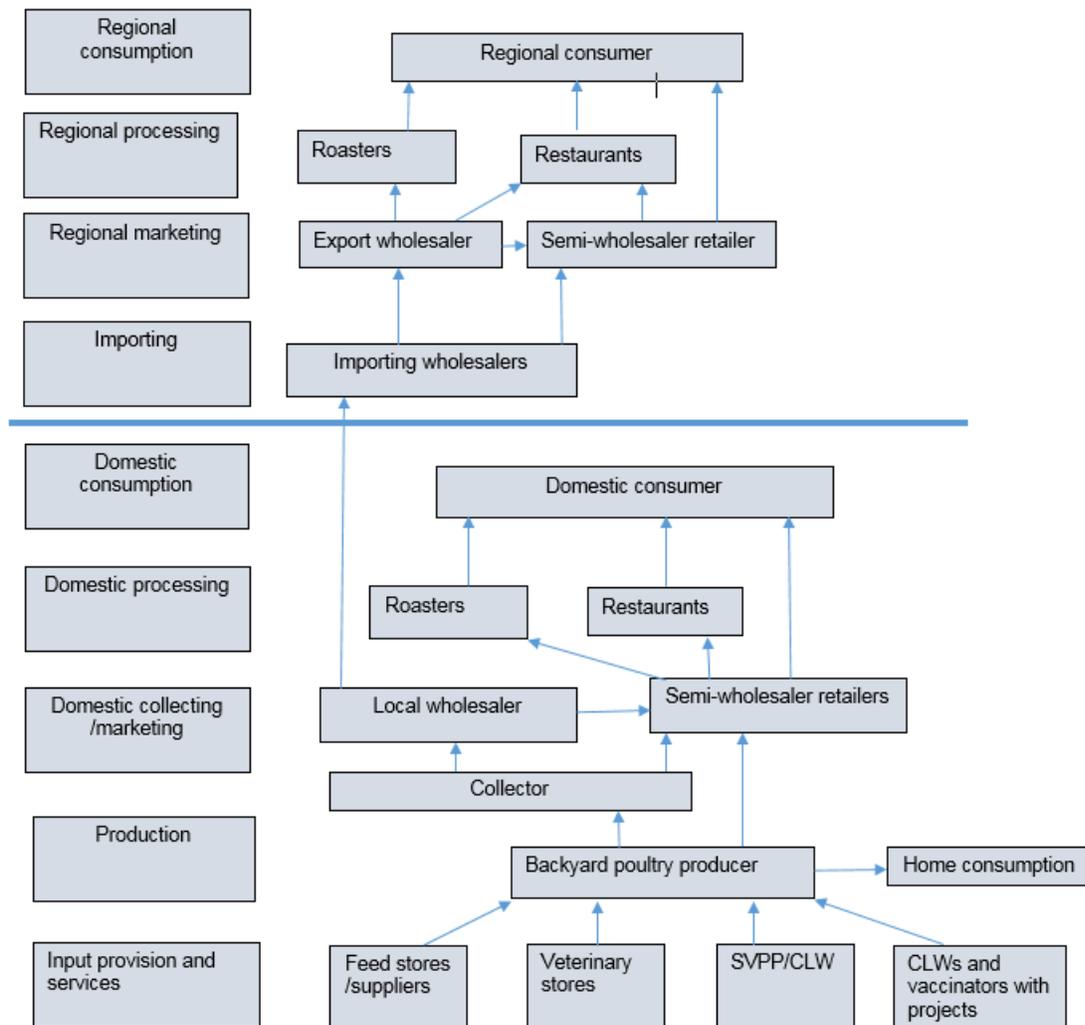
As in Niger, in Burkina Faso poultry production is widespread throughout the country. As Burkina Faso has greater potential for production of feed grains such as maize, there is a larger modern-type poultry industry in Burkina Faso. The private sector firms operating in the poultry value chain are also better organized in Burkina Faso than in Niger. Nearly all modern poultry production in Burkina Faso is self-financed (USAID ATP/E-ATP 2010e).

Burkina Faso was estimated as having 35 million poultry in 2008 (USAID ATP/E-ATP 2010e). Chickens make up about three-quarters of the total, with guinea fowl at about one quarter of the number of chickens and lesser numbers of ducks, turkeys and pigeons (FAO 2008). At the time of the last FAO review of the poultry sector in Burkina Faso, poultry was thought to represent 15 percent of the overall output for animal protein (meats and fish). Annual slaughter was reported at 30 million birds in 2015, with exports of 80,000 birds (ECODUFASO 2015).

While most of the modern farms are clustered around Ouagadougou and to a lesser extent Bobo-Dioulasso, southwestern Burkina is better suited for poultry production than the hotter and drier Mossi Plateau of central Burkina Faso. Feed and water are more plentiful and cheaper, temperatures do not generally reach the scorching Sahelian levels of the capital, and land is cheaper and more readily available (USAID ATP/E-ATP 2010e). While the region around Bobo-Dioulasso may be better suited for poultry production, the city has only about one quarter the population of Ouagadougou and lower incomes, making Ouagadougou consumers better able to pay more attractive prices to producers for eggs and broilers.

REGIS-AG has sketched out the different actors in the poultry value chain in Burkina Faso, showing horizontal and vertical linkages (Figure 3). The top part of the diagram also depicts the process taking place in export markets.

Figure 3: Poultry Value Chain in Burkina Faso



Productivity per bird is estimated to be quite low in Burkina Faso, with egg production at only 40 per year for chickens and 90 for guinea fowl (FAO 2008). Most ‘traditional’ poultry meat is derived from spent hens and roosters over 1 year old. These have a live bodyweight of 0.5 to 1.5 kg. (REGIS-AG Poultry VCA-EMA).

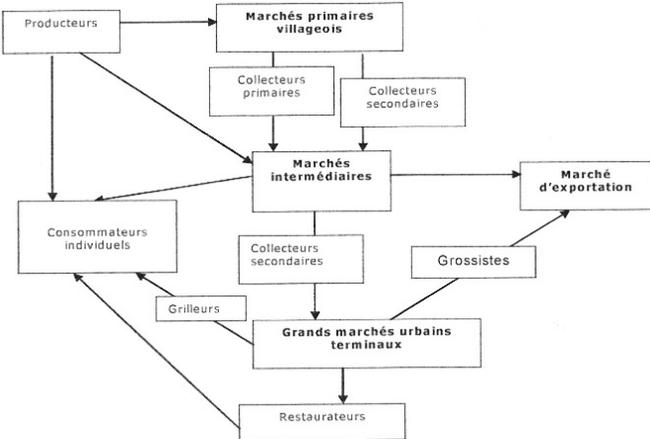
Typically, there are 10 to 100 birds (including chicks) per household, larger than in households in rural Niger. Each household owns on average 10 hens and 1 or 2 of their own roosters, these coming from local breed that has not benefited from any genetic improvement. This breeding stock is renewed using their progeny or via the purchase of a few chickens from neighbouring villages and markets. Attempts by research institutes and extension projects to improve the genetics have been conducted but with limited outcomes. It happens occasionally, however, that some individuals of non-native (exotic) breed are introduced into the local flock.

Housing or coops for the poultry is rudimentary at best and most of the time non-existent, which has negative consequences for both the households (contamination from chicken excrement and animal disease) and the birds (high risk from predators and greater exposure to animal disease). In rare cases, poultry houses of around 20 m² have been built with high level of subsidies from development assistance projects. Poultry are free to roam outside all day and also during the night, hence there are regular losses due to thieves and

predators. The chickens feed themselves by collecting what can be found outside, e.g. worms, plants, grains etc. In rare cases, owners distribute some grain to the poultry. Overall, the quantity of feed available is far from sufficient for the needs of these local breeds.

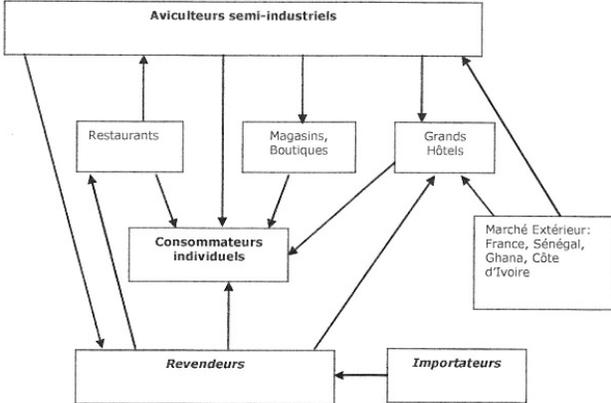
The 2008 FAO study makes an interesting contrast between the structure of marketing channels for the family-raised poultry sector and that for the growing semi-industrial poultry sector in Burkina Faso (Figures 4 and 5). Note that households raising poultry can make direct sales to individual consumers or take their birds to village markets, while the semi-industrial operations have a wider range of outlets but do not sell directly to individual consumers or sell in the country’s outdoor food markets.⁴

Figure 4: Marketing Channels for Backyard Poultry Production in Burkina Faso



Source: FAO (2008).

Figure 5: Marketing Channels for Semi-Industrial Poultry in Burkina Faso



Source FAO (2008).

In the REGIS-AG project area in north-eastern Burkina Faso, the bulk of production consists of the raising of traditional chickens under extensive practices (non-intensive operations), with a number of guinea fowl and minor quantities of pigeons and ducks by almost 100% of rural households and an unknown proportion of urban households. In these areas, guinea fowl production is seen as an accompaniment to chicken production. Flock size in northeast Burkina Faso is reported to be lower than in other areas of the country, probably due

⁴ In many parts of the world, farmers make the most profit selling directly to consumers.
CNFA

to the low availability of feed and to the lesser importance of urban centres.

Village producers of poultry sell chickens and guinea fowl when they need cash to pay for school fees, clothing, special events, and food not produced at home, providing a significant coping strategy for households facing regular and irregular economic burdens. Chickens are usually sold after 6 months of age with a weight not over 1 kilogram. A household with 10 hens and 1 or 2 cocks is therefore able to sell around 300 chickens per year, bringing a cash income of around 600,000 FCFA (2,000 FCFA per head). In most cases, the only cash expenses during that year would have consisted of 15,000 FCFA for vaccination (300 chickens x 50 FCFA) and 15,000 FCFA for deworming tablets.

With the aim of meeting the increasing demand for chicken eggs, a few families in the project area have recently engaged in “modern aviculture” by purchasing between 50 and 200 layers of improved breeds to produce and market chicken eggs. In the project area, there are also some (fewer than 10) semi-intensive operations both for production of layer hens and for poultry meat based on imported Day-Old Chicks (DOCs). As the number of these farms is quite small, there is currently no horizontal organisation of the producers in the project area. On at least one of the two farms visited by REGIS-AG, the lack of basic training in appropriate techniques has been observed to lead to poor technical results (mortality of layers, low egg-laying rate).

There are some other considerations related to poultry production as well, some of them cultural in nature. In northeast Burkina Faso, REGIS-AG has learned, higher priority is given to the breeding and growing of large and small ruminants, especially by the Peul ethnic group, the traditional herders for large ruminants. Poultry farming has long been held in low regard in Burkina Faso, as reflected by a saying in Peul: “If you only have poultry, you are not an animal breeder.” This perception is changing nowadays though. REGIS-AG has developed diagrams for both the poultry meat and egg value chains in the project area. These are contained in Annex Two.

