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**AGRIBUSINESS AND TRADE PROMOTION
EXPANDED AGRIBUSINESS AND TRADE PROMOTION**

ASSESSMENT OF VOLUMES AND VALUE OF REGIONALLY TRADED STAPLE COMMODITIES

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The opinions expressed here are the author's and do not necessarily reflect the views of USAID.

Abbreviations

ATP/EATP	Agribusiness and Trade Promotion/Expanded ATP
CILSS	Comité inter-états de lutte contre la sécheresse au Sahel
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
ECOWAS	Economic Community of West Africa States
FAO	UN Food and Agriculture Organization
FEWSNET	Famine Early Warning System Project/Network
HPAI	Highly Pathogenic Avian Influenza
IGAD	Intergovernmental Authority on Development
ILRI	International Livestock Research Institute
MIS	Market Information Systems
OECD	Organization for Economic Cooperation and Development
WFP	World Food Programme

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Introduction

Regional trade in basic agricultural commodities is steeped in history, and remains vibrant, dynamic and essential for economic activity and food security in West Africa. However, its actual extent is poorly known, it is commonly labeled as “informal”, and it is both underestimated and neglected as an important contributor to economic growth in the region. In addition, considerable obstacles remain, substantially driving up transaction costs, and penalizing producers, consumers, and actors at all levels of the commodity value chains.

Over the past four years, the Agribusiness and Trade Promotion (ATP) project and Expanded ATP project¹ have helped promote West African regional trade in basic food commodities through the implementation of various activities in i) direct trade facilitation, ii) capacity building of professional associations, iii) value chain productivity, iv) market information systems and trade flow data collection, v) reductions in road harassment, vi) access to finance, and vii) policy reform.

Data collection on trade flows focused on livestock, onions, coarse grains (millet, sorghum, maize) and rice along selected trade corridors linking Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria, Senegal, and Togo. It was undertaken through 11 partner organizations dealing with these commodities, with financial and methodological support from the Project, including oversight, data validation and publication. The purpose of data collection was to understand flows in these particular corridors only, and therefore, no attempt has been done to date to assess entire trade flows within any country or the region.

Regional organizations such as the Economic Community of West African States, ECOWAS, and the *Comité Inter-Etats de Lutte contre la Sécheresse au Sahel*, CILSS, have a long-standing and keen interest in regional trade issues, and collaborated with the Project over the years. Furthermore, CILSS is preparing to take over some or all of the current data collection efforts and to combine these with other activities related to regional trade and food security in West Africa. In conjunction with this, the latest market survey and data collection activity undertaken by the Project (October 2012) included new areas: the Western sub-region comprising Guinea, Sierra Leone and Liberia, and an assessment of a far larger number of markets than before.

The purpose of this report is to show how data collected under the Project through its trade flow monitoring and market surveys efforts contribute to a more accurate and comprehensive understanding of regional trade flows, especially in terms of their food security implications, today and for the next generation. This report draws on extensive data trade flow data sets, many of which are included here. However, to make it more readable, the emphasis in the main body of the report is placed on maps synthesizing flow data, while most of the detailed trade flow tables appear in the Appendix.

¹ Hereafter referred to as “the Project”.

Executive Summary

1. Historical trade patterns for basic commodities in West Africa have been based on the comparative advantages for production of various areas of the region. The usual benefits from trade (reducing price and income volatility, contributing to growth and food security) have accrued to West Africans, but not as much as they should have, given significant remaining constraints and obstacles to trade.

2. The ATP/EATP project has provided better estimates of the actual volume and value of trade flows in selected focal corridors for key basic food commodities, including livestock, coarse grains, rice, and onions. It has thus helped document the extent to which official statistics² understate the volume and value of trade flows:

Commodity	Source	Average annual volume/ \$ value		Estimated Export Potential
Cattle from Mali, Burkina Faso	ATP data	390,000 head	\$244 million	730,000 head, \$ 456 million
	market surveys	653,000 head	\$408 million	
Small Ruminants from Mali, Burkina Faso	ATP data	576,000 head	\$46 million	2 million head, \$ 160 million
	market surveys	593,000 head	\$47 million	
All Livestock	ATP data		\$290 million	47%
	Mkt surveys		\$451 million	73%
	Official Data		\$181.6 million	29%
Maize (ATP region)	ATP data	65,000 tons	\$16 million	
	market surveys	266,500 tons	\$65.6 million	

3. Regarding livestock (aggregated in value at wholesale market prices), the implication is that the ATP trade flow data captured just under half of the value of estimated total livestock trade flows from two major exporting countries, while the October 2012 market surveys captured nearly three-fourths. ATP data collection did not focus on important flows from Northern Mali onwards. On the other hand –and this is not an uncommon estimate-- **official statistics probably capture on average about one-third of actual transactions, in value.**

4. For other commodities (coarse grains, rice, onions), the data does not allow for precise estimates, but it also shows that **actual trade flows are greater and more diverse than generally recognized.**

5. The fact that trade flows of basic foods are more diverse and greater than commonly recognized has significant food security implications, especially for countries with a chronic or frequent food supply deficit. The case of Niger, for instance, a major regional trading partner, is discussed in this report.

6. While high transaction costs and obstacles to trade are well known to pertain in the region, the project highlighted the extent to which they vary over space, time, and even by commodity. By doing so, it has documented the redirection of trade flows observed in the last decade or so, on the basis of such determinants as relative levels of effective demand and insecurity.

² As published by FAOSTAT, average values for comparable years.

7. Other factors included bribes and illegal taxes along roadways, condition of infrastructure, attitudes towards foreign traders and transporters, and for informal trade bans. The latter curtail or stop intended trade flows, increase uncertainty among all actors, and lend themselves to arbitrary interpretation and abuses.

8. The project also further documented such systemic issues as rising insecurity for assets and persons in many areas, constraints to banking services, access of to currency exchange facilities and commercial credit.

9. The project also highlighted the growing importance of maize and tubers as traded foods, and the October 2012 market survey shows that such commodities as cowpeas, *gari* and palm oil, are traded in very large and growing quantities between rural and urban areas.

10. In the medium-term, population growth, urbanization and the transformation of West African agriculture will redefine regional trade flows of basic foods --the increase in trade is expected to far outpace the tripling in regional food production.

11. In Nigeria and other countries of the highly urbanized coastal belt, urbanization will continue and trade will expand for all current commodities, especially rice, maize and processed tubers. The combination of increased urbanization and food processing due to changing diets will diversify the ways these commodities are traded, both in nature and distance.

12. For countries of the Sahelian hinterland, regional demand will still provide the strongest stimulus to primary sector production. It is expected that patterns of trade will continue to involve a North-South flow of livestock, pulses, onions, etc. in exchange for basic foods. However, northern products will undergo some processing to satisfy new demand patterns and remain competitive vis-a-vis world market imports (younger animals or meat instead of mature steers, conditioned or processed onions and other off-season products rather than bulk commodities, etc.).

13. Large and sustained investments in human capital and infrastructure (hard and soft) will be needed, along with integrated agri-business systems and financial, information/communication and trading services.

14. Powerful regional dynamics will bring great benefits, but also exacerbate tensions. First, the necessary change in terms of trade between agricultural and non-agricultural products will put additional strain on low-income households already spending most of their budgets on basic foods. Secondly, the expected increase in regional trade cannot take place with continued obstructions, delays and illegal taxation of trade: combined pressures to remove them will become intense. Finally, regional demo-economic trends are expected to provoke unprecedented population movements within the region.

1. Historical and Current Trade Patterns, Project Purpose

West Africa has traditionally been a region of great mobility, be it in terms of systems of nomadic or transhumant animal production, of seasonal agricultural and other labor migration, or of the flow of a multitude of goods within countries and across borders. The region has a rich history of long-distance and localized trade in a wide variety of products, including gold, salt, kola nuts, dried fish, as well as a variety of widely produced and consumed basic food staples.

Trade patterns for basic commodities have been based on the agro-ecological or seasonal comparative advantages of various areas of the region. Extensive livestock production, for instance, has traditionally taken place in the vast pasturelands of the Sahel, while most large consumption centers were located far to the South. Rice is produced in localized basins and consumed widely in the region while off-season onion production is a major activity in several areas in the Sahel which have established marketing channels with large cross-border urban markets.

The classic benefits from trade (including reducing price and income volatility, contributing to growth and food security) have accrued to West Africans, but not as much as they should have, given the multiple constraints and obstacles to trade well documented in various studies. One of the main purposes of ATP has been to reduce obstacles to trade and to facilitate it in a number of different ways.

The Project has, since 2009, collected data which allows us to create a more comprehensive and accurate picture of regional trade in its focal commodities (maize, millet/sorghum, livestock, rice, onion) in West Africa than was heretofore available

The selection of **livestock**, **coarse grains**, and **onions**, and of the corridors along which they are traded reflected the best information available on actual flows from all sources, including assessments of their contributions to incomes and food security. Although they have long been confronted with competition from the world market, these regionally produced and traded commodities remain of significant economic value, and figure prominently in food consumption patterns. The further inclusion of **rice** was logical; while it is the cereal imported on the second largest scale (after wheat), there remains considerable scope to expand production and trade of various rice products in the region.

This report presents the combined results of the commodity trade flow monitoring carried out at some fifty observation points (markets, cross-border areas, etc.) over a period of four years (2009-2012) through 11 partner organizations, and of the October 2012 market surveys covering nearly 60 markets in 12 countries³ by G. Ajao, E. Keturakis, and E. Masters. Findings have been compared with, and complemented by, a review of studies and maps from such sources as CILSS, FEWSNet, OECD/SWAC, IRAM, CIRAD, Michigan State University, the World Bank, etc. and national production and trade data published by the FAO.

³ Trade Data Study – West Africa (Cote d'Ivoire and Guinea), 2012, Trade Data Study – Central Basin of West Africa, 2012. Trade Data Study – Niger, Nigeria, 2012.

In the second Chapter, **Flows, Volumes and Values by Commodity**, the report provides comparisons between trade flow estimates thus derived by the Project and official cross-border trade statistics. This is critical, since actual regional trade flows (and their impacts) are widely understated in official publications.

The third Chapter, **Trade Flow Characteristics** provides an up-to-date assessment of determinants of trade flows and the obstacles they face, as well as a discussion of the role played by commodity trade in the food security of such a chronically food deficit as Niger. This contribution turns out to be larger than is generally thought, mostly because actual trade flows in both directions, and their benefits, are widely underestimated.