The Egg Sector

In both Niger and Burkina Faso, much like for poultry meat, egg production is a combination of backyard operations and more modern-style businesses. In traditional egg production, women do the majority of the work. Women are usually responsible for preparing the feeds, feeding the poultry, cleaning up the droppings, and collecting the eggs. In some of these tasks, children may assist the woman. In contrast, production-related tasks that are usually considered the man’s are building the coop (if any) and contacting the veterinarian.

In terms of technical performance of the backyard operations, the native breeds in these 2 countries reportedly lay around 40 eggs per year. Improved breeds of chicken could be expected to give up to 300 eggs per year. Even with the existing breeds, productivity would increase if the birds were given suitable poultry feed on a regular basis. Natural incubation occurs over 21 days. Guinea fowl eggs are considered a delicacy and cost more than chicken eggs, usually only available during the rainy season (USAID ATP/E-ATP 2010e).

As with broiler meat production, modern intensive egg operations around the world are very much a turn-key business, with different steps and requirements fairly rigidly laid out. The farmer purchases female day-old-chicks (DOCs) or ready-to-lay pullets (each 5 to 6 months of age), then feed the layer hens for a cycle lasting around 12 months, collecting and marketing the eggs on a daily basis. At the end of the cycle, the laying rate will have become too low and the income from selling eggs insufficient to cover the costs of feed and

manpower. Old layers (18 months of age) or “spent chickens” are therefore sold for meat purposes and a new cycle can start after 3-4 weeks of cleaning and disinfection of the premises and equipment.

Modern egg production started in West Africa several decades ago. Contrary to broiler production, the egg sector has not been affected by low-priced imports from elsewhere in the world. In Niger, the largest farm is Goudel, located in the Niamey region where it specializes in egg production for the Niamey market. But the level of egg production does not come close to meeting demand which is filled by imports from neighboring countries.

In Burkina Faso, farms are mainly located around Ouagadougou and Bobo Dioulasso, and most of them are members of an association (the *Maison de l'Aviculture*). They purchase DOCs either from local hatcheries, from neighbouring countries (Ghana, Côte d'Ivoire), or from Europe via air freight. For each cycle, a farmer will tend from 100 to few thousands of layers. Until very recently, modern egg production systems were totally absent in northeast Burkina Faso. Two farmers were met (one in Dori and one in Bogandé) with around 100 layers each. While these farms got underway in 2014, even the local ministry officials at Kaya were not aware of their operations. Despite political willingness in West Africa, there is no real strategy at the state level to develop the entire value chain for traditional poultry. Programs have mainly targeted the production stage, with support provided to vaccination, housing etc. and with limited efficacy.

Animal Health

Animal health issues represent a fundamental problem for the poultry value chain in the two REGIS-AG countries. They relate to both external threats such as avian influenza and Newcastle Disease and to internal systemic weaknesses such as farmers' inability to take adequate measures to ensure bio-safety and a poor enabling environment for helping them to do so.

Even before considering external threats, traditional poultry farming experiences high morbidity and mortality, particularly in chicks, as access to veterinary services is limited and poor management practices are common. Because of poor feeding, accidents, predators, and infectious diseases, part of the chicks die before reaching the age of one month. After 1 month of age, the chickens are stronger, but they will all die if an infectious agent like Newcastle Disease appears.

The biggest problem facing producers is Newcastle Disease. Vaccination against this disease and other animal diseases are not often carried out in a timely way by producers, if they are carried out at all. The vaccination rate of poultry in Niger is one of the lowest in the sub-region. The vaccination rate is well below 10% in Niger while Burkina Faso has a higher rate at 33% in 2013. The average in the ECOWAS zone is 22%; in comparison of what might be achieved, in Mali, the other Sahelian country in ECOWAS, the rate reached 54% in 2013. In veterinary care, veterinarians are predominantly male with exceptions for female vaccinators trained by VSF.

However, it has to be noted that in Niger the veterinary agency CPAVI (*Centre de Promotion de l'Aviculture Villageoise*) under the Ministry of Animal Resources has been able to gradually increase the vaccination rate against Newcastle disease year by year. Numerous other development assistance projects have tried to make gains on vaccination, but often with no sustainable results or sometimes even counterproductive outcomes (because of high level of subsidies and the lack of participant buy-in), without coordination among themselves

lacking and without a process for ongoing learning from good and bad lessons and experiences from the country and elsewhere.

Part of the internal systemic weakness is that the majority of producers do not have chicken coops. Without shelters, diseases are transmitted more easily and there are the added risks of theft and attacks by predators. Developing and upgrading the poultry value chain requires programs for villagers to construct hen houses.

Regrettably, after a hiatus of about a decade, avian influenza (AI) has sprung up again in West Africa. Eleven countries of West Africa experienced avian influenza between 2006 and late 2008 (USAID ATP/E-ATP 2011b). In 2015, AI re-appeared in both of the REGIS-AG countries and now afflicts at least 3 other ECOWAS countries, Côte d'Ivoire, Ghana and Nigeria, all of which are potential export markets for poultry products from Burkina Faso and Niger (*Jeune Afrique* 2015 and PROMED 2015). The impact on trade in poultry for the 2 REGIS-AG countries is discussed in greater detail in the End Market Assessment further on in this document.

The proper procedure in case of an AI outbreak is to destroy a farmer's whole flock, and in fact, all of the flocks within a given range of an infected farm. Traditional poultry farmers in Burkina Faso and Niger do not have access to insurance against losses due to animal diseases, while for industrial-type operations with a far larger number of birds held in close quarters under confinement conditions, the risk of losing one's investment is even greater.

The REGIS-AG study on gender noted that men usually decide whether a veterinarian should be contacted and whether feed should be bought (REGIS-AG 2015b). This is in line with the observation that decisions involving the use of or earning of money, such as calling a veterinarian, buying feeds, or marketing, are typically done by men. Training of men and women in rural areas is critical to addressing this constraint to achieving better animal health. If men do not understand and agree about importance of veterinary care for poultry, time and resources spent by women in them may be lost

Animal health risks plague the poultry sector all along the value chain. In the transport and marketing of baby chicks, mortality rates can be devastating, depending on conditions. An ATP/E-ATP transport cost study on the Ghana-Benin corridor noted that on single journeys with no stops or transfers in specialized vehicles, mortality rates can be negligible, one or two birds per box of 50. On difficult journeys using non-specialized vehicles which do not allow for optimal transit conditions, mortality rates can be 50-100% (USAID ATP/E-ATP 2011a). If the weather is very hot and the boxes are improperly stacked within the vehicle without room for ventilation (for instance on the seats of a taxi) and the journey is significantly delayed, such rates are common.

Human health is also at risk in traditional backyard operations if live birds are allowed to enter the household or food preparation areas due to chicken excrement contamination. The need for good hygiene practices extends all throughout the poultry value chain but begins at the household level where risks to families are significant. For poultry rearing near the home, parents and children alike must learn safe handling techniques, whether for handling live birds, around the chopping block, and in the kitchen. Elderly persons, those with compromised immune systems, and newborns are particularly at risk. A REGIS-AG brochure on safe handling practices will be developed in collaboration with REGIS-ER and DFAP projects that have WASH activities in order to help raise awareness of the health risks associated with free roaming chickens in and

around the household. Additionally, the ATP/E-ATP study found that widespread use of passenger vehicles means in-transport biosecurity measures are not taken (such as disinfecting the vehicle) and birds are in constant contact with humans, which can have negative health consequences of the vehicle passengers.

Input Markets

Traditional poultry farming uses a very limited amount of inputs and services and this is part of the internal systemic weakness. Three of the main problems affecting the poultry value chain are related to input markets: the supply of baby chicks, feeding practices, and the use of veterinary services. Other inputs include the materials for constructing the building and the needed equipment, such as drinkers, feeders, fans, drainage canals, etc. For modern operations, access to water is required, whether by drilling a well or by purchasing water.

The supply of **baby chicks** is linked to the existence and proper functioning of a hatchery in the country or in a neighboring country. The hatchery incubates the fertilized eggs and then sells them as day-old-chicks (DOCs). The female chicks are sold for laying operations producing table eggs while male chicks are sold to be raised for meat, particularly in anticipation of upcoming holiday seasons. In developed countries, the male chicks are considered to have little economic value and are destroyed.

In the two REGIS-AG countries, the supply of DOCs is a mix of locally produced and imported products, depending on the scale of the operation. Traditional poultry farmers may use some of the chicks born on their own farms to raise for eggs or meat, or may buy them from others within the village or town. Some farmers may also buy ready-to-lay pullets at 5 or 6 months of age. More modern-style operations rely upon imported DOCs. The 2013 DANIDA study noted that in Niger the DOCs are imported, either from Europe via air freight or from Nigeria. Creating a local hatching industry therefore stands out as one of the barriers to creating a poultry value chain that is attractive to investors (DANIDA 2013). In Burkina Faso, DOCs can be purchased from hatcheries in Ouagadougou, or farmers outside the capital can rely upon Ouagadougou-based traders. Traders import DOCs from Senegal, Mali (via *Mali Poussin* of Bamako), France and Belgium (USAID ATP/E-ATP 2010e). Poultry operations can also buy DOCs from the Burkinabe poultry association, which imports DOCs from foreign hatcheries, including from Europe. But the DOCS still need to be transported from the airport in Ouagadougou to the destination. As mentioned above, lengthy transit times, delays and use of inappropriate vehicles contribute to mortality and deterioration of layer chick health.

As for **animal feed**, this is an area where education about the costs and benefits of feeding the birds could greatly help the traditional poultry sector. Poultry producers operate in village conditions, letting the poultry scavenge on kitchen scraps, insects, and cereal grains, supplemented by occasional scattering of simple mixes of grain and germ. This limits the birds' ability to gain muscle meat or lay eggs and induces greater animal health problems among the birds than under controlled feeding conditions.

In more modern operations, hens are not able to scavenge and are therefore fed exclusively on feed brought to the farm building - either raw materials or manufactured feed. The purchase of poultry feed represents over half the cost of the final product, whether meat or eggs. Maize, which is high in energy content but also usually has over 10% protein, is considered an ideal element in poultry feed. Yellow maize in particular is desirable for egg production, as feeding yellow maize to layer hens results in yellow-colored egg yolks, which consumers prefer. While West Africa grows a considerable volume of maize, a natural complement in poultry

feed, the local maize is often preferred for human consumption.

Finding suitable composites of local forage and waste-product materials for poultry feed—differentiated by whether for production of meat or eggs—is an option, but requires feed manufacturers or larger farmers to be organized and scientific. Few companies manufacture and market feed specific to layers in Niger, for example. In the REGIS-AG project area in north-eastern Burkina Faso, farmers can obtain animal feed either from Ouagadougou or from Fada N’Gourma. The ATP/E-ATP project provided an indication of the composition of poultry feed being produced by a manufacturer in Bobo-Dioulasso in 2009 (Table 5).