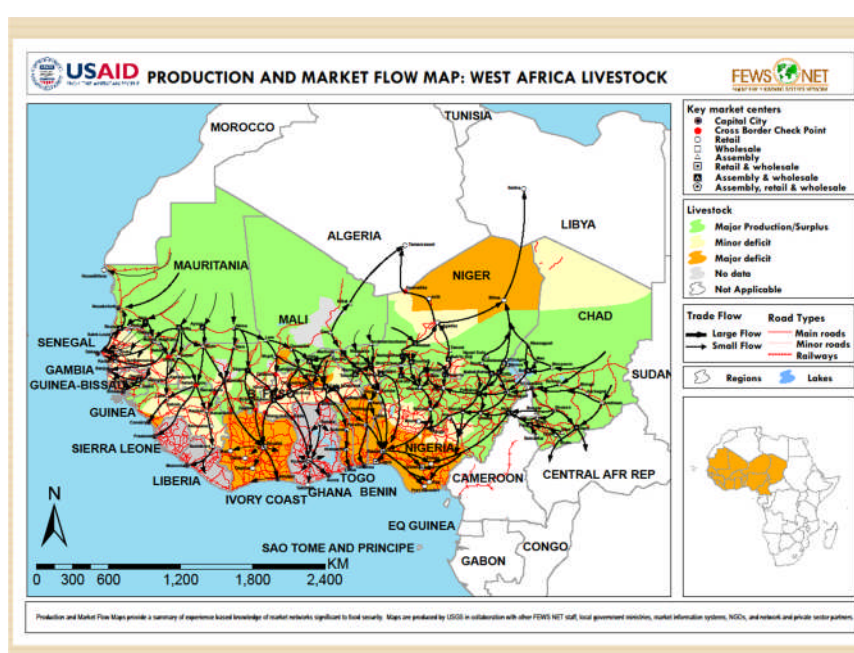
The report concludes in Chapter 4 with **Prospects and Challenges** and a section on main dynamics anticipated in the region over the next 20-30 years, their implications for changes in regional trade and required accompanying measures.

2. Flows, Volumes and Values by Commodity

2.1. Livestock

Livestock trade corridors monitored by the Project have first been compared with those described in various reports⁴, including the FEWSNet map shown below --itself a synthesis of many studies-- and others (see the Bibliography). They have also been assessed in light of the information gathered during the October 2012 market surveys. As far as exports of live animals from Burkina Faso and Mali are concerned, these corridors do represent a significant share of total flows.

Map 1 - Regional Livestock Trade Flows



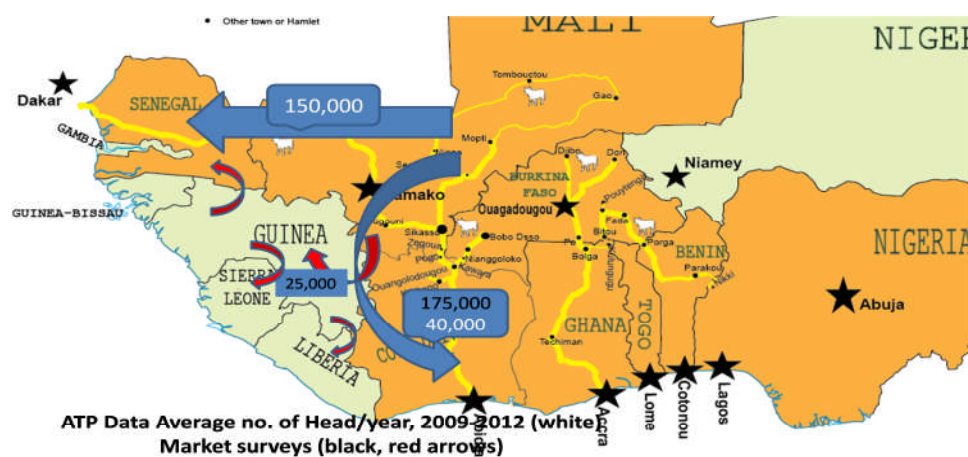
2.1.1. Cattle

Table 7 in the Appendix and the map below summarize Mali's cattle trade flows along selected corridors (Côte d'Ivoire, Senegal) for the Project period. According to trade flow data and market surveys, average annual exports from Mali to these two corridors are at least on the order of 350,000 head per year.⁵ Data support the general view that the importance of Senegal as a destination, relative to Côte d'Ivoire, has increased in the last decade or so.

⁴ Going as far back as the USAID/REDSO 'red meat' studies of the late 1970s.

⁵ Based on a combination of Project trade flow data and October 2012 ATP market surveys. Malian cattle exports to Senegal through Kidira alone amount to well over 80,000 head per year, although this likely includes animals from Mauritania (October 2012 market survey).

Map 2 - Cattle Flows from Mali, Guinea (trade flow monitoring and market surveys)



Mali also exports cattle to Niger and Burkina Faso, and at least 25,000 head per year to Guinea⁶ so that the official export figures published by FAO for the 2008-2010 period⁷ represent about half of cattle outflows as measured by the Project.

Cattle trade flows from Burkina Faso reach more destinations but concentrate on Ghana (including some 13,000 head annually, just to the Kumasi market⁸), Nigeria and, to a lesser extent, Benin --partly as re-exports to Nigeria. Here too, 2009 and 2012 are partial data years; adjusting for this and on the basis of 2010 and 2011 data, total cattle trade flows from Burkina Faso, which may include some animals from Mali, should be well over 300,000 head per year, representing a market value of over \$163 million annually. For this country, national trade statistics may be understating cattle outflows by a factor of 4 to 8, depending on the year.

Taking 2009 national cattle herd estimates as a rough guide (9.5 million head for Burkina Faso, and 8.737 million head for Mali), we can put the Project trade flow data in perspective. Under good conditions, traditional cattle herds in the Sahel can sustain an average annual offtake rate of up to 14%. Taking a conservative offtake estimate of 12%, and assuming a very conservative equal distribution between domestic consumption and exports would yield a minimum annual exportable surplus of 380,000 head for Burkina Faso, and 350,000 head for Mali⁹. This compares with ATP trade flow figures of 300,000 head along the main Burkina Faso corridors (which may be 'catching' a good share of total) and of 150,000 head for the two main Mali corridors, which are probably capturing less than half of total flows. This is understandable as the Project did not collect any data on important trade flows from Northern Mali.

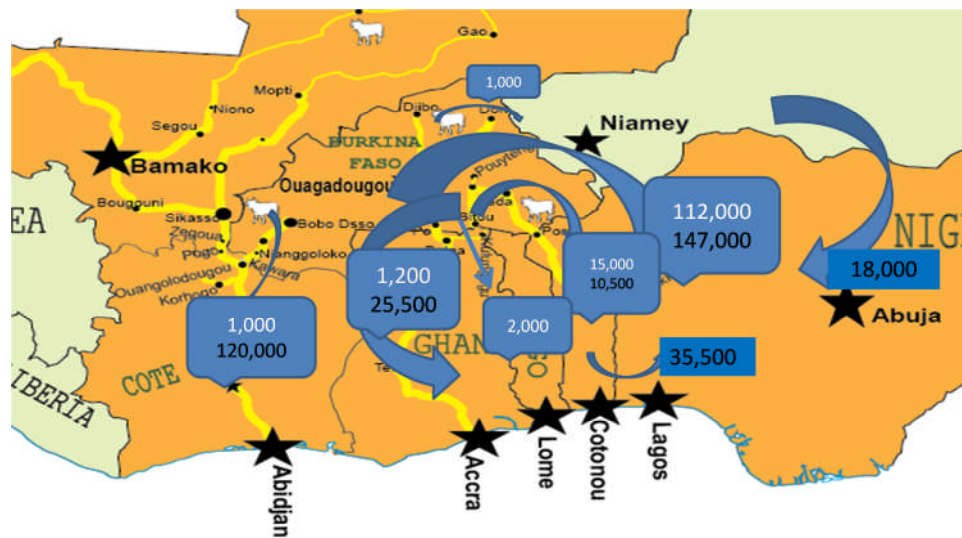
⁶ Mostly destined for the Conakry market; a small proportion is trekked on the hoof to Sierra Leone and Liberia (October 2012 ATP market survey).

⁷ About 175,000 head per year.

⁸ October 2012 ATP market survey.

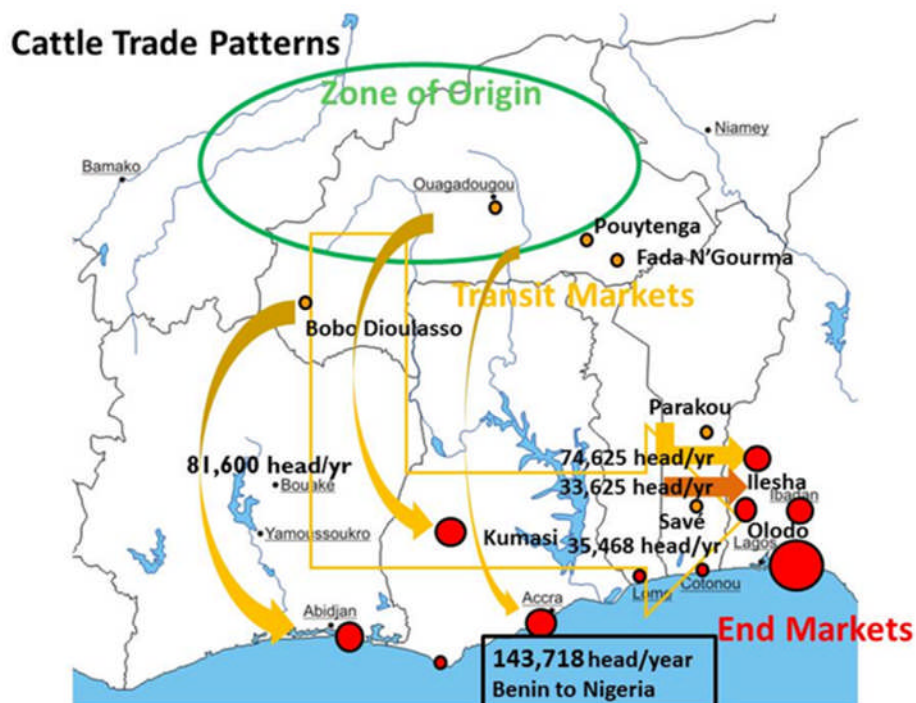
⁹ Adding meat from small ruminants would imply a yearly availability of 12-13 kg/capita.

Map 3 – Regional Cattle Trade Flows (trade flow monitoring and market surveys)



Data Flow Average no. Head/year 2009-2012 (white)
Market Surveys (black)

Map 4 – Regional Cattle Trade (market surveys)

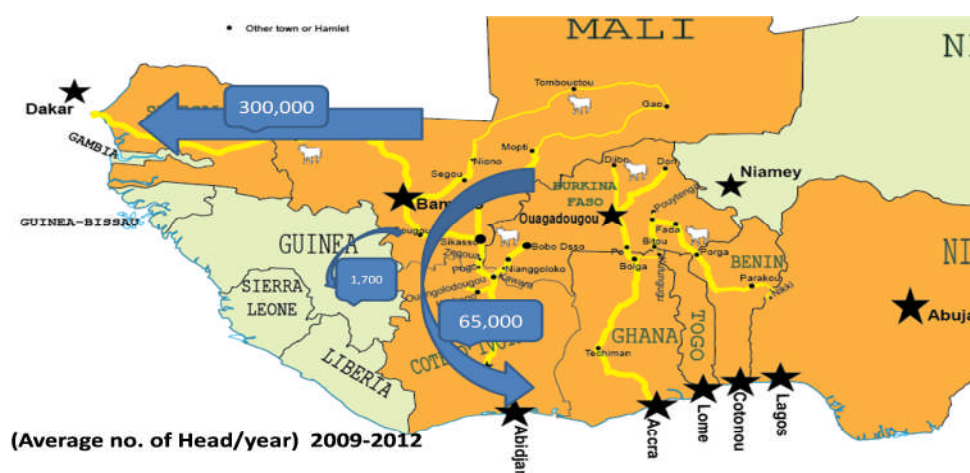


Source: Trade Data Study, Central Basin of West Africa, 2012.

2.1.2. Small Ruminants

Regarding small ruminants, trade flows from Mali also focus on Senegal and Côte d'Ivoire (see Table 9 in the Appendix). Average annual trade flows to these and other countries probably amount to 300,000-400,000 head, for a market value between \$21.3 and \$28.4 million¹⁰. In addition, the October 2012 market survey reports that some 68,400 small ruminants from Mali may also help supply the city of Conakry. Note finally that the 65,000 head/year average exports from Burkina Faso to Côte d'Ivoire may represent half of actual trade flows¹¹.

Map 5 – Small Ruminants Trade Flows from Mali



Small ruminants flow from Burkina Faso mostly to Benin –with a substantial proportion assumed to be re-exported to Nigeria—and Côte d'Ivoire. Given that coverage in 2009 and 2012 was for 6 months each, and additional exports to Ghana, Niger, etc. annual outflows of small ruminants from Burkina Faso through the ATP corridors are likely to be over 300,000 head annually, for a value of approximately \$21.3 million (see Table 10 in the Appendix).

As in the case of cattle, we may refer to national livestock statistics as a general guide, although small ruminant herd numbers fluctuate much more than is the case for cattle. By 2009, both Mali and Burkina Faso were estimated to each have small ruminant herds numbering about 20 million head. The average annual offtake rate for sheep and goats in traditional African systems is on the order of 30%¹². Assuming that one half of total meat supply satisfies domestic consumption requirements, the potentially exportable surplus could be well over 1 million head per year in both Burkina Faso and Mali¹³.

¹⁰ Malian exports of small ruminants to Senegal through Kidira alone are well over 300,000 head/year although this may include animals from Mauritania (October 2012 market survey).

¹¹ October 2012 ATP market survey: some 125,000 annually reportedly shipped to Port-Bouet.

¹² The Contribution of Livestock to the Economies of IGAD Member States, IGAD/ILRI, 2010.

¹³ FAO estimates of meat consumption in the same countries are based on national balance sheets, including net trade. Globally they are 17% higher than the assumptions used in this report (especially for Mali), but unsupported by consumption surveys.

Map 6 – Regional Small Ruminants Trade (trade flow monitoring and market surveys)

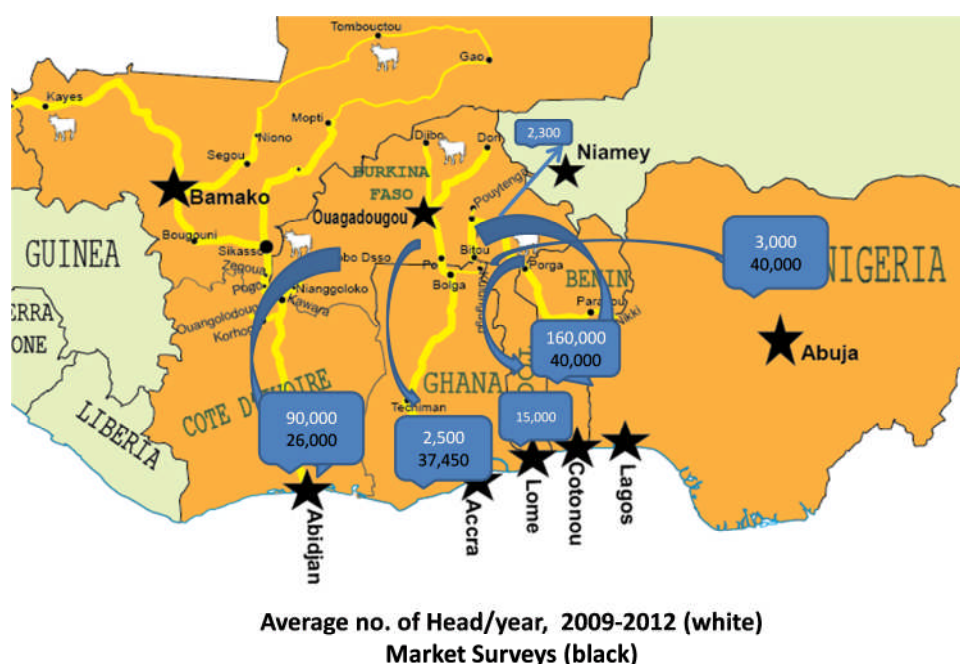


Table 1 below compares the author's estimates of potentially exportable surplus of livestock from Burkina Faso and Mali with a) trade flows captured by the Project, and b) national statistics as reported by FAO. For this purpose, the average values for cattle and small ruminants were set at \$600/head and \$80/head, respectively:

Table 1 – Summary of Livestock Trade Estimates

Commodity	Source	Average annual volume/ \$ value		Estimated Export Potential
Cattle from Mali, Burkina Faso	ATP data	390,000 head	\$244 million	730,000 head, \$ 456 million
	market surveys	653,000 head	\$408 million	
Small Ruminants from Mali, Burkina Faso	ATP data	576,000 head	\$46 million	2 million head, \$ 160 million
	market surveys	593,000 head	\$47 million	
All Livestock	ATP data		\$290 million	47%
	Mkt surveys		\$451 million	73%
	Official Data		\$181.6 million	29%

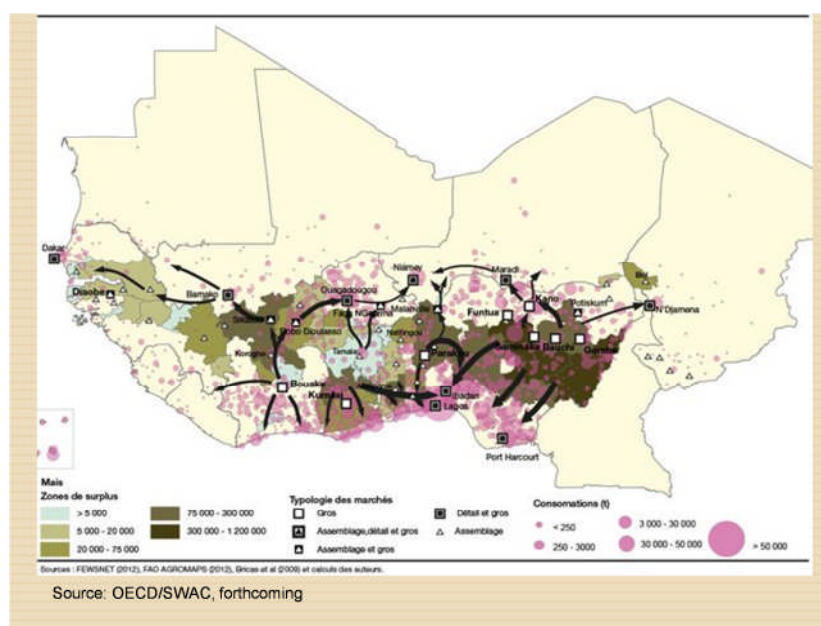
According to these estimates, the total value of livestock exports from Mali and Burkina Faso is about \$451 million per year, (aggregated in value at wholesale market prices). The implication is also that the ATP trade flow data captured just under half of the value of actual transactions (total estimated export potential), while the recent market surveys captured nearly three-fourths. On the other hand –and this is not an uncommon estimate-- **official statistics probably capture on the average nearly one-third of actual transactions, in value.**

2.2. Maize

Maize is one of the basic staples (along with tubers) for which production has increased relatively rapidly in West Africa over the last 20 years. Since 1990, annual maize output among main producing countries of the Project area¹⁴ has increased from 8.2 million tons to 15 million tons by 2010, the relative share of Nigeria falling from 70% early in the period, to 50%. Countries showing the greatest relative increase in maize production include the Gambia, Guinea, Mali and Burkina Faso (see Table 11 in the Appendix).

Regional maize imports, on the other hand, have remained relatively low, rarely going beyond the 200,000 tons/year mark between 2000 and 2010, compared to rice imports rising from 2 million tons in 2000 to 4.4 million tons in 2010. Much of the maize is used for human consumption, but a substantial share is absorbed by the growing poultry sectors of Nigeria, Ghana, Côte d'Ivoire, Senegal, etc. Globally, about 25% of regional maize supplies are now used as animal feed¹⁵. The recent OECD mapping of maize trade flows (map below) is generally consistent with production estimates, market surveys and the Project mapping of trade flows, but as we see below, the maize trade flows captured under the Project likely represent a small share of actual transactions in the region, 60% of this trade being thought to take place in Nigeria.

Map 7 – Regional Trade Flows of Maize

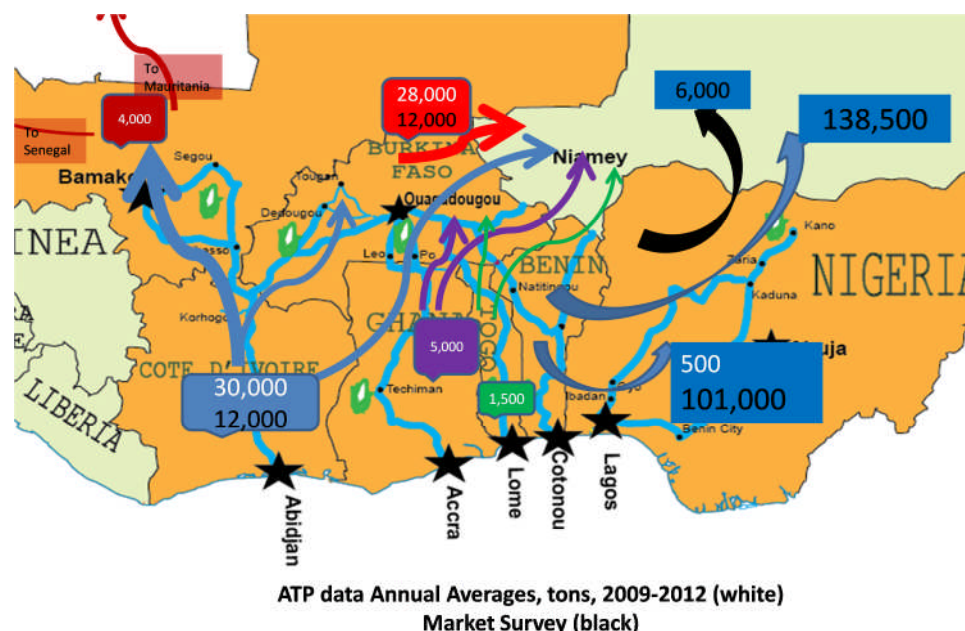


¹⁴ In decreasing order of importance: Nigeria, Ghana, Benin, Côte d'Ivoire, Burkina Faso, Togo, Mali, Guinea and Senegal.