Table 5: Major Ingredients in Compound Poultry Feed in Burkina Faso

Ingredient	% in Feed	Cost per Bag (FCFA in September 2009)	Unit of Sale (bag weight)	Cost per kg. (FCFA)
Maize (white)	55-60%	12,500	100 kg.	125
Wheat Bran*	14%	2,500-2,750 4,000-4,400	25 kg. 40 kg.	100-110
Subtotal	69-74%			
Cottonseed Cake	8-10%	9,000-9,500	50 kg.	180-190
Soya (roasted) (unroasted)	8-10%	13,500-15,000	50 kg.	270-300 175-200
Fish Meal	8-10%	13,500	50 kg.	270
Subtotal (2 of 3)	18-20%			
Sea Shells	7%	4,000	50 kg.	80
Premix	0.25- 0.5%			1,600-1,700
Lysine, methionine	< 0.5%			3,100 (lysine) 4,500 (meth.)
Yellow/orange colorant (for layers)	0.5%	35,000	20 kg.	1,750

Source: USAID ATP/E-ATP (2010e) based on information from the *Maison de l’Aviculture*.

Note: Maize or rice bran can substitute for wheat bran. Two of three sources of protein (cottonseed cake, soya, fish meal) are typically used, not all three.

There are considerable opportunities for entrepreneurs knowledgeable about optimizing the economic and nutritional aspects of feed rations. Therefore, it would be appropriate, as an improvement of the efficiency of the value chain, to consider the installation of poultry feed manufacturing units by region. The units must also be able to make feed for other animals. However, the success of these units will depend greatly on the establishment of a good local distribution circuit, the organization of producers, and the existence of a private structure capable of managing the feed business. REGIS-AG currently works to build and support the linkages between poultry producers and feed suppliers through matchmaking events where value chain actors meet together to learn about each other’s issues, product demands and to take orders and held periodically throughout the year.

Water is a somewhat neglected input in poultry operation. Birds need more water as they gain body weight and when it is hotter (ECO CONGO 2004). A lack of water profoundly impacts the growth and survival of the birds. At least in semi-industrial poultry production, the operator is responsible for providing water to the birds, if it is available off the national system. The operator may or may not give sufficient water to the flock depending on the cost and his or her knowledge of the recommended milliliters per day. Backyard poultry

may suffer more from a lack of water, as by all indications it is rare for household operations to put water out for their roaming chickens, since that represents an extra expense. Therefore, backyard poultry must roam more widely to seek out sources of water, which may be of poor quality and, along with the heat, end up killing them.

Veterinary services are also an important area of inputs where the usage rate and overall effectiveness could be greatly improved. Unlike for baby chicks or animal feed, there actually is an established enabling environment in the 2 REGIS-AG countries, as the national ministries can follow guidelines provided by the Organization for International Epizootics (OIE) and the *Centre Régional de Santé Animale* based in Bamako, Mali, but what is needed is greater education for the farmers about the benefits of veterinary services.

Traditional poultry farmers have access to village vaccinators and veterinary paraprofessionals, and to a lesser extent the veterinarians themselves, but are reluctant to pay for the service.⁵ While vaccination against 4 or 5 animal diseases is advisable, the main service consists of the injection of one or two vaccine doses per year to protect the poultry against Newcastle Disease.⁶ According to data provided by the Burkinabé Ministry of Animal Resources in Bogandé, in the REGIS-AG project area, around 30% of the poultry flock is vaccinated, at a cost to the farmer of 50-70 FCFA per bird. A smaller proportion of the flock is also receiving deworming product through oral administration to control gastro-intestinal worms at a cost to the farmer of about 50 FCFA per bird. The prices paid by the farmers cover the cost of the product as well as the service, provided by public or private veterinary paraprofessionals, or just by semi-trained village vaccinators.

As mentioned above, in traditional operations, there are tangible gender issues related to access to veterinary services. Unless training in veterinary care for women's poultry involves men, high losses of animals and productivity result, threatening project results and interest in project activities (REGIS-AG 2015b).

In both countries, vaccines and medicines are imported from Europe by wholesalers based in the capital. There are also poor-quality or “knock-off” products produced either in Nigeria or China that cost less, but are less effective and potentially dangerous to both animal and human health. In more modern egg operations, administration of vaccines to limit the impact of several diseases is mandatory and is usually done by the farmer himself after purchase of vaccines at the Ministry of Animal Resources, a private veterinary practice, or elsewhere. Inputs are high for this intensive, or semi-intensive, system as roughly 100 layers are kept in a closed or semi-open building sometimes with access to a fenced yard (“free-range layers”). This production system requires professional knowledge on the part of the farmers and technical assistance by veterinarians. Strict controls to ensure that eggs do not contain antibiotic residues following administration of treatment to the layers also needs to be organized by veterinary and food safety authorities.

Even though egg production requires strict farm management, the farmers met during the course of this study have not yet realized the importance of accessing the services of private veterinarians, even though they are available locally. For example, in the REGIS-AG project area in Burkina Faso, there are 2 private veterinarians located in Dori and Bogandé, but they have not been requested by the farmers to provide technical assistance. In Bogandé, this the public veterinarian of the National Directorate for Veterinary Services (DPRA) appears to

⁵ Of course, many farmers and others in rural areas also neglect taking steps—and spending money—to ensure their own human health.

⁶ There is no vaccine to date against avian influenza.

be able to render such assistance. Lack of regular veterinary service will inevitably increase the risks for this production to meet ups and downs. In Burkina Faso, the DPRA, under the Ministry of Animal Resources, has an existing sanitary mandate whereby private veterinarians are delegated the task of implementing vaccination against animal diseases under the supervision of the DPRA, but the linkages between DPRA and private veterinary practices still need to be formally laid out. There does exist a system of linkages connecting input providers and service providers, that is, between the importer/wholesaler of veterinary products (Ouagadougou-based), the private veterinary practices of Dori and Bogandé, and the veterinary paraprofessionals or vaccinators in the villages. In the case of the Dori-based private veterinarian, he is working closely with a dozen paraprofessionals according to the methods of SVPP (Services Vétérinaires Privés de Proximité) supported by REGIS-AG partner VSF-B. This approach still needs to be extended to the Bogandé-based private veterinarian.

Future support must be attentive to the crucial need for private veterinary businesses to survive, develop, and engage in additional activities. Government administration and projects must support them in organizing their network of veterinary paraprofessionals. As veterinary authorities seem either unwilling or unable to implement their strategy to let the private veterinarians and paraprofessionals take care of the practical activities related to prevention and control of animal diseases, the enabling environment for these private stakeholders to emerge, develop, and sustain their activities is still poor. Competition is frequent between the public and private actors, whether related to the sale of veterinary products, technical assistance in their usage, or the provision of veterinary certificates by civil servants with the Ministry of Animal Resources.

Improving the quality and the quantity over veterinary services, including to areas where private vets are absent or where paraprofessionals are not yet working, should be considered as the priority for the REGIS-AG project, as it is a pre-condition for the sustainable development of both traditional poultry farming and of modern egg production in both countries. One veterinary expert advising REGIS-AG sketched out a model for the project area in north-eastern Burkina Faso whereby 5 private veterinary businesses could each supervise 20 auxiliaries trained in providing assistance, supported by a handful of individual operators (*cabinets de soins*) with specific technical knowledge regarding poultry health. Such a system could be expected to result in a vaccination rate against Newcastle Disease of 70% in the target area.

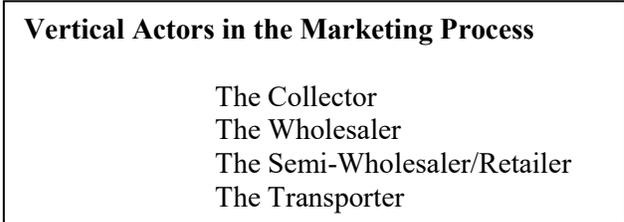
Marketing

In the poultry value chain in Burkina Faso and Niger, the marketing of poultry products occurs at many levels—on the farm itself via direct sales to consumers, in village markets and larger markets in town and cities, to end-users such as restaurants or hotels, or simply on the side of the road. While poultry production involves many millions of people in these countries, the marketing of poultry products may involve just as many.

Chickens are sold at 6 months of age or older to traders on bicycles or, in rare cases, directly to processors. Hens and roosters of over 1 year are also sold through the same channel either because they have become too old and are therefore performing less in breeding (lower egg laying rate, poorer feed conversion) or when the household needs additional cash. These chickens have a small size and weight (between 0.5 and 1.5 kilograms live bodyweight) but their weight is never measured as the trading transaction is based on a price per head and not per kilogram.

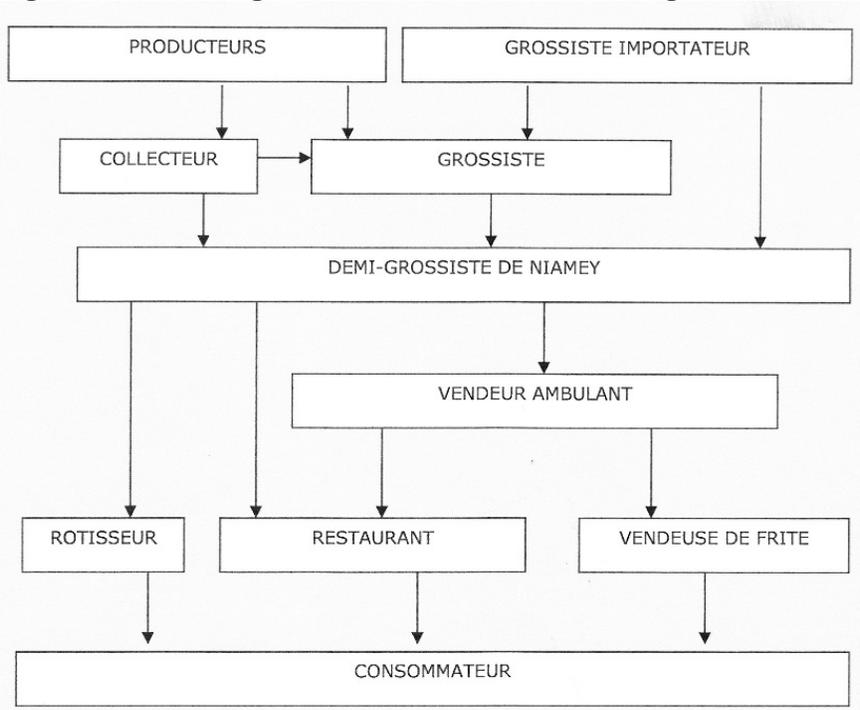
Income from poultry represents one of the few opportunities women have to be able to save and invest, an important part of their risk mitigation strategy. Women have a limited role in the marketing of the poultry. Marketing is usually assured by collectors who come to the villages to buy poultry before the market day. Typically, it is the men who sell the poultry to the collectors, or who take the poultry to the markets to sell. There are very few women who are wholesalers or retailers of poultry in the market.

The links between the collection and marketing of local poultry are loose and not clearly defined. Indeed, depending on the situation, both the wholesaler and the retailer jobber may buy directly from collectors, especially when there is high consumer demand before festive occasions, Ramadan, Tabaski, New Year's, and others. In addition to the producer and the end-consumer, REGIS-AG has identified the following actors in the marketing process (see Box), while FAO provided a diagram of the marketing channels for live birds (Figure 6).



The Collector typically works for his own account or can be an agent representing a wholesale trader. The collector visits the village markets two or three days before the day of the weekly market, seeking to buy poultry from village producers. The purchase price varies between 1,250 and 1,500 FCFA per chicken and between 2,000 and 2,500 FCFA for Guinea Fowl. In the project area in Burkina Faso, the typical collector will bring from 20 to 100 birds to market at one time, whether on foot, by bicycle or on a motorbike.

Figure 6: Marketing Channels for Live Birds in Niger



Source: FAO (2010).

The Wholesaler has more resources than the collector and comes only on market days to gather the birds collected by collectors working for him. Poultry thus collected in Niger is either conveyed to other consumer markets such as Niamey, Zinder, Maradi, etc., or is exported to Nigeria. Indeed, during REGIS-AG field surveys, wholesalers questioned in assembly markets, including Koundoumawa in Zinder, confirmed the existence of a poultry value chain for export to Nigeria. The major constraint they evoked concerned the fluctuation in the exchange rate of the Nigerian currency, the naira, versus the FCFA, but other problems encountered in exporting to Nigeria are described in the End Market Assessment below.⁷

The category of Semi-Wholesalers/Retailers are mostly settled in urban centers and are sourcing poultry from villagers, collectors, or from wholesalers. They pay between 1,250 and 1,500 FCFA for chicken, and 2,250 and 3000 FCFA for a guinea fowl. They realize on average a margin of about 250 FCFA for each bird sold, regardless of species. The main customers are: roasters, hotels, restaurateurs, and direct consumers. The marketing network for local eggs is about the same as that of the birds.

Transporters play an important role in delivering poultry from collection markets to consumer markets. Poultry is transported in personal transport and cargo vehicles in difficult conditions, causing losses, especially in hot weather. As these transport losses are uninsured, marketing finance can be added to the list of finance-related limitations affecting the poultry value chain. In the case of transporting DOCs, ATP/E-ATP estimated that the overall effect of stressful transport on a DOC's health and productivity is estimated to be a 13% deterioration in value (USAID ATP/E-ATP 2011a).

A graduate student from Ghana at a university in Senegal conducted an in-depth study of the Niamey market

⁷ Including the restrictions on poultry trade due to avian influenza.
CNFA

for live poultry in 2012. The survey interviewed 29 vendors of live birds, finding most to be “*personnes âgées*” of the Zarma ethnic group and noting the high mortality rate during transport (Seidou 2012).

Source: ATP/E-ATP project.

The advent of the mobile telephone has made a concrete impact in improving the efficiency of the marketing system for the poultry value chain in both countries. As in the photo, nearly all persons involved in the marketing process have access to a mobile phone (Figure 7). The telephone can be used not only to make contact between the buyer and seller, but also to execute payment. Recently, Airtel, the mobile telephone



company in Niger, started to provide a new service which seems to be widely used. Traders and processors are able to pay via the Airtel outlets and via mobile phone when they purchase live poultry, reducing the time and costs of transactions.

In terms of the efficiency of the linkages in the marketing system, in both countries the products go through too many hands. Of course, this is very favorable for providing employment opportunities, even for the very poor. It is common to see youth, particularly girls, along the roadways in the villages and in cities selling a handful of eggs from a basket or large bowl.

For Niger, the DANIDA study noted that the link between poultry middlemen or processors (*transformateurs*) and consumers is weak, making it difficult to evaluate their needs. The lack of horizontal and vertical communication among the actors results in a disconnect in terms of understanding the expectations regarding end-product characteristics (DANIDA 2013).

Figure 7: Man selling chickens in Ouagadougou

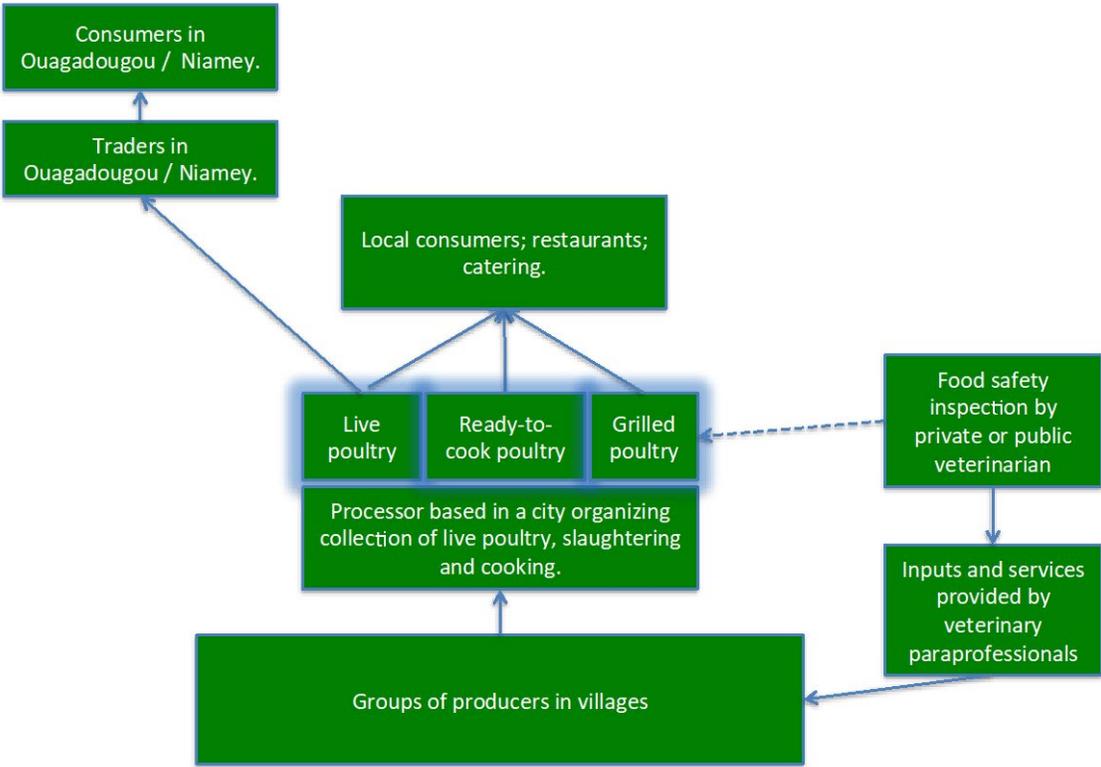
In its field work, REGIS-AG has observed at least two examples of stronger vertical integration in the marketing chain. First, whereas one Burkinabé egg producer in Bogandé explained he sells his eggs to one or more traders who then sell them to customers in the city, a new egg producer in Dori trades his eggs by himself directly to shops in Dori city every day, capturing more of the value added from what in economics is called *place utility*. Second, a Burkinabé trader in the project area who also operates a roadside chicken grilling operation explained that, rather than relying on intermediaries, he goes directly to farmers in order to purchase the live birds he needs, then brings them back himself to his place of operation. REGIS-AG has observed that in Burkina Faso at least, and probably also in Niger, traders should not be considered as a type of stakeholder who will be able to, or be interested in, significantly develop the poultry value chains. Working

in short channels, direct selling from households to processors, should be encouraged whenever possible.

Processing

In the two REGIS-AG countries, poultry processing is an underdeveloped business. Vendors selling chilled cuts of poultry are rarely found in local or urban open air markets. Supermarkets, such as the Marina Market in Ouagadougou, typically feature still-frozen or recently thawed whole birds and poultry cuts that have been imported off the world market, rather than consumer-ready cuts in suitable packaging made from locally grown poultry. It is unfortunate that poultry processing has been neglected, as it figures at the very heart of the value chain, holds the potential for capturing substantial value added, and provides the final link with the consumer (Figure 8).

Figure 8: Poultry Processors are at the very Heart of the Value Chain



For both on-farm consumption and with the sale of live birds to individual consumers in both villages and cities, the large majority of poultry is slaughtered, plucked, cut and cooked in the home by women, often older women such as grandmothers. Even in roadside grilling operations, where men purchase live birds for slaughter and cooking onsite, it is common to see women in the background assisting the men in these functions of getting the bird ready to put on the grill.

In Niger, the principal actors at the processing link of the value chain are chicken roasters and restaurateurs.

Roasting is an activity reserved exclusively for men who are supplied by semi-wholesalers. The average purchase price paid for birds will vary throughout the year depending on various situations. However, at the time of the REGIS-AG survey (June/July 2015), the purchase price of a grilled guinea fowl was 3,750 FCFA and that of a chicken was 2,000 FCFA. Other production costs such as fuel wood, labor, salt, and oil are estimated at about 225 FCFA francs per bird, resulting in a total cost to the roaster of 2,325 FCFA for chicken and 4,075 FCFA for a guinea fowl. The average selling price of a roasted guinea fowl to a consumer is 4,375 FCFA and that of a chicken 2,625 CFA francs. The recent DANIDA study estimated that *transformateurs* engaged in the grilling of chicken operate at about a 7.6% gross profit margin (DANIDA 2013).

Unlike other countries in the region, such as Burkina Faso or Côte d'Ivoire where the roasters are installed in *maquis* or restaurants, Nigerien roasters operate along public roads. Hygienic conditions are poor. There are no cold chains for conservation of slaughtered or unsold chickens, which often causes losses or risks to human health. In addition, most roasters do not work under cover or in a kiosk, so that in the rainy season they are forced to stop their activities, causing shortfalls in supply available to consumers. To these difficulties is added the instability in the price of poultry during both the approach to the rainy season and religious festivals. These businesses also have insufficient working capital to upgrade their equipment or improve their product line.

REGIS-AG gained insight into the processing industry in the project area in north-eastern Burkina Faso. It is estimated that there are around 10-20 poultry processors-grillers in each of the cities - more in Kaya and fewer in Bogandé. Each processes around 20 birds per day. They usually rent a 50 m² area or shelter near a main road. The shelter includes cages to store live poultry, a plot where poultry can be bled and to boil water, a wooden table for defeathering and preparing carcasses and meat cuts, and a fireplace for cooking meat, whether by grilling, frying, or roasting.

In these facilities, live poultry arrive in the early morning and are slaughtered one-by-one based on orders made by consumers. This means that the different steps—storage of live poultry, bleeding/plucking, evisceration, and cooking, are not clearly separated phases—although they should be to avoid contamination of the final product from the “dirtier” stages. The shelters themselves are inadequate to ensure that some basic hygiene practices are applied to prevent contamination between the different stages as most operators experience difficulties in properly cleaning and disinfecting the premises. Some processors are requesting support to equip themselves with basic chilling equipment that would enable them to slaughter all the live poultry arrived that morning, prepare the carcasses, and keep them chilled.

Even though the national regulations and international standards call for regular inspections of this processing stage of the poultry value chain, examining both food safety practices and an operator’s environmental management, premises and practices are almost never inspected by the public administration (whether DPRA, health agencies, or municipalities). There are some positive examples in this area, however:

- One female operator in Dori has a 15 m² area, featuring a concrete floor and walls as well as a roof, in which to slaughter poultry. She is equipped with freezers to store carcasses before selling them to a mining company for catering purposes to serve up to 1,000 workers.
- One processor in Dori is buying live poultry directly from villages, processing them in a small place in the city, and cooking carcasses or cuts to be sold directly to consumers.