¹⁵ OECD/SWAC, 2012.

Tables 12 and 14 in the Appendix and the map below summarize the trade flows captured by the Project over the years. Annual cross-border trade flows captured by the project are on the order of 60,000-70,000 tons per year¹⁶, for an average value over \$16 million dollars.

Map 8 – Regional Maize Trade (trade flow data and market surveys)



In a representative year, the ATP maize trade flow data from Côte d'Ivoire account for nearly half of recorded flows, with Burkina Faso adding up to about 40% of total, Ghana and Mali being distant followers. Most of the maize from Côte d'Ivoire appears to go to Mali, although it may be ultimately destined for Burkina Faso, Mauritania, or even Senegal. Very low recorded outflows from Togo and, especially Benin, certainly represent very small proportions of actual maize exports from these countries. With its substantial production (1.2 million tons/year, and the highest regional output per capita of 129 kg/yr), Benin is very likely to export a large share of its output to Nigeria.

It is interesting to note the importance of Niger as a destination for various countries; about 45% of maize flows for the entire period of data collection ended up in Niger (92,000 out of 208,000 tons). Small amounts may be re-exported to Northern Nigeria, but most of it must be consumed in the named destination country. Maize is not a preferred food in Niger, but it is often priced below millet and sorghum and serves as a critical staple in times of crisis. In 2004/05, for instance, maize imports from Nigeria and Benin saved many Nigeriens who could no longer afford preferred coarse cereals¹⁷.

Aside from Nigeria (50% of the region's total), Ghana is by far the largest regional producer of maize, followed by Benin, Côte d'Ivoire, Burkina Faso, Togo, and Mali. The relatively small Ghanaian recorded outflows of maize (4,000 to 5,000 tons per year) therefore appear to be on the low side in a country where maize production accounts for about two-thirds of

¹⁶ To put this in context, about 70,000 tons of maize are traded annually on a few large markets of Côte d'Ivoire: Daloa, Korhogo, Ouangolodougou, Man. (October 2012 ATP market survey).

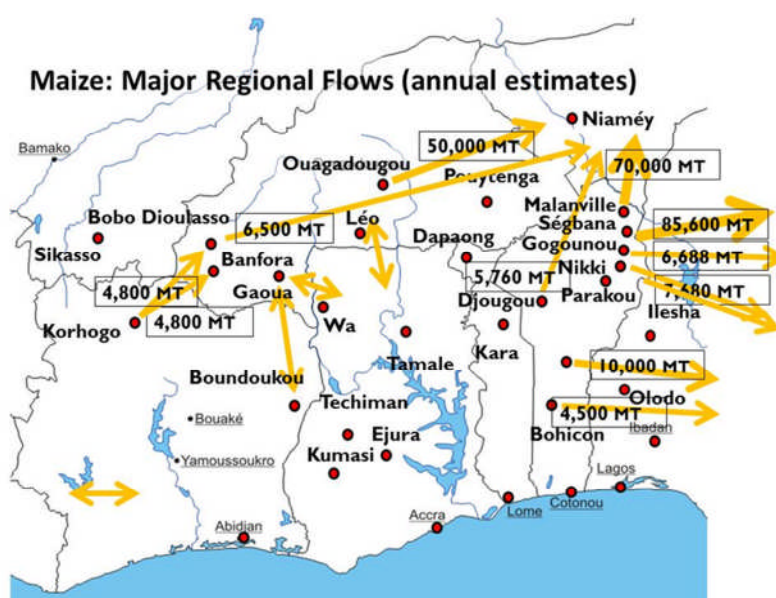
¹⁷ Source; 2005 FAO/WFP Crop and food security assessment mission.

total cereal output. In addition, the relative share of maize in total human cereal consumption in Ghana is only 37%¹⁸. Two main factors may explain this. First, rice (local and imported) takes up as large a share as maize in total human utilization in Ghana. Secondly, the feed requirements as a proportion of maize supply are reportedly large, even compared to such countries as Côte d'Ivoire. National statistics report less than 1,000 tons per year of maize exports from Ghana, about one-fifth of what has been captured through the ATP project. But in a country producing roughly 1.6 million tons of maize per year, actual outflows may well be much larger¹⁹.

Regarding Côte d'Ivoire, national trade statistics report maize outflows of about 2,500 to 3,500 tons per year, compared to the Project recorded flows of nearly 30,000 tons. Here too, exports are to be expected since maize represents about 55% of total cereal production but only 23% of human utilization (the share of rice food consumption for Côte d'Ivoire in 2009 being three times greater than that of maize!). The ATP recorded flows are thus about ten times greater than official statistics and well below other estimates of total outflows, given an annual production of about 637,000 tons²⁰. Togo is another country where official trade data is well below ATP records and potentially exportable surplus.

Maize production has been growing and become substantial in Burkina Faso and more recently, Mali, but it represents only 25% of total cereal production, and a smaller share yet of total human utilization. Official trade data for Burkina Faso account for 10,000 to 15,000 of annual maize exports, compared to the 25,000 tons per year recorded through the Project. Here too, total maize trade flows (both into and out of Burkina Faso) are reckoned to be much larger than those captured through the ATP sample, shown below.

Map 9 – Market Survey Estimates, Maize



¹⁸ Data on production and various forms of utilization in this section are from the FAO 2008 and 2009 commodity balances for Ghana, Côte d'Ivoire, Burkina Faso and Mali.

¹⁹ Depending on season and location, Ghana may be importing as well as exporting maize; the October 2012 ATP market survey, for example, quotes reports of Ghanaian maize buyers on Côte d'Ivoire markets.

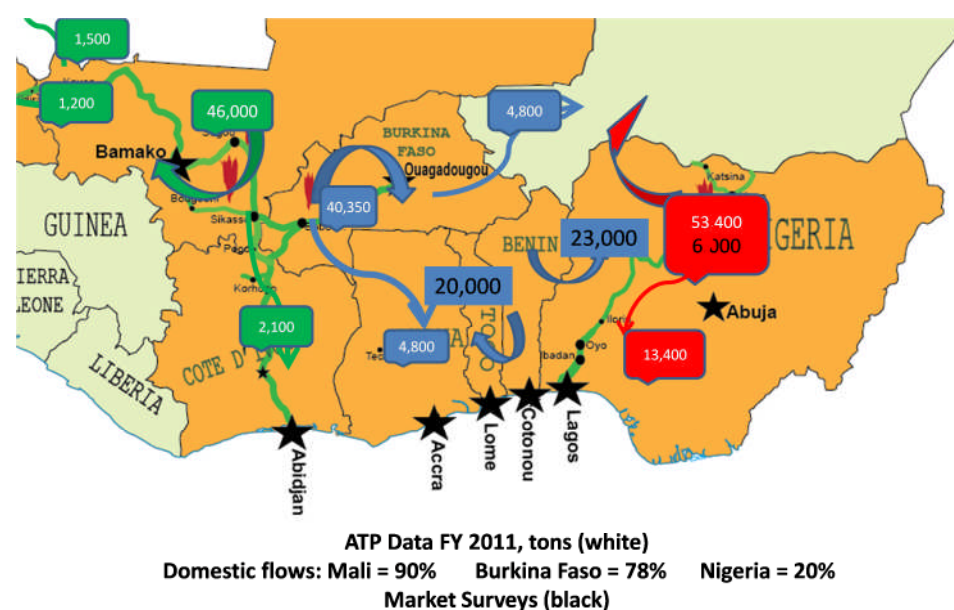
²⁰ Côte d'Ivoire both imports and exports maize; by some accounts (e.g. 2012 ATP market survey), feed requirements for the poultry sector are close to official production estimates.

The latest detailed study of the regional maize market (the forthcoming 2012 OECD/SWAC study), is based on a detailed regional balance sheet approach, including rural and urban consumption surveys. It estimates that some 4.8 million tons of maize were traded on West African markets in 2007. Main markets for regional maize trade include Bouaké, Bobo Dioulasso, Ouagadougou and Sikasso in the West, and Dawanau, Jibya, Illela, Malanville/ Gaya, Birni N’Konni, Maradi and Matamèye in the East. Comparing these estimates with the ATP trade flow data, the Project would have captured about 10%-15 of all maize trade flows in the area including Ghana, Togo, Benin, Côte d’Ivoire, Burkina Faso, Mali and Guinea.

2.3. Millet and Sorghum

Domestic as well as cross-border trade flows have been recorded for millet and sorghum. Overall, domestic flows amounted to nearly 80% of recorded flows for Burkina Faso, and some 90% for Mali (see Table 13 in the Appendix). The map below shows the volumes recorded during the Oct. 2010-Sept 2011 marketing year.

Map 10 – Regional Millet/Sorghum Trade Flows (trade flow data and market surveys)



2010/11 millet and sorghum production in Mali was about 2.6 million tons, with a potential marketable surplus of 394,000 tons²¹. For Burkina Faso, production in the same year was about 3.14 million tons, with a potential marketable surplus of 470,000 tons. Domestic and cross-border trade flows captured by the project therefore represented between 10% and 12% of total marketable surplus (40,350 tons and 45,670 tons for Burkina Faso and Mali, respectively) for both domestic and cross-border trade purposes²². The two tables below

²¹ As a rule of thumb, 15% of production in Sahelian countries is considered as potential marketable surplus in an average year.

²² In calendar year 2011 Nigeria domestic trade flows were only recorded in January.

compare official export statistics in recent years for Burkina Faso, Mali and Nigeria with equivalent Project data for the same countries. Even allowing for the fact that Project data are calculated on a fiscal year basis, from October 2010 through September 2011, which nearly corresponds to the local marketing year, or *campagne*, it is clear that official statistics vastly underestimate actual flows, especially for Mali and Nigeria.

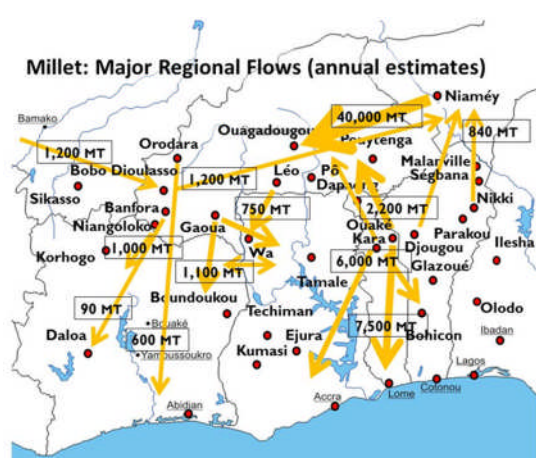
Table 2 – Comparison of Official and Project Cross-Border Trade Data, Millet/Sorghum

Millet/sorghum exports				FY 2011	
Sum of Value	Colu				
Row Labels	2008	2009	2010		
Burkina Faso	377	2,702	9,501	Millet/Sorghum exports	
Mali	116	71	280	Burkina Faso	10,883
Nigeria	144	157	45	Mali	4,827
Source: FAOSTAT				Nigeria	53,401

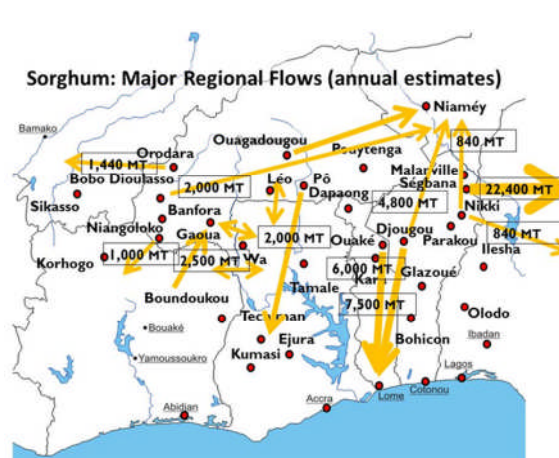
To help put this in context, one should note that CILSS²³ estimates that 500,000 tons of cereals (maize, millet, sorghum) are exported from the Sudanian zone including Benin, Côte d'Ivoire, Ghana, Nigeria and Togo to the eastern Sahel countries of Niger and Chad. Niger is further reckoned to receive an average 540,000 tons/year of cereals from Nigeria.

Tables 15 and 16 in the Appendix and the two maps below summarize the estimated annual trade flows of millet and sorghum from a small sample of markets in the sub-region, totaling nearly 62,000 tons/year for a value of over \$28 million.

Map 11 – Regional Millet Flows (market surveys)



Map 12 – Regional Sorghum Flows (market surveys)



2.4. Rice

Sub-Saharan Africa is a major buyer of the relatively small globally marketed rice residual²⁴; about one-third of total, in particular to such large importers as South Africa, but also to Nigeria, Côte d'Ivoire and Senegal. West Africa, which has some of the continent's highest

²³ Quoted in OECD/SWAC, 2012.

²⁴ About 7% of world production, compared to 20% for wheat.

rates of per capita rice consumption in both rural and urban areas²⁵, accounts for about half of sub-Saharan Africa rice imports.

The share of rice in cereal imports from the world market²⁶ for the Project sub-region, including Guinea, Liberia, and Sierra Leone, is shown below, along with the US dollar values of rice imports in recent years:

Table 3 – Regional Rice Imports, \$ Value

	2005	2006	2007	2008	2009	2010
Rice	6,421,550	6,588,777	7,361,764	8,479,583	8,128,856	8,607,457
Wheat	5,463,231	5,160,055	4,787,241	4,618,527	5,784,897	6,018,718
total	11,884,781	11,748,832	12,149,005	13,098,110	13,913,753	14,626,175
proportion of rice	54%	56%	61%	65%	58%	59%
Value rice (\$1,000)	\$ 1,431,209	\$ 1,500,403	\$ 1,874,696	\$ 2,958,428	\$ 2,427,021	\$ 2,305,472

Following the 2007-2008 sharp increase in world cereal prices, West African importing countries reduced or suspended import duties on grains, while others also banned exports (with limited effect). Most countries also decided to further increase domestic production; Nigeria established a special credit program (\$85 million for a fifteen-year period) and made an additional appropriation of \$1.7 billion to boost agricultural production. Similar steps were taken in Mali with the *Office du Niger* and *Office Riz-Ségou* operations, and in other countries. In addition, various multi-year bilateral agreements were struck to secure rice supplies (Senegal with India, Nigeria with Thailand, etc.).²⁷

Most specialists²⁸ agree that the region's dependence on rice imports will increase over time. There is some evidence, from the experience of the 1994 CFA Franc devaluation and of the 2007-2008 price crisis, that for major importers the demand for rice, driven by a rise in urbanization and incomes, is quite inelastic with respect to price. However, there is substantial scope for increased rice production in West Africa, where costs of production are competitive with world market levels²⁹, and a strong preference in many areas for locally produced and parboiled rice, which receives a significant price premium. The map below shows the main production basins (the largest ones being in Nigeria and Guinea):

Paddy rice production in the 12 countries of the expanded Project region (i.e. including Guinea, Liberia and Sierra Leone) went from 4.6 million tons in 2000 to 7.2 million tons in 2010. Any further increase in regional rice production will require large investments in processing and other stages of the value chain; this phenomenon is already well underway in Nigeria, Ghana, and even Senegal, where a major importer has also invested in rice production.

²⁵ Guinea-Bissau: 86 kg/cap/year, Senegal: 74 kg, Côte d'Ivoire: 64 kg.

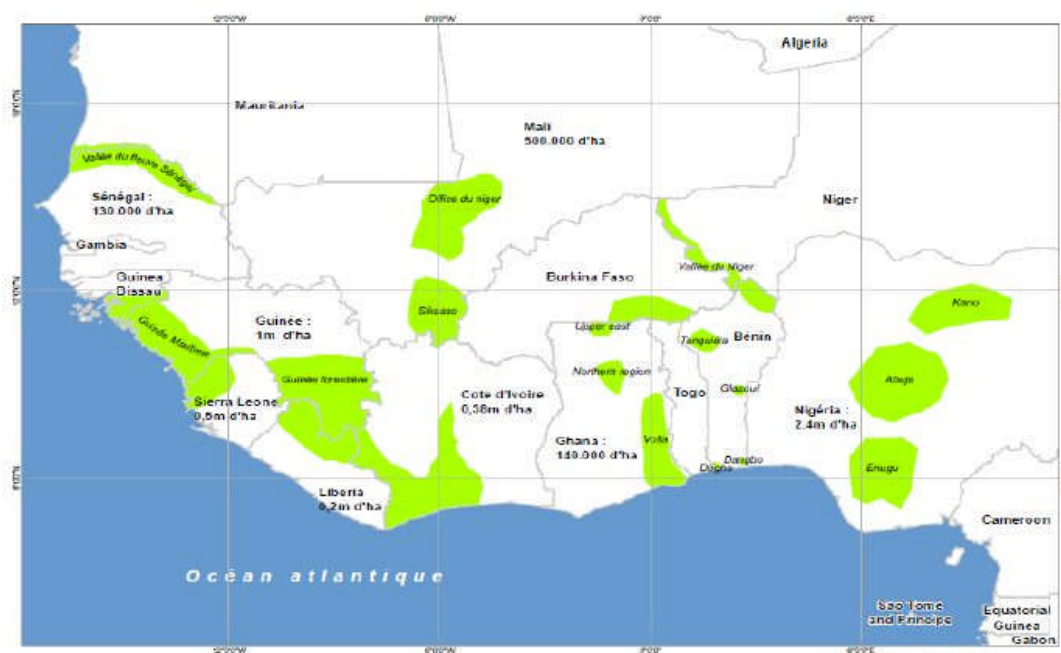
²⁶ The only significant other cereal import is wheat.

²⁷ See for example, Gajigo and Denning, FAO, 2010, OECD Club of Sahel and West Africa, 2012.

²⁸ FAO, 2010

²⁹ CIRAD, CILSS, WFP, FEWSNet, 2011.

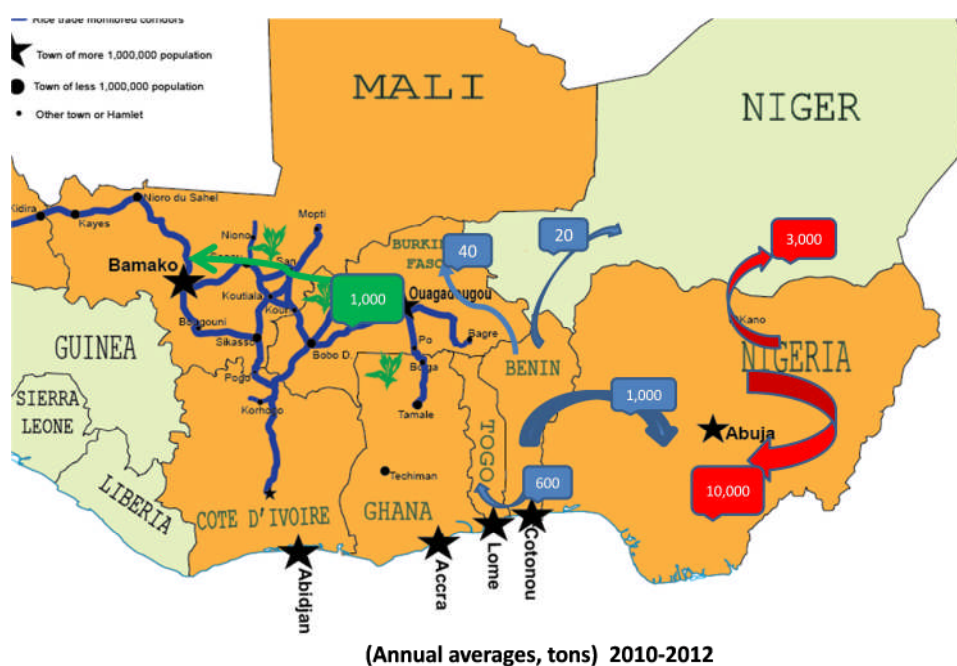
Map 13 – Main Rice Production Basins



Source: CIRAD, CILSS, WFP, FEWSNET, 2011.

The Project contribution to knowledge on the rice sector has focused on domestic (for Nigeria) and cross-border trade flows of parboiled rice only, also including Benin and Burkina Faso, as well as on relatively small flows from Côte d'Ivoire to Guinea³⁰. Table 17 in the Appendix and the map below summarize this.

Map 14 – Regional Rice Trade Flows



³⁰ October 2012 ATP market survey.

In all likelihood, the trade flows captured through this small sample amount to less than 10% of local rice actually traded. The map below shows estimates from the October 2012 market surveys.