While for other meat animals, there exist more or less modern slaughterhouses (*abattoirs*) in both countries, for poultry there is a notable lack of larger-scale facilities where traders or processors can take their live birds for slaughter and cutting, or where they can purchase wholesale quantities of rendered poultry. For example, in the project area in north-eastern Burkina Faso, REGIS-AG can foresee the possibility for roughly 15 slaughtering facilities (*tueries*) operating under modern hygiene rules to enjoy economic success.

End Market Assessment for Poultry

National End Markets in REGIS-AG Countries

The *current end markets* are the national markets for Burkina Faso and Niger themselves, as well as their ECOWAS partner countries Benin, Côte d'Ivoire, Ghana and Nigeria.⁸ The main competitors for sales of poultry products in Burkina Faso and Niger are frozen whole birds and parts imported off world markets, as well as consumers turning to alternative types of meat and non-meat protein such as cowpea (*niébé*). The most notable feature of the end markets for poultry in West Africa is the sharp increase in consumer demand before festive occasions, e.g. Ramadan, Tabaski, and New Year's. The poultry industry in the ECOWAS countries has yet to respond to the degree necessary to meet this seasonal demand in West Africa itself, never mind the even-stronger demand pull from Middle Eastern countries such as Saudi Arabia during the religious holidays.

Both men and women are involved in providing labor for the poultry end markets in both countries. The grilling of chicken to be sold is generally entirely done by men, while women are engaged as food vendors or as caterers preparing food with poultry products. Most of the meat and eggs produced are consumed in the home, although there is a substantial roadside poultry grilling industry, and many different types of restaurants. In both countries, poultry imports have grown rapidly in the past decade since 2005, mainly frozen poultry products from the European Union, Brazil and the U.S. (World Bank 2015). RECA in 2013 reported that Niger's poultry imports increased from 92 tons in 2009 to 2,171 in 2012 for a value of 256 million FCFA⁹.

The cases of Ghana and Senegal provide cautionary lessons for the poultry industry in both Niger and Burkina Faso. Poultry consumption has been rising steadily throughout West Africa over the past decade, fed by increases in both imports and domestic production. One disadvantage for the poultry industries in Ghana and Senegal is their large population centers are located on the coast, so imported frozen poultry gets to urban consumers quickly. Frozen poultry imports to Burkina Faso and Niger must come via refrigerated truck or railcar, and can really only be sold in the largest cities given the lack of reliable cold chain distribution, giving local production a geographic advantage. Even within the biggest cities, only a few retailers have adequate cold chain facilities to sell imported poultry, which spoils rapidly without

⁸ Nigeria of course practices a complete outright ban on poultry imports from all sources, including its immediate neighbors, in clear violation of its obligations under ECOWAS and the WTO (USAID ATP/E-ATP 2010a). As is the case with rice, another key staple for which Nigeria imposes a prohibition on imports, there are ample imports of poultry into Nigeria through its maritime ports off world markets, and on roadways from neighboring countries, particularly Benin.

⁹ Source is <http://www.reca-niger.org/spip.php?article624>
CNFA

refrigeration.

Another distinction is that imported frozen poultry is really a different market segment than poultry raised and slaughtered in households. The modern semi-intensive poultry operations are the segment in competition with imported frozen poultry, competing for institutional sales, to restaurants or supermarkets. These operations cannot compete with world market imports due to high costs of electricity, water provision, and limited animal feed options. Burkina Faso producers are slightly better off given the abundance of maize grown in the country, but this is mainly reserved for human consumption. Yet importers themselves also face difficult access to finance, typical transport-related issues, and the risk of cold chain failure. One advantage for local modern semi-intensive poultry meat operations is the ability to sell fresh meat, which has better flavor. Modern intensive poultry operations in both countries represent a minority share of national production, well behind backyard production of *poulet bicyclette*. Local backyard production will continue to be vibrant in the 2 REGIS-AG countries, as there seems a decided preference on the part of local consumers for “traditional chicken.”

Some Characteristics of Consumer Demand in West Africa

In 2010, the ATP/E-ATP project conducted an initial overview of the poultry value chain in selected West African countries (USAID ATP/E-ATP 2010e), with many revealing observations about consumer demand. An extended excerpt is provided here:

In West Africa there is little differentiation or articulation of demand. Most urban households are accustomed to buying live chickens and guinea fowl and either slaughtering the birds themselves or having specialized, artisanal slaughter done at marketplaces. For traditional, religious and customary reasons, consumers prefer to buy live birds, because they are able to evaluate the bird's appearance and health versus other birds and supervise slaughter (in part so that it respects religious rules). Purchase of birds of particular colors (usually solid colors) may also be required to satisfy religious leaders (marabouts) or for use in traditional ceremonies or religious rites.

Absence of a cold chain from the point of slaughter to sales outlet makes it difficult to offer high-quality chilled poultry products to buyers. Many buyers are suspicious of dressed poultry, fearing that the chicken might have been ill at the time of slaughter or already dead. They lack confidence that slaughter methods are hygienic and sanitary. The cost of electricity and cold storage in much of West Africa is also very high, and home ownership of refrigerators is limited outside of upper income households (though chilled chicken can be bought and cooked safely within a couple hours of purchase).

In contrast to the West African poultry value chain, imports of frozen poultry enter coastal markets in wholesale packages which allow for easy bulk-breaking and retailing of chicken parts, though these parts tend to be lower grade and less desirable for higher-income consumers. Imports include edible offals, feet, necks, backs and other parts with limited white or dark meat relative to bone and skin content. The main buyers of imported frozen poultry parts are lower-income households who cannot otherwise afford to buy chicken (whole birds). The chicken parts and offals end up retailed more often in open-air markets than in fixed retail establishments (with adequate cold chain).

The disadvantage of the current poultry marketing system is that households across a wide

spectrum of incomes are not able to buy higher quality chicken pieces with modest cash outlays. This contrasts with beef, mutton and pork consumption, where buyers can purchase small piles (des tas) of meat sold with bone in or without bones. To buy chicken or guinea fowl, consumers are forced to buy whole birds at high outlays relative to their incomes. Predictably, many urban households consume little poultry and only buy live birds for special occasions or holidays/religious celebrations. Consumption of beef, small ruminant meat, fish and pork is more regular, widespread, and generally higher. In contrast, lower-income urban consumers are better able to afford eggs produced on domestic layer farms. Eggs can be sold individually in some market outlets, or in bags of half a dozen eggs or so, which are more affordable to lower-income consumers than buying whole birds, whole bird carcasses, or trays of 30 eggs.

Burkina Faso

Overall demand for poultry products has been steadily increasing the past couple of decades, from 1.4 kilograms per capita in 2001 to a projected 2.9 kg/pc by 2016 (FAO 2008). Over the same period, egg consumption is expected to rise from 8.4 eggs per person per year to 17.7. Eggs are typically marketed in trays of 30. It is noted that Ghanaian traders will import fresh eggs into Burkina Faso for sale in the cities during certain parts of the year (FAO 2008).

Broiler meat consumed in Burkina Faso comes from a mix of local slaughter and from slaughterhouses and intensive farms located in Ouagadougou or Bobo Dioulasso, from Côte d'Ivoire or from other countries (Brazil, Europe, China, Thailand, South Africa) mainly through the port of Cotonou. Other poultry meat consumed also consists of local guinea fowl (estimated at 20% of the total volume of poultry meat) and of pigeons and ducks but in negligible quantities.

In northeast Burkina Faso, where REGIS-AG is working, it has been possible to observe certain localized demand characteristics. It appears that the demand for “traditional” chicken meat from spent hens is higher than what villagers produce. The meat of these old layers being quite firm and tasty, it finds a ready market among local consumers who consider it as having the characteristics of the stringy and somewhat gamey *poulet bicyclette* they grew up eating. Local inhabitants were not used to consuming chicken eggs, using them instead for incubation and production of chicks. Guinea fowl eggs produced locally also were not consumed in the target region, but were instead mainly traded towards Ouagadougou.

In the project area, backyard or traditional chicken meat represents the only type of chicken meat consumed except for some broiler meat produced under intensive fattening conditions brought from Ouagadougou to one or more mining companies north of Dori City. Local consumers prefer traditional poultry meat to broiler meat, despite its higher cost per kilogram. However, as in other parts of West Africa the past couple decades, broiler meat is likely to gradually take greater market share, especially in the catering sector (hotels and restaurants).

While there is theoretically free trade between Burkina Faso and Niger in live birds and poultry products under UEMOA and ECOWAS, there is only small-scale movements of products between the 2 countries, both along official border crossings as in Figure 9, across informal roads and via the Niger River.

Figure 9: Burkina Faso Customs post at Kantchari, near border with Niger



Source: ATP/E-ATP.

Burkina Faso applies a significant per capita tax on exported live animals to have those value chain operators help to finance its Fonds de Developpement de l’Elevage or FODEL. Reform of the FODEL export tax, ostensibly to benefit the livestock development fund, may be quite difficult to tackle, as the issue involves internal budget considerations and is sensitive politically. The level of the FODEL tax on each head of poultry is not known.¹⁰ As cross-border trade in live poultry is nearly exclusively on an informal basis, no FODEL may in fact be collected on live birds, even if the tax is on the books.

Niger

There is little data on poultry consumption in Niger, but poultry is consumed daily by households in urban areas. The 2010 FAO study noted that household consumption in 2007 represented about 55% of overall poultry meat demand, followed by 22% for “Fêtes” and lesser shares for baptisms and weddings. The DANIDA study estimates demand in Niger growing at 7-10% per year (DANIDA 2013).

According to the National Statistics Institute (INS) Households Meat Consumption Survey, expenditure on household consumption of poultry in Niger was 5,370 billion FCFA in 2011. According to the same survey, poultry as a feature of household consumption expenditure in the areas of implementation of the REGIS - AG project was as follows in Table 6.

Table 6: Household Expenditures on Poultry

Region	FCFA
Maradi	14,400,000,000
Zinder	13,300,000,000
Tillabéri	6,160,000,000

Source: Niger’s National Statistics Institute (INS/ECVMA 2011).

Poultry meat consumption by the middle class is certainly many times more than that of the poor. Eggs are the cheapest animal protein, so there may be less of a skewed consumption pattern in relation to income than for poultry meat.

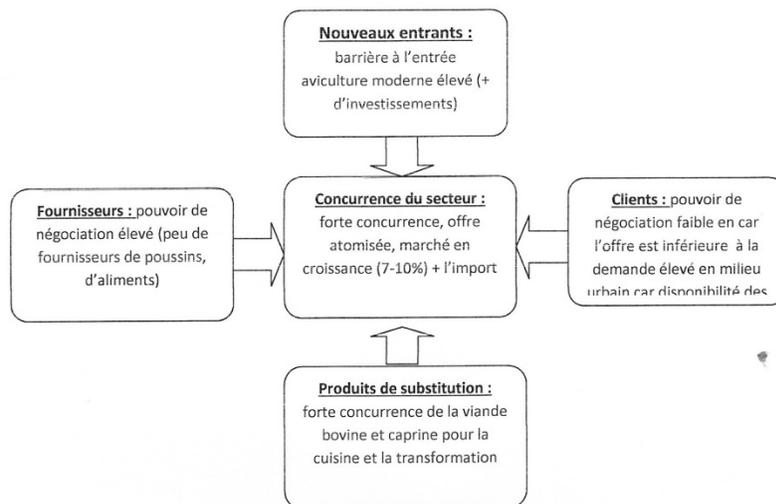
¹⁰ For cattle it is 3,000 FCFA per head and for sheep and goats 250 FCFA (USAID ATP/E-ATP 2010a).