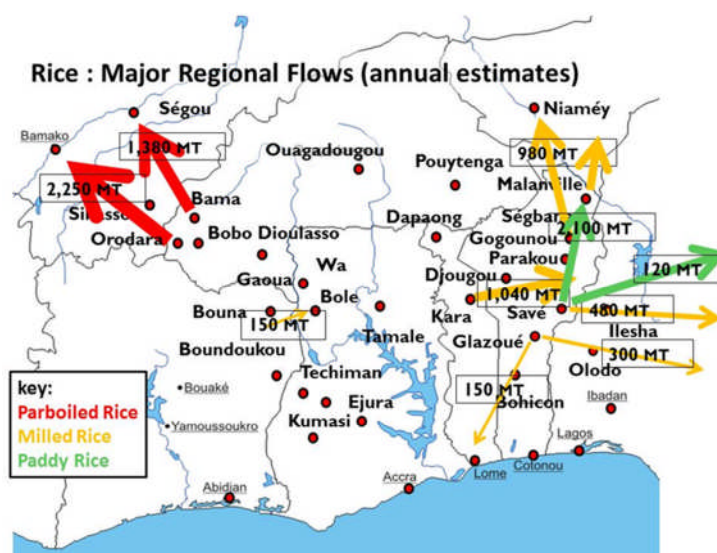


Table 4 below summarizes official onion production data for main producers in the region. Nigeria is the largest one, but consumes most of its output and imports more. Niger is the largest exporter, with an average annual output now reckoned to be about 500,000 tons. Production in Senegal is reported to be about 240,000 tons but, like all coastal countries, it faces stiff competition from the world market. Dutch onion exports to Senegal, for example, were about 130,000 tons in 2011; Nigerien onion exporters have also complained of very sharp competition from Dutch and Chinese exporters along the coast³¹.

³¹ 2010 Dutch onion exports to Côte d'Ivoire, Gambia, Guinea, Mauritania and Senegal amounted to 300,000 tons.

Table 4 – Official Onion Production Statistics

Onion production (tons, FAOSTAT)					
Sum of Value	Column				
Row Labels	2006	2007	2008	2009	2010
Nigeria	616,000	618,000	621,000	637,500	640,000
Niger	330,000	350,000	373,637	384,309	366,840
Senegal	60,000	142,000	150,000	160,000	160,000
Ghana	42,500	43,000	44,400	49,129	50,000
Mali	34,810	37,007	38,000	39,000	40,000
Benin	21,490	21,158	6,228	36,019	8,355
Grand Total	1,104,800	1,211,165	1,233,265	1,305,957	1,265,195

Onion consumption in Niger is estimated at 16 kg/person/year³³, leaving about 200,000 tons for exports, even allowing for very substantial spoilage losses incurred by producers every year. This compares with official statistics of exports set well under 100,000 tons per year, close to the amounts the Project was able to record in 2009 and 2010:

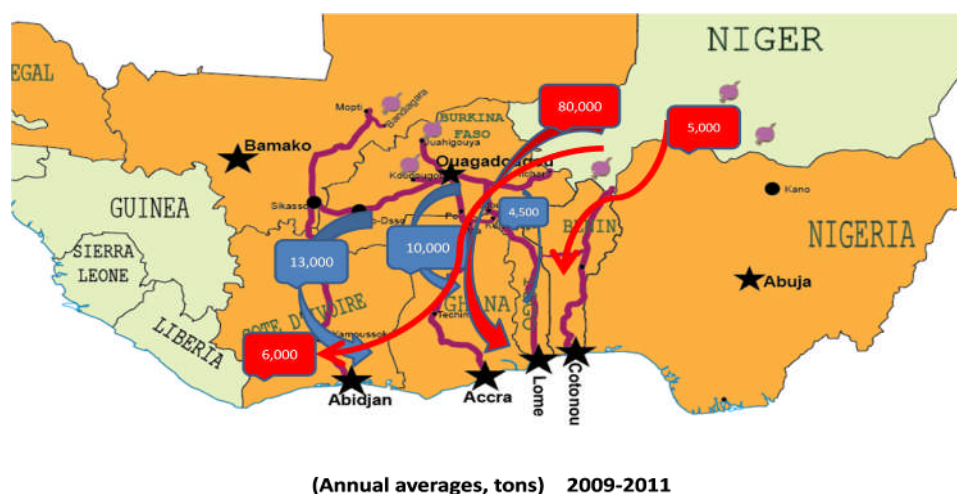
Table 5 – Cross-Border Onion Trade Flows, Official Statistics

Element	Export	Onion Exports (tons)									
Sum of Value	Column										
Row Labels		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Burkina Faso	492	1,311	94	827	827	123	69	22	974	99	
Niger	37,897	46,786	44,981	88,820	68,008	68,559	61,883	50,184	50,184	94,630	
Grand Total	38,389	48,097	45,075	89,647	68,835	68,682	61,952	50,206	51,158	94,729	

Source: FAOSTAT

Onion trade flows (quantity), as captured by the Project, are summarized in Table 18 in the Appendix and in the map below:

Map 16 – Regional Onion Trade, ATP Trade Flow Data



³³ Spore, CTA, June/July 2012

2.6. Conclusion

A major contributions of the ATP/EATP project has been to document the vitality and diversity of trade flows for basic agricultural commodities. Equally importantly, it has provided better assessments of the quantify the actual volume and value of these trade flows for key basic commodities in selected corridors, through permanent monitoring of nearly 50 markets and cross-border points in the 'central corridor' of West Africa. The combination of trade flow monitoring data, October 2012 Project market surveys, and analysis of additional sources have generated much more realistic estimates of total trade flows for key commodities (e.g. livestock, maize, onions) and helped document the extent to which official statistics³⁴ understate the volume and value of trade flows.

As mentioned previously, regarding livestock (aggregated in value at wholesale market prices), the implication is that the ATP trade flow data captured just under half of the value of actual transactions, while the October 2012 market surveys captured nearly three-fourths. On the other hand –and this is not an uncommon estimate-- **official statistics probably capture about one-fourth of actual transactions, in value.**³⁵

The measurement of trade flows is complicated by the fact that many commodities, including millet, sorghum and maize can move back and forth across borders. Within the same year, for instance, millet and sorghum are known to flow from Niger to Nigeria and back, depending on relative prices in both countries (especially since some of the largest traders have warehouses in both). Regarding maize, according to the season and ongoing exchange rates between the Ghana Cedi, the Nigeria Naira and the CFA Franc, a given lot of maize may be traded several times across the same border, with wet Ghanaian or Nigerian maize being traded northward into Burkina Faso or Niger, and later traded south again as dried maize³⁶. Still, the ATP Project data provides solid evidence that **official cross-border statistics for maize, millet, sorghum, rice and onions are significantly understating the reality of regional trade.**

³⁴ As published by FAOSTAT, average values for comparable years.

³⁵ This is an average. In this particular case, statistics from Mali are closer to the reality than those of Burkina Faso, especially with respect to cattle.

³⁶ Trade data Study – Central Basin of West Africa, 2012, among other sources.

3. Trade Flow Characteristics

3.1. Contribution to Food Security

The fact that trade flows of basic foods are greater than commonly recognized has significant food security implications for countries with a chronic or frequent food supply deficit. While it is well known, for instance, that Niger is a major exporter of livestock, cowpeas and onions, the extent to which it relies on a wide variety of regional suppliers of maize, millet and sorghum turns out to be much greater than commonly thought.

Official maize imports by Niger, for example, average 41,000 tons per year for the 2000-2010 period, while ATP data indicate that the amount is well over 200,000 tons per year. By the same token, total cereal imports by Niger are deemed by some specialists of the region to be on the order of 500,000 to over 1 million tons per year, depending on domestic production, a substantial proportion³⁷ of which come from the region.

Regional trade directly affects food security in a country like Niger in several chief ways:

- It is a strong determinant of the availability of basic foods, through imports;
- It contributes in a major way to the incomes of producers of such exported commodities as livestock, cowpeas, onions, peppers, etc;
- It contributes to price formation at both producer and consumer levels, influencing both farm enterprise and household budget decisions.

Obstacles to trade and transaction costs appear, therefore, as a greater determinant of food security in chronically food deficit countries than was previously thought. Consequences of expected trends in regional trade for food security in countries like Niger are further discussed in the section on Implications for Regional and National Policies.

3.2. Variability of Obstacles to Trade

While high transaction costs and obstacles to trade are well known to pertain in the region, the project documented the extent to which they can vary over space, time, and even by commodity. A few examples, drawn from the recent Project market surveys³⁸ are given below.

3.2. 1. Bribes and Illegal taxes

Since 1999 Côte d'Ivoire has experienced several episodes of civil conflict during which transport routes have been severely disrupted. By most accounts, the number of checkpoints and amounts of informal fees paid significantly increased during times of conflict. Some informants even claimed that the cost of bribes increases 10-fold during the crisis.

In addition, foreign truckers (e.g. from Burkina Faso or Ghana) are either prevented from operating within Côte d'Ivoire or reportedly so badly harassed at road blocks that they are quite reluctant to operate there. Some work only on major thoroughfares, where foreign trucks are more readily accepted.

³⁷ During the last quarter of 2009/2010 Niger imported over 1 million tons of cereals, 42% of which came from the region (R. Blein, Commerce régional et sécurité alimentaire au Niger, 2012).

³⁸ Trade Data Study, Cote d'Ivoire and Guinea, 2012. Trade Data Study – Central Basin of West Africa, 2012.

The Government of Côte d'Ivoire has taken measures to stop illegal taxes on transporters of cocoa and coffee, but these measures still do not apply to such other commodities as maize, rice and edible oils.

Road bribery in Burkina Faso is reported to have significantly fallen in recent years (some credit being given to the ATP and E-ATP projects), whereas in Ghana there was some progress in reduction of formal barriers, followed by a rising occurrence of informal barriers. Togo is notably lacking in road harassment and is the favored corridor for trucks from Niger to the ports of Cotonou, Tema and Lomé. Benin, on the other hand, is reputed to be one of the worst countries for harassment of traders at all levels.

3.2. 2. Trade Bans

Informally imposed trade bans are common throughout West Africa. In Guinea, the government has made wide use of undocumented bans to block or severely limit trade in rice and palm oil both across borders and between regions within the country.

The same situation pertains in Burkina Faso, where a food export ban may be communicated informally (e.g. by a telephone call from the Ministry of Commerce), or not communicated at all (export permit not forthcoming). Truckers thus sometimes reach a border before being aware that the commodities they are transporting are banned for trade. They are then either forced to return to their departure point or pay stiff fines. This informality also leads to arbitrary interpretation and random application of the bans.

3.3. Systemic Issues Affecting Trade

These include varying but generally rising insecurity for assets and persons in many areas, most notably border zones between Burkina Faso and Ghana, Benin and Niger, and between Benin and Nigeria, but also the Mali-Niger border and parts of the Niger-Nigeria border areas. Heightened risks raise the cost of doing business, and in many cases prevent traders from operating in neighboring countries, as they did previously.

Access to currency exchange facilities and to commercial credit also continues to be problematic. Transferring funds both within banks (e.g. Ecobank) and across currency areas (Naira/FCFA, FCFA/Cedi) is reportedly difficult, as is access to currency exchange facilities in remote border markets between Burkina Faso and Ghana, or Benin and Nigeria.

3.4. Other Traded Commodities

The project has also documented the growing importance of maize and tubers as traded foods, and shown that such commodities as cowpeas, *gari*³⁹ and palm oil, are traded in very large and growing quantities between rural and urban areas.

The cowpea, for example, is a commodity of vast economic importance in regional trade, with large volumes flowing south from the agriculturally marginal landscapes of Niger and Burkina Faso, where its cultivation provides a very valuable environmental service by fixing atmospheric nitrogen to fragile and sandy soils. The nutritional value of cowpea also makes it a highly sought source of dietary protein, far less expensive than animal protein, and simple to prepare as a meal in institutional contexts (e.g. schools, military units and prisons), and as a relief food.

³⁹ Grated and lightly fried cassava flour.

4. Prospects and Challenges

4.1. Demographics and Urbanization

This Chapter draws on two main sources to generate projections of the size and distribution of population over space, and draw some inferences regarding the future of regional trade in West Africa: the *Africapolis* study of urbanization trends over the 1950-2020 period⁴⁰, and the West African Futures study on population distribution, markets and food security⁴¹.

As mentioned previously, the region's population will continue to grow, until more countries go through and complete the process of demographic transition; up to 2050, it will be the fastest growing region in the world. This process will, however, be complex: population will grow, but it will not necessarily stay in place. Demographic and urbanization trends based on a retrospective analysis of city growth since the 1950s⁴² indicate that while large cities will indeed grow larger, many secondary urban agglomerations of 10,000 inhabitants or more will increase in number and size, sharply reducing the distance between urbanized areas.

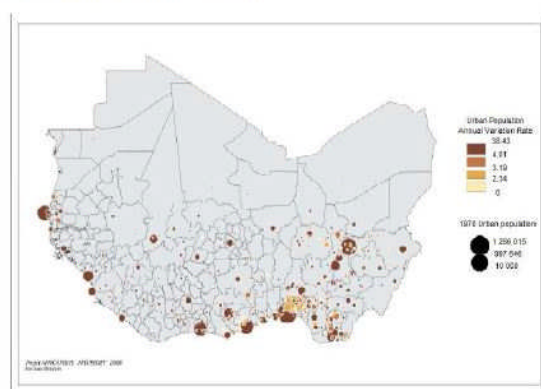
By 2020, almost all (201) of the 222 geographic regions of West Africa defined in the *Africapolis* study will have at least one town of 10,000 inhabitants, compared to 56 in 1950. As a result, the number of urban agglomerations will have grown from 125 in 1950 to 1,433 in 2020, dividing the average distance between them by three, going from 111 to 33 kilometers for the whole region, and from 60 to 31 in urban areas (see table 6 and two maps below).

Table 6 – Average Distance between Cities, 1950-2000

		1950	1070	2000	2020
Regional Urban Area	%	29.2	60.5	85.4	92.5
Urbanized Areas	Number	56	118	193	201
Agglomerations	Number	125	366	993	1,433
Total Area	Dist. Kms	111.5	64.6	39.1	32.6
Urbanized areas	Dist. Kms	60.2	50.3	36.2	31.4

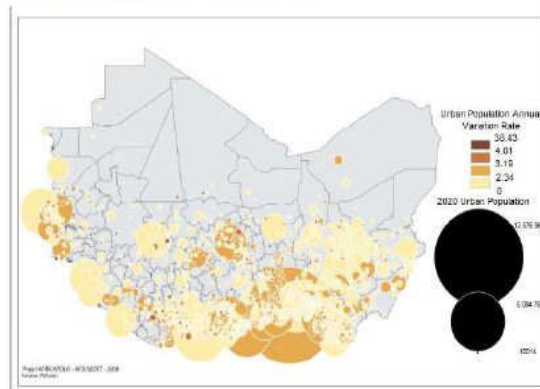
Map 17 - Distribution of cities, 1970

Agglomerations of more than 10,000 Inhabitants in 1970 and annual variation rate, 1960-1970



Map 18 - Distribution of cities, 2020

Agglomerations of more than 10,000 Inhabitants in 2020 and annual variation rate, 2010-2020



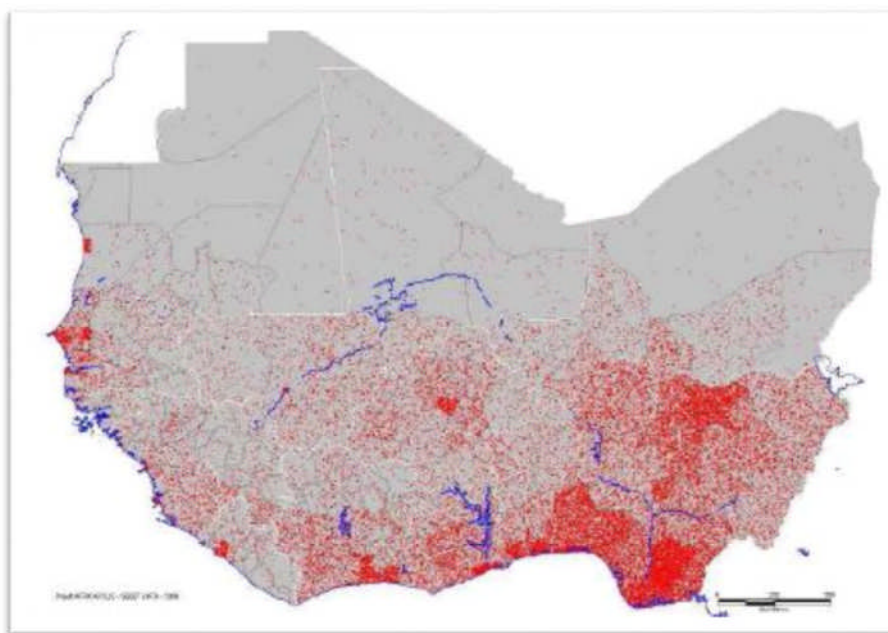
⁴⁰ AFD, *Africapolis – Urbanization trends 1950-2020*, 2009.

⁴¹ OECD/SWAC, *Op. Cit.* 2012.

⁴² AFD, *Op. Cit.*, 2009.

The map below shows a projected population distribution by 2020 based on the *Africapolis* study of urbanization trends. Broadly speaking, Nigeria (accounting for about half of the region's population currently) will continue to be a major 'demographic power', both in terms of population size, density and degree of urbanization. At the same time, the coastal urban belt, which is already sizeable (from Douala to Dakar there are 12 townships of over a million inhabitants along the coastline) will further expand and densify. 'Maritime attraction' will continue to manifest itself in Dakar and the greater Cap-Vert peninsula, around Monrovia and parts of Sierra-Leone, while parts of Burkina Faso will also densify significantly.

Map 19 – Population distribution, 2020



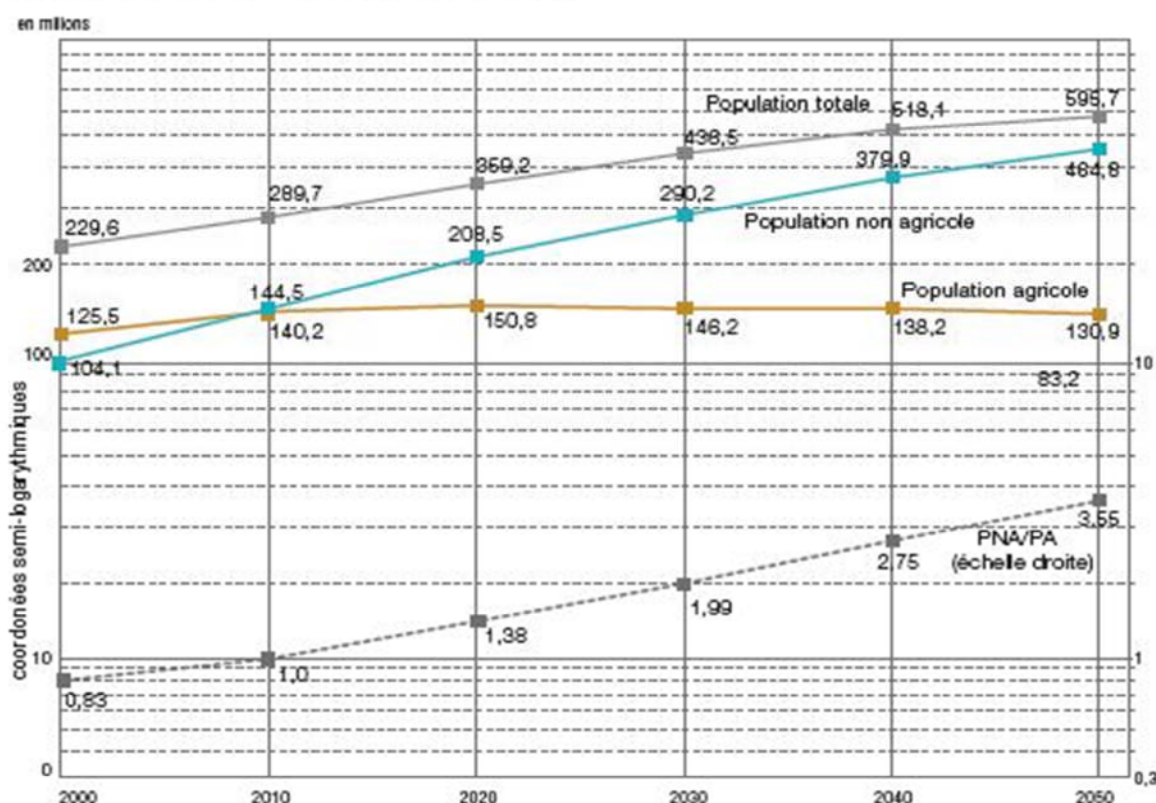
The shift in population density and urbanization will be part of a process of demo-economic transition which has been underway for many years and is progressing, although at uneven rates. This process is similar to what has taken place in other regions of the world: increasingly large cities become sinks of economic activity with strong internal feedback processes. This translates into growing effective demand for food products based on higher urban incomes. It also implies a change in relative prices between agricultural and non-agricultural goods to the advantage of the former. Under such conditions most of the effective demand for food is satisfied by a supply response from rural and peri-urban areas, with –given higher relative prices-- a gradual intensification and specialization of agricultural production.

The demo-economic process thus involves a strong population shift from rural to urban areas and, in rural areas, a diversification of income earning activities, all of which have been taking place in the region. As a result, the ratio between agricultural producers and people employed in other sectors gradually falls, and the proportion of rural dwellers who are engaged in activities other than direct agricultural production rises.

The diagram below shows projections done under the West African Futures study for the 2000-2050 period. Agricultural population will become proportionally smaller (it may remain at the same absolute size). The impressive gains in agricultural labor productivity accomplished so far will have to be sustained or increased. This will require that the

historical process that took place in other parts of the world continues to play out in West Africa: larger urbanized populations with rising incomes and strong effective demand for food driving up the relative price of agricultural products, allowing for an intensification of production.