There are two types of restaurants. Selling roasted, grilled, or stir-fried poultry in a “fast food”-type restaurant is an activity carried out by both men and women. Chicken or guinea fowl is cut into four pieces before being cooked. Each piece is sold for about 1,200 FCFA, or 4,800 FCFA for the whole bird. There are also “sit-down” restaurants serving chicken or roasted guinea fowl in well-appointed rooms where guests can eat and drink. The price of a roast guinea fowl is about 5000 CFA.

The ATP/E-ATP project found in its 2011 Value Chain Assessment that consumption of poultry meat is limited in West Africa due to the format in which it is presented to consumers, specifically the predominant sale of live or whole slaughtered birds with the recommendation for greater cutting of the poultry into pieces easier for consumers to prepare (USAID ATP/E-ATP 2011b). The 2013 DANIDA study strongly suggests conducting a detailed national market study in Niger to evaluate potential and actual demand and analysis of the sources of supply for meat.

As in Figure 10, the DANIDA study examines the different actors competing within the poultry value chain in Niger. One of the revealing conclusions is that there is “*offre atomisée*”, meaning that the retail sales points are often just individuals selling a few birds, small quantities of grilled meat, or a handful of eggs each day.

Figure 10: Diagram of Competing Forces in the Poultry Sector in Niger



Source: DANIDA (2013).

Like Burkina Faso, Niger also has an export tax on agricultural and livestock products leaving the country, this one designed to fund the collection and dissemination of information in those value chains. Niger’s export statistical tax is applied on onions, cattle and small ruminants at a rate of 3% of the “mercurial value” per bag of onions or per animal (USAID ATP/E-ATP 2010a).¹¹ It is not clear if the export statistical tax is applied on live birds or eggs leaving the country, but if exports were to increase substantially, there

¹¹ The “mercurial value” is not the actual value of the traded good but rather a notional fixed value, making it easier for Customs officials to assess at the borders. Evidently, Niger last updated the mercurial values for its export statistical tax in 1999.

would be a great risk of it being newly applied.

The Regional Enabling Environment for Poultry

The ECOWAS and UEMOA regulations on the free movement of poultry represent a well-established enabling environment for expansion of trade in poultry and poultry products. As one of the ECOWAS products, live birds may circulate freely throughout the 15 countries of ECOWAS without paying Customs duties, other import-related fees, or Value-Added Tax (VAT). The same holds for eggs. Processed poultry meat, whether chilled or frozen whole birds or chicken parts, would be eligible for duty-free treatment in shipment to other ECOWAS countries under the ECOWAS Trade Liberalization Scheme (ETLS).

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. One nuance is that UEMOA countries may choose to assess a reduced VAT (5%-10%) on eggs in shell, animal feeds, day-old chicks, flour of cereals, agricultural equipment (*matériel agricole*).

The full menu of primary and most relevant secondary legislation for both ECOWAS and UEMOA can be found in Table 7:

Table 7: Applicable Regional Legislation for the Free Movement of Poultry 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, including poultry, 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 12).¹²

Figure 12: ECOWAS Trader-Transporter Card for Staple Foods



Source: IICEM-Mali project.

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.

These cards refer only to basic staple foods (*produits du cru*). As processed poultry products, such as slaughtered birds, poultry parts, or consumer-ready meals containing poultry or eggs, 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 poultry 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.

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 poultry. 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.

The 2010 ATP/E-ATP report identified product-specific trade barriers facing intra-regional trade in poultry specifically (E-ATP), as in Table 8.

Table 8: Summary Table of Policy Barriers to Intra-Regional Trade in Basic Foodstuffs

E-ATP Value Chain	Identified Policy Barriers to Trade in West Africa
Poultry	<ul style="list-style-type: none"> ▪ Import ban in several countries on live animals, meat and eggs due to avian influenza ▪ Nigeria bans the import of poultry meat outright ▪ Need for certificate of origin to avoid paying the full range of customs duties ▪ Non-respect of equivalence of veterinary certificate

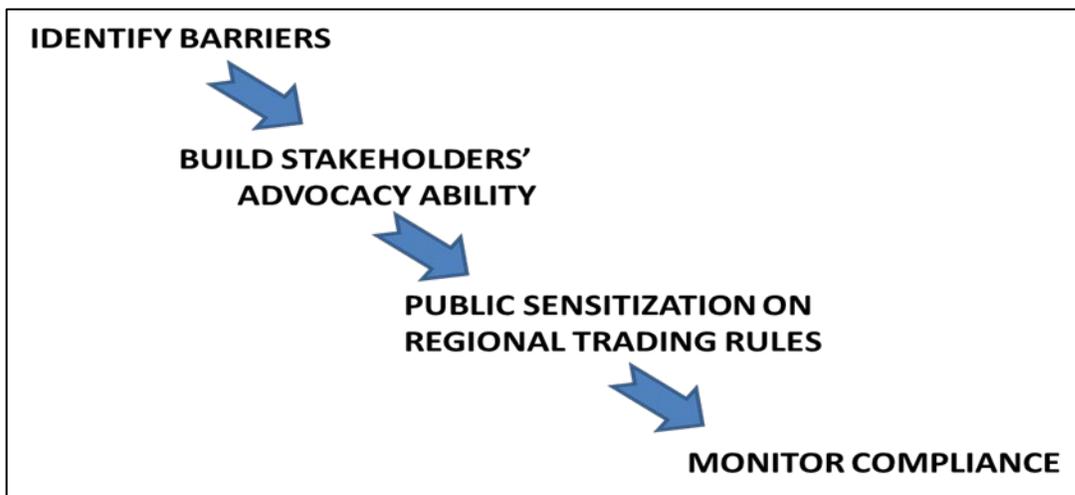
Source: USAID ATP/E-ATP (2010a).

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 poultry:

- 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.

There is a West African regional poultry value chain representative association, the *Union des Organisations de la Filière Avicole* (UOFA)¹³, with national chapters in many countries, including Burkina Faso, but not Niger. During the E-ATP project, there was strong participation by operators from Burkina Faso, including by one woman serving as the Secretary of UOFA. Poultry value chain operators received training and coaching in how to approach the dismantling of trade barriers such as those mentioned above (Figure 13). From all appearances, there were no Nigerien poultry value chain operators actively involved in E-ATP.

Figure 13: Approach to Dismantling Trade Barriers in West Africa



Source: ATP/E-ATP (2010a).

Regional Market Opportunities within the UEMOA/ECOWAS Region

Trade in poultry products in West Africa continues to be greatly hampered by national import restrictions erected following the outbreak of avian influenza (AI) in 2006. All of the countries in the eastern half of the ECOWAS territory were affected, leading to import restrictions in non-affected countries as well. Burkina Faso's last case from that outbreak was resolved in May 2006 and Niger's in June 2006 (USAID ATP/E-ATP 2010a).

After nearly a decade of few or no problems, in 2015 avian influenza once again became endemic in Burkina Faso and Niger, along with Côte d'Ivoire, Ghana and Nigeria (*Jeune Afrique* 2015 and PROMED 2015). Very few of the countries actually dismantled their import restrictions due to AI following the outbreak a decade ago.¹⁴ For this and a number of other reasons, unlike cowpea and small ruminants, there are not significant measurable trade flows between West Africa in poultry. It is common to see live birds, recently slaughtered birds, and trays of eggs carried one-by-one or by the half-dozen across borders by small-scale traders on foot or bicycle or motorbike. This is border trade and largely flows unimpeded,

¹³ Sometimes also known as the *Union Ouest Africaine des Foyers Avicoles*.

¹⁴ The failure to dismantle the AI import restrictions, despite prolonged stretches since resolution of the last case, must be viewed within a broader context in which Nigeria and other countries (such as Senegal) are protecting local poultry industries.

often between family or ethnic connections close by but in a different country.

Because of the restrictions due to AI, as well as the lack of a larger formal sector in the poultry value chains in the 2 REGIS-AG countries, the prospects for greatly increasing poultry exports from Burkina Faso and Niger, aside from the informal cross-border trade seen every day, are not bright at present. Nevertheless, visual observation at the borders suggests there are considerable daily flows of live birds across borders there within the region, and it is growing as consumption of poultry gains in popularity.

Benin and Ghana are two of the largest poultry-importing countries in Africa (Table 9). As poultry imports are banned in Nigeria, there are almost no recorded imports, but it can be expected that annual imports could reach as much as a quarter-million tons, given the increasing popularity of chicken in Nigerian fast food and restaurant outlets. Nigeria's poultry meat imports, despite the ban, enter at least 4 ways: a) brought by truck from Cotonou with the traders and truckers paying bribes to enter Nigeria; b) brought in at Nigeria's maritime ports, either under an *ad hoc* import license granted to political and business cronies or through bribery of port officials; c) as live birds brought in from neighboring countries in cars, taxis, donkey cart, motorbike or simply carried by hand; d) as registered airline imports (food served to passengers).

Nigeria officially bans the import of poultry, so no official statistics are available. FAOSTAT has only 2 data points in its series from 1990-2013, with 37,000 tons of fresh or frozen poultry meat imported in 2009 and 43,000 tons in 2010. Nigeria may have offered exceptional import licenses during the global food crisis, or these 2 data points may represent an attempt at using 'mirror data,' i.e. exports to Nigeria registered by a trading partner. It could also reflect an attempt to capture 'airline imports' reflecting poultry meat served to passengers on foreign carriers' flights, but these quantities are rather high for that aspect.

It is well known that most of the poultry imports into Benin continue on into Nigeria. As in Table 9, if 80% of Benin's imports go to Nigeria, that's 100,000 tons. Nigeria's large population and relatively higher per-capita income indicate higher meat consumption, and frozen poultry off the world market is very suitable for the burgeoning fast food market such as the Mister Biggs chain. Nigerian trucks also provide better cold chain assurance than in Burkina Faso or Niger. Given the high level of corruption at Nigeria's maritime ports, and the opportunity to bring in frozen poultry meat paying only a bribe but no other Customs duties or excise taxes, the attractiveness of smuggling poultry meat in through Nigeria's ports is very high. The quantities could equal or well exceed those imported via Benin, thus a quarter-million tons seems like a reasonable floor estimate.

Table 9: Poultry Meat Imports by Benin and Ghana (metric tons)

	2006	2007	2008	2009	2010	2011	2012	2013
Benin	29,000	46,000	67,000	77,000	98,000	104,000	124,000	125,000
Ghana	57,000	75,000	72,000	79,000	109,000	155,000	167,000	172,000

Source: World Bank (2015).

The world market for poultry meat is keenly competitive and low-cost producers in Brazil and Thailand can deliver frozen cuts and whole birds at prices well below the cost of production in West Africa, due to reliable access to feed ingredients (soybean meal in Brazil, for example) and lower-cost and more-reliable electricity. The U.S. is another major poultry meat exporter, with frozen leg quarters and other dark meat parts available at very low prices due to the U.S. consumers' preference for white meat. The EU also exports a large volume of poultry each year, with France exporting mainly frozen whole birds.

Benin

In official statistics, Benin often ranks as the largest importing country in West Africa, chiefly frozen whole birds and poultry parts arriving at the Port of Cotonou, and some air freight for fresh eggs. But it must be understood that Benin remains a major transit market into Nigeria for all kinds of poultry products. Whether by road from Cotonou to Lagos or along the lagoon, a wide range of poultry products can be seen going from Benin to Nigeria, ranging from inputs to end products.

The ATP/E-ATP project conducted a study of an existing **Kumasi-Accra-Lomé-Cotonou** corridor for the export of day-old chicks (layers) to Cotonou, Benin for operators there to produce eggs (USAID ATP/E-ATP 2011a). The long transit time and stressful transit environment that DOCs go through to reach Cotonou is detrimental to the DOCs' long-term health. As a result of this, end market buyers in Cotonou are willing to pay a significant premium of 13% for DOCs imported from Europe via air freight under optimal transit conditions. This discount is applied to DOCs coming from Ghana, despite the fact that there is *no inherent difference* between Ghanaian and European DOCs, other than the time and conditions in which they travel. Ghanaian hatcheries use European parent stock to produce their DOCs.

The study called for the improvement of procedures at the Togo and Benin borders for DOCs, including awareness building for control agents and establishment of special processing procedures. Every one of traders interviewed by ATP/E-ATP smuggled DOCs through the informal border from Ghana into Togo to avoid using the main border. Even in taking such evasive measures, informal costs (or bribes paid) along the corridor constituted 13% of transport costs and 5.5% of end market price (USAID ATP/E-ATP 2011a).

Côte d'Ivoire

Côte d'Ivoire suffered badly from a decade of civil war, but its poultry sector has been expanding in recent years. In 2010, there were about 33 million poultry. Per-capita consumption of poultry meat from modern production systems was estimated at 1.6 kilograms per person in 2008, while egg consumption was 33 per person per year (USAID ATP/E-ATP 2010e).

One estimate is that by 2019, Côte d'Ivoire will reach a figure for consumer demand for poultry meat of 30,000 tons, to be met by increases in both local production and imports. Demand for eggs is projected to reach 47,000 tons by 2019, with local output at 20,000 tons in 2010 (*Jeune Afrique* 2011).

Much like in Ghana, the Ivorian poultry industry also saw fierce competition at the beginning of this century from low-priced imports off the world market. Poultry meat imports grew from 2,122 tons in 2001 to 15,392 by 2003. At the same time, national production dropped from 9,669 tons to 7,538 tons over those 3 years (*Jeune Afrique* 2010). The industry employs about 15,000 people. Côte d'Ivoire also suffered an economic loss estimated at 14 billion FCFA from the outbreak of avian influenza between 2006 and 2006 (USAID ATP/E-ATP 2011b).

The modern poultry subsector is dominated by a handful of large, industrial firms, led by the SIPRA group. SIPRA has developed is an integrated supply chain that produces day old chicks through its subsidiary *Ivoire*

Poussin, provides feed through *Ivograin*, works with a cadre of well-supervised outgrowers, supplies over 100 sales points with slaughtered/dressed broilers through *Coqivoire* and operates numerous chicken grilling establishments (USAID ATP/E-ATP 2010e).

There are frequent press reports in West Africa about protectionist actions taken against low-priced poultry imports, but this is particularly true in Côte d'Ivoire. For nearly 20 years, Côte d'Ivoire has been taking somewhat heavy-handed action against imports of meat from outside the region, dating back to when the European Community was cleaning out its massive beef intervention stocks via the use of export subsidies and was more or less “dumping” frozen beef onto West African markets. Cote d'Ivoire has applied what has been termed a “countervailing duty” designed to retaliate against European subsidies. A fixed sum per kilogram has been added to the regular Customs tariff, a practice which continues to this day.

Cote d'Ivoire's actions have aroused much publicity, as it is believed to be the first developing country—and certainly the first African country—to take such an action against the “unfair” European policies. Cote d'Ivoire's actions are not necessarily “illegal” in the WTO, which is perhaps why no formal challenge has been advanced by the affected parties (initially the EU, and now all potential exporters of meats to Cote d'Ivoire).

Prior to 2005, Cote d'Ivoire applied an additional tax of 300 FCFA per kilo on poultry imports.” This increased to 1,000 FCFA per kilo as of 2005 and by all appearances remains in place, even on imports from its partner UEMOA and ECOWAS countries. In part due to this extra protection, production rose to 20,000 tons in 2009 (*Jeune Afrique* 2010).

Côte d'Ivoire has one of the best-organized private sectors for poultry in West Africa, with strong leadership from the *Interprofession Avicole Ivoirienne* (IPRAVI). Two associations belonging to the interprofession are the *Association Nationale des Aviculteurs de Côte d'Ivoire* (ANAVI-CI) and the *Association Nationale des Revendeurs de Volailles de Côte d'Ivoire* (ANAREV-CI). The sector plans to invest 150 billion FCFA and create 15,000 additional jobs by the year 2019 (*Jeune Afrique* 2010). Women can play a prominent role in the poultry sector in Côte d'Ivoire. For example, the head of the regional representative association UOFA, is an Ivorian woman.

Ghana

Ghana's national market for poultry is a mix of poultry meat imported off the world market and local egg production. At the end of 2007, Ghana was estimated to have 37.38 million chickens and guinea fowl. Per-capita consumption of poultry meat was estimated at 3.5 kilograms per year out of total meat consumption of 7.8 kg/pc (USAID ATP/E-ATP 2010e).

In the first decade of this century, there was a significant build-up of Ghana's poultry meat industry, with local meat production doubling between 2000 and 2007 (USAID ATP/E-ATP 2010c). To spur this growth, Ghana started importing a lot of Day-Old Chicks, roughly \$1.5 million worth of baby chicks in 2001 and another \$1.4 million in 2002 (USAID ATP/E-ATP 2010c).

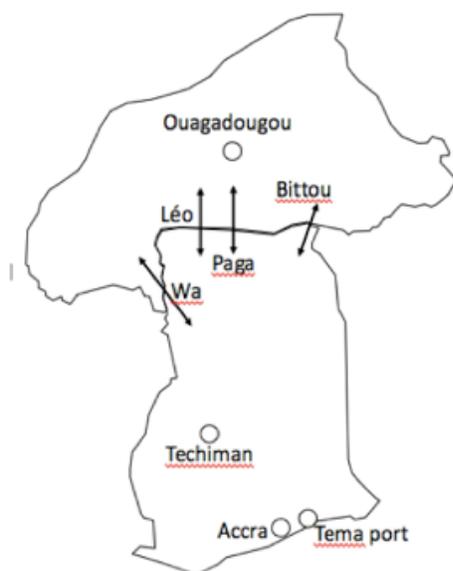
But a variety of factors contributed to a rapid decline in poultry meat output, including the high cost

of electricity for modern-style operations, limited availability of suitable local maize for poultry feed, a zero-percent applied Customs duty for several years,¹⁵ and above all fierce competition off world markets. At the same time Ghana started producing more poultry meat, imports of poultry meat grew rapidly as well, rising from 32,939 tons in 2003 to 73,788 tons in 2013 (Banson et al 2015). The bulk is in frozen chicken parts and frozen turkey parts in 2002. Ghana also imports a substantial number of eggs and some higher-value poultry products such as prepared or preserved duck, geese and guinea fowl. Imports are estimated to be 30-40% cheaper than poultry meat produced in Ghana, with national producers now only able to meet 10% of national demand in 2012 (Banson et al 2015). Consumer demand continues to grow.

One of the main producer associations is the Greater Accra Poultry Farmers' Association (GAPFA). With the negative impact of imports on domestic poultry production becoming clearer, GAPFA and others in Ghana's industry called in 2009 for the re-establishment of higher tariff protection under the now-established ECOWAS Common External Tariff (CET). As poultry meat is one of the sensitive products for many countries, the ECOWAS member states have not officially agreed yet on whether the end rate will be 20% as under the prior UEMOA CET or in the new 35% Customs duty rate. Many operators simply left the business or turned to only producing eggs. One producer near Tema told ATP/E-ATP that he was continuing to produce poultry meat only in preparation for the Christmas and Easter seasons, when demand increases.

While the incidence of avian influenza limits the possibility for trade in poultry products between Burkina Faso and Ghana, small-scale cross-border trade continues. Figure 13, from a 2015 DFID political economy analysis on intra-regional trade in West Africa, shows the 4 major road crossing points between the two countries.

Figure 13: Major Crossing Points between Burkina Faso and Ghana



¹⁵ For several years, Ghana was exonerating the import duty on poultry meat ostensibly in order to provide low-cost animal protein to its consumers.

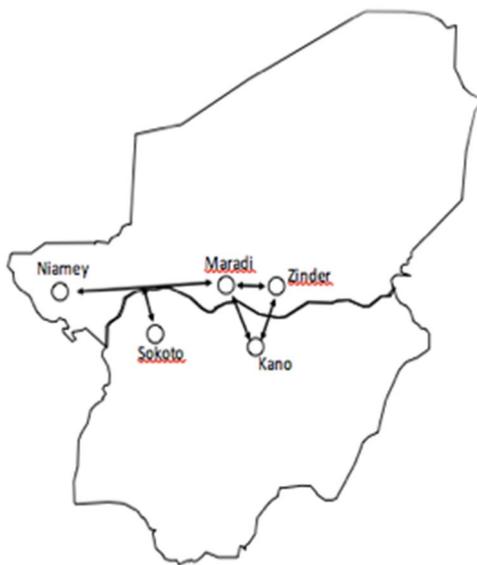
Source: DFID 2015.

Nigeria

For many years, Nigeria has banned imports of poultry meat, including from within the region (USAID ATP/E-ATP 2010a). Nigeria's government openly admits that the import ban is in place in order to protect Nigeria's domestic poultry industry from low-priced imports. A blanket ban on imports is an unfair policy barrier as Nigeria is in violation of its commitments under ECOWAS and under the WTO. Blanket bans are also not the best way to improve the competitiveness of the poultry sector.

The incentives for smuggling and corruption increase, and Nigeria's government loses customs revenue. Since Nigeria is such a large market (half of the consumers in the entire ECOWAS region) with generally higher incomes, lifting the import ban could be expected to increase the incentives for investment in the poultry sector in other ECOWAS countries. Figure 14 from the DFID study shows the major crossing points between Niger and Nigeria, where live birds and eggs cross every day in small-scale, informal trade.

Figure 14: Major Crossing Points between Niger and Nigeria



Source: DFID 2015.

In addition to the blanket ban, the AI import restrictions, and the many barriers to trade noted above, a number of other factors mean that the enabling environment for exporting poultry products from the REGIS-AG countries to Nigeria is not all it could be (see Box from DFID study).

Key factors which determine cross border trade flows between Niger and northern Nigeria:

- The Naira/CFA Franc exchange rate;
- High cost of transport due to artificial scarcity of gasoline
- Prices instability characterized by occasional price shocks;
- Poor enabling environment,
- Lack of regional protocols;
- Physical and policy barriers;
- Poor status of road;
- Weak links across regional value chains;
- Limited market information and support services such as finance; and
- Disorganized attitude of truck drivers

Source: DFID 2015.

4. Opportunities for REGIS-AG Interventions

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

Production

- Encourage the formation of producers groups that can attract service providers and develop contracts with them;
- Support producers in credit access for working capital and investments in infrastructure;
- Train producers in good production practices and simple record keeping;
- Support efforts of synchronized production, through a calendar including veterinary interventions, and with contracts for feeds and for direct sales to processors;
- Support, through business plan development, training and credit facilitation, development of feed companies, by individuals or groups, and at different scales, which would develop contracts for feed supply for producers.

Input Supply

- Develop and promote most appropriate methods to manufacture, based on cheap raw materials and /or purchase of manufactured feed, for feed;
- Strengthen the national association of private veterinarians and local associations of auxiliaries;
- Support efforts to recruit veterinarians to underserved areas;
- Promote demand through producer training on veterinary inputs and feed and producer groupings for common purchase;
- Promote contracts between private service providers and producer groups, to reduce cost of vaccination and treatment, and expand markets for the providers. Sensitize farmers about need for vaccinations.

Marketing

- Connect producers directly to processors, and thereby reduce the length of the marketing chain;
- Advocacy by municipalities to provide the markets with water access for cleaning the cages;
- Improve access to better equipment, such as improved cages, for better hygiene and reduced disease transmission;
- Connect producers to each other, producing according to schedule and selling together;

- Improve access to microfinance schemes, so the poultry farming is not negatively impacted by urgent needs of cash.

Processing

- Training of processors in basic good slaughtering practices, including components for veterinarians and auxiliaries;
- Development of direct contracts between processors and producers, allowing for traceability;
- Support to establishment of local associations of poultry processors;
- Development of credit access to processors through associations, enabling improved working capital, equipment, or funds for infrastructure (e.g., refrigeration, booths), depending on the level.

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6. Annexes

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

Constraints and Opportunities Related to Poultry Production

Constraints	Opportunities
Niger	
Existence of local breeds adapted to production conditions. Existence of many poultry producers (90 % of rural households). Existence of several projects and support programs to village poultry. Existence of private service networks nearby (SVPP). Existence of technical services for the supervision of producers.	Persistent diseases like Newcastle (NC), smallpox, Gomboro which causes high mortality in poultry and chicks. Feeding by scavenging, which favors disease transmission. Introduction of new subjects into the flock without care (under observation). Non-compliance with prophylaxis plan, i.e. Breach of epidemiological charter. Insufficient masons specializing in chicken coop construction and observing building standards; Persistence of bad practices (lack of sanitation, housing). Low use of compound poultry feed due to poor knowledge of importance in improving quality. Lack of compound feed manufacturing units and nearby distribution system facilitating access to rural producers. Lack of small producers' access to improved breeds of guinea fowl as <i>Dan Belgium</i> and <i>Obasanjo</i> . Difficult access to day-old chicks for egg production.
Burkina Faso	
Insufficient feeding of poultry leading to poor egg laying rate, small and weaker chicks and poor weight increase of chickens.	Experiment with the few options available (maggot culture; purchase of grains or manufactured feed etc.) through the conduct of a research & development program.
No or inadequate housing for	Experiment the few options available (basic housing for the

poultry.	night; protection for young chicks, etc.) through a research & development program.
Low rate of vaccination against Newcastle disease leading to losses and low rate of deworming practices.	See in “inputs and services”
Absence of reliable data about the number of poultry and the number of households.	Organize a census of the poultry at one given time of the year.
Service providers do not yet cover some villages.	Encourage the formation of new producer groups that will better attract service providers.
Quasi-absence of data related to technical and economic performances.	Encourage producers to record minimal data (number of poultry sold etc.)
Some very vulnerable households have difficulties in starting with a flock of poultry.	Make microfinance available for selected households to be able to purchase 10 hens and 1-2 cocks from a neighbour or neighbouring village.
Poultry farming is not well considered by most ethnic groups of northeast Burkina Faso.	Encourage changes in socio-cultural habits.

Constraints and Opportunities Related to Poultry Sector Inputs

Less than 30% of poultry are protected against Newcastle disease.	Reaching a 70-80% vaccination rate against ND will drastically reduce losses.
Less than 30% of poultry are receiving deworming products.	Reaching a 70-80% deworming rate will enable the poultry to more effectively use the limited feed available.
Nearly all poultry are underfed.	Explore the most appropriate and sustainable methods (cheap raw materials and/or purchase of manufactured feed) to better feed the poultry so their weights increase and the egg laying rate increases.
Private service providers meet unfair competition from civil servants, projects, and NGOs.	Explore the option to experiment with new local regulations in a pilot manner to reduce unfair competition. Strictly control the activities of projects and NGOs in training new village vaccinators since this has met very incomplete success and disturbs the economic sustainability of existing providers.

Constraints and Opportunities Related to Poultry Marketing

Challenges	Opportunities
Niger	
Existence of strong demand for poultry for domestic consumption	Lack of developed markets and slaughterhouses for poultry in consumer centers; Lack of designated areas for collecting and grouping or poultry at the

<p>(during celebrations, ceremonies and various consumer) in urban centers; Many existing collection and market end markets (consumption) for local poultry; Existence of a collection circuit very strong run by collectors and dealers; Existence of a distribution circuit oriented end markets of urban centers.</p>	<p>collection and aggregation markets; Working capital deficiency at the level of all the players ; Unorganized players in the market ; Problems in transport of poultry from collection markets to consumer markets, losses from heat; Fluctuating exchange rate of the Naira for poultry exporters</p>
Burkina Faso	
The low bodyweight of the live poultry is a limiting factor to the product attractiveness for richer consumers (in Ouagadougou mainly).	See above in “production”.
Prices for live poultry remain high proportionally to the bodyweight and makes the product less competitive compared to broiler meat.	See above in “production”.
Traceability from production to traders is non-existent except when processors buy directly from households.	Encourage shorter channels of marketing with direct selling from villagers to processors.
Cages used for the transport of live poultry are made of wood and are very rarely cleaned and disinfected, representing a risk for the transmission of contagious diseases.	Investment by municipalities is required to provide the markets with water access for cleaning the cages.
Transporting live poultry attached to the bike’s handlebars is not suitable for the welfare of animals and makes poultry weaker and more prone to	Encourage traders to invest in cages.

developing diseases.	
Most live poultry seem to be sold by households when cash is needed rather than after consideration about the best price to obtain.	Improve the microfinance schemes so the poultry farming is not negatively impacted by urgent needs of cash.

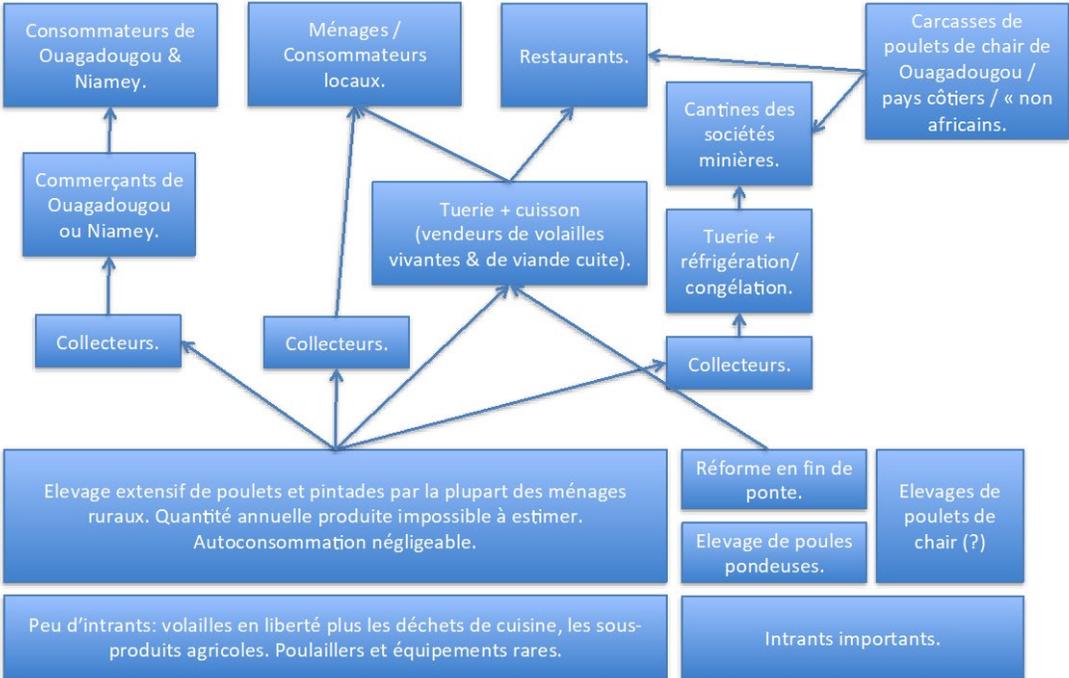
Constraints and Opportunities for Poultry Processing

Constraints	Opportunities
Niger	
Existence of strong demand for grilled poultry in urban centers. Existence of poultry supply chain.	Poor integration of marketing and hygiene aspects to avoid disease; Working capital deficiency; Lack of cold chain (refrigerators or freezer) to conserve the local chickens and guinea fowls slaughtered; Grilling performed most often on the edge of the highway, exposing the promoter to the risk of eviction; Poor organization of processing; No management training or experience for most actors in the chain, inability to calculate turnover;
Burkina Faso	
Processing facilities are fully inadequate to ensure animal welfare, basic sanitary quality of poultry meat and environment management. They are neither attractive enough for consumers to have confidence in the quality of the products they buy.	Small premises need to be built requiring an initial investment of around 4 millions FCFA (without land purchase). An international specialist well aware of the very small poultry processing facilities and practices that exist for example in Europe will need to be hired to advise the project team, the processors, the municipalities and the veterinary inspectors. See videos of such premises on www.bonnespratiquesvolailles.org
Hygiene is extremely poor.	Theoretical and practical training of processors in basic good slaughtering practices to be organised. See existing guide in French language on www.bonnespratiquesvolailles.org
Absence of food safety inspection.	Theoretical and practical training of veterinarians and veterinary paraprofessionals in basic good slaughtering practices and meat inspection to be organised.
Low efficiency of processing activities.	An increase in the number of poultry processed per day as well as in the bodyweight per poultry will optimise the time of workers and provide a better return on investment.
Lack of traceability from the production stage to the processing stage.	Processors who will join the program supporting investment in premises and training on good hygiene practices will be encouraged to source their live poultry directly from villagers.

Annex Two: Additional Value Chain Diagrams

The 2 REGIS-AG diagrams for the poultry meat and egg value chains in the project area in north-eastern Burkina Faso are presented here.

Chaines de valeur « VIANDE DE VOLAILLES » - Partie nord-est du Burkina Faso.



Chaines de valeur « OEUFs » - Partie nord-est du Burkina Faso.