Projection de la population agricole et non agricole



Much of the rural population will increasingly develop non-agricultural employment activities, although many will be related to agriculture and food commodity value chains, while food production will no longer be clearly separated between rural and 'urban' areas, many peri-urban areas hosting intensive horticulture, poultry, dairy activities.

Globally, the combination of demographic-economic process, urbanization trends and stagnating agricultural population will profoundly transform West African agriculture (which is to undergo a tripling of regional production over the next few decades to satisfy urban demand). This will include:

- An urbanization process where many provincial cities grow rapidly, in addition to capitals;
- A significant relative increase in agricultural commodity prices allowing for investment in and intensification of agricultural production;
- A reduction of distances between production and consumption basins, helping to generalize phenomena of agricultural intensification and specialization;

- An increase in the average size of 'small' farms (current small, mostly subsistence farms will become much fewer), and the emergence of large farm enterprises, linked to the food processing industries and consumers of large urban areas.

4.2. Regional Trade Prospects

At the regional level, the potential to expand agricultural production remains considerable and can accommodate such changes. According to the most recent prospective study⁴³, neither natural resource nor labor constraints are strictly binding, provided that there is appropriate policy support and free flows of factors of production. One should include two additional qualifications or precisions: appropriate policy support should include adaptability to potential effects of climate change, and the flow of factors and products should not be hindered by tensions or insecurity in the region⁴⁴.

For the region as a whole, one can make a first rough estimate of the anticipated increase in trade of basic agricultural commodities to 2050. The simple arithmetic simulation for cereals presented below is based on the projected evolution of relative shares of agricultural and non-agricultural populations, and on the expected increased requirement in basic staples.

Assuming that in 2010 some 140 million agricultural producers were feeding themselves and another 144.5 million non-agricultural producers. Total regional cereal production could then be indexed at 100, with total cereal consumption at 115, including imports from the world market. The index share of regional production being traded would be on the order of 66.

By 2050, some 131 million agricultural producers would feed themselves and another 470 million non-agricultural producers. The regional cereal production index would by then have risen to 300 to satisfy increased demand. One may also assume that imports would still fulfilling about 15% of total cereal needs. The share of the regional cereal production index that being traded would then have risen from 66 to 266, a four-fold increase.

This simple simulation provides a first sense of the increase in regional trade one can expect (a quadrupling of today's volumes of trade has serious implications). However, trade is likely to evolve in a number of complex ways. Two important determinants are the evolution of food consumption patterns, and competitiveness with the world market.

Patterns of food consumption will continue to evolve in West Africa, as they have in other parts of the world. Overall, diets will gradually diversify, improve, and the consumption of rice, wheat, maize, meat and dairy products, for example, will increase.

⁴³ OECD, SWAC, Op. Cit. 2012.

⁴⁴ This is consistent with the ECOWAS 2020 Vision of a region endowed with robust human capital; with a single open integrated regional market in which resources people, goods and services would move freely and unimpeded; with sustainable economic growth conducted in a conducive regional environment (with one currency and an integrated financial market); good governance and accountable leadership.

The projected rising volatility of global market commodity prices further strengthens the case for regional trade, the argument that world prices are more stable than regional ones being undermined. Whereas food imports may continue to act as a convenient 'safety valve' when regional prices are higher than world ones, there will be times (as in 2007-2008) when food imports strain both household budgets and public finances, threatening social and political unrest. Regional agricultural supply response is not likely to be sparked by price incentives deriving from protection, but rather from rising effective demand and higher food prices in a well integrated and growing regional market. This being said, one may expect continued stiff competition from (sometimes subsidized) world market suppliers of frozen red meat/poultry, onions, tomato paste, etc.

4.2.1. From a Commodity Point of View:

- Regional production of maize (for human consumption and poultry feed), is likely to grow much further. The same is expected for rice, for which there remains excellent potential in the region (although substantial imports from the world market are likely to continue). We can also expect much growth in tubers, and palm oil production and trade. Maize will continue to be produced and consumed in many different geographic areas, possibly becoming the prime regionally traded commodity.
- Wheat imports are likely to grow sharply, and lead to large South-North and East-West regional trade patterns.
- Cowpeas and other pulses (pigeon peas, Bambara nuts, locust beans, etc.) will continue to be a main source of inexpensive protein and be widely traded; current production and consumption basins are not likely to change drastically.
- Coarse grains will continue to be produced on a large scale, with an increasing share going to the food processing and brewing industries. Long-distance trade in coarse grains may therefore continue from current production to consumption basins, but for different purposes.
- Long-distance trade in live animals will increase, but not by as much as most other commodities, the difference being taken up by proximate rural and peri-urban poultry, small ruminant and cattle fattening, and dairy operators. Long-distance trade in live animals may in fact involve much younger animals 'grown out' in northern areas, and finished in southern ones. In addition case, some meat trade will increasingly replace trade of live animals.

4.2.2. From a Geographic Point of View:

- The greatest regional potential for an increase in trade of basic foods lies in the vast untapped rice, tubers and palm oil reservoirs of Guinea, Sierra-Leone, and Liberia. The medium and long-term potential in East-West trade (although Senegal would also be concerned) in these commodities is staggering. These countries are expected to urbanize further (especially Liberia and Guinea), so part of the additional

labor needed might come from countries with much higher population growth rates and relatively less agricultural potential (see below).

- Nigeria will represent a slightly smaller share of regional population than it does today, but will remain a demographic ‘giant’. The rate of urbanization⁴⁵ there is not expected to increase much further, but patterns of trade will be more diverse, more localized and shorter. Some of the long-distance trade will continue, but with changes, as mentioned above for livestock from such origins as Niger or Burkina Faso.
- In other countries of the highly urbanized coastal belt (from Benin to Cote d’Ivoire) the urbanization process will continue and trade in all current commodities, especially rice, maize and processed tubers, will expand. Here too, the combination of increased urbanization and food processing due to changing diets will diversify the ways these commodities are traded, both in nature and distance. Pulses, however, are likely to still be traded on a large scale, without major changes to their places of origin. The current high rate of urbanization in Senegal (nearly 46% in 2000, highest in the region) will fall slightly by 2020. Aside from imported rice, likely to keep its sizeable share, patterns of trade in Senegal will reflect increasingly diverse diets in both urban and rural areas. South-North (processed tubers, palm oil) and East-West (live animals/meat, coarse grains) are likely to increase sharply.
- Countries of the Sahelian hinterland still have relatively high population growth rates (especially Niger and Burkina Faso) and low urbanization rates compared to other in the region. An increase in effective domestic demand will take place in these countries and lead to some intensification of agriculture, but regional demand will still provide the strongest stimulus to production in the primary sector (i.e. livestock and meat products, cowpeas and other pulses, onions, coarse grains, etc.). Here too, the growth of the agricultural population will slow, and the average size of small farms will increase somewhat. Some of the growing labor force will find employment in their own country (urban, or rural non-agricultural), but much of it will seek work opportunities elsewhere in the region, possibly in the more coastal rice-tuber-palm oil belt mentioned above. Patterns of trade will still involve a North-South flow of livestock, pulses, onions, etc. in exchange for basic foods. However, these northern products will have to undergo some transformation to satisfy new demand patterns and remain competitive versus world market imports (younger animals or meat instead of mature steers, conditioned or processed onions and other off-season products rather than bulk commodities, etc.).

4.3. Implications for Regional and National Policies

The picture of West Africa we are projecting (our vision of the region in 2020 and beyond) is one whereby population will grow and its density will rise. There will be more, larger and more proximate cities, incomes and effective demand will rise, relative prices will change in

⁴⁵ Urbanization rates for 2000 and 2020 used in this section are from the *Africapolis* study, also see Appendix table.

favor of agricultural products, a shrinking share of the population will feed the growing remainder, and regional trade will expand several-fold. This is not an unrealistic scenario; it has already taken place in many other parts of the world. The real question is: how rapidly and smoothly (i.e. with what social consequences) will it take place?

Strong effective demand from urban and rural non-agricultural populations requires that trained and productive people find employment through competitive and efficient factor and product markets. Large and sustained investments in human capital and infrastructure (hard and soft) will be needed, along with integrated agri-business systems and financial, information/communication and trading services. This is consistent with the ECOWAS Vision 2020 statement on the need to create “robust human capital; with a single open integrated regional market in which resources people, goods and services would move freely and unimpeded; with sustainable economic growth conducted in a conducive regional environment (with one currency and an integrated financial market); good governance and accountable leadership”. In addition, the necessary change in terms of trade between agricultural and non-agricultural products will put additional strain on low-income households which already spend most of their budgets on basic foods; effective safety nets need to be put in place.

This will be difficult: governments, national and regional institutions have struggled to keep up with the pace of change in previous years; yet, the set of upcoming changes will be a great deal faster, and on a much larger scale.

The powerful regional dynamics that we anticipate will bring great benefits; they can also exacerbate underlying tensions. For instance, it is very hard to imagine that the combination of demographic-economic trends and increase in regional trade can take place with continued obstructions, delays and illegal taxation of trade. Combined (urban, rural, professional) pressures to remove them will become intense.

At the same time, regional demographic-economic trends will require unprecedented population movements within West Africa (and to a lesser extent, beyond). The fastest growing countries are not the largest, but some of their populations will move to the urban areas of other, higher income countries, while others will become part of the small agricultural production population in areas of intense agricultural production, even on a temporary or seasonal basis.

These phenomena (relative agricultural price increases, removal or displacement of current rents, migration) will increase tensions in a region which is already seen as one of the riskiest in the world, in terms of the probability of instability and strife (see environmental and anthropogenic risks, in the Appendix). Regional organizations are particularly well placed to address this challenge, but the task promises to be an uphill and momentous struggle.

Appendix

All Appendix tables, unless otherwise indicated (Table 11, Map 20), quote ATP Project data.

Table 7 – Cattle Trade Flows from Mali

Country of Origin	Mali	CATTLE			
Sum of Total Head	Column Label				
Row Labels	2009	2010	2011	2012	Grand Total
Cote d'Ivoire	22,709	39,797	39,301	13,287	115,094
Zegoua	22,709	39,797	39,301	13,287	115,094
Senegal	17,400	92,309	117,362	30,325	257,396
Diboli	14,288	64,402	64,628	16,461	159,779
Kayes	3,112	27,907	52,734	13,864	97,617
Grand Total	40,109	132,106	156,663	43,612	372,490

Table 8 – Cattle Trade Flows from Burkina Faso

Country of Origin	Burkina Faso	CATTLE				
Sum of Total Head	Column Label					
Row Labels	2008	2009	2010	2011	2012	Grand Total
Benin		9,213	27,444	72	109	36,838
Cote d'Ivoire		1,075	1,190	295		2,560
Gabon		27				27
Ghana	33,167	110,941	118,943	130,235	56,398	449,684
Niger				603	1,294	1,897
Nigeria		33,743	112,462	113,866	58,258	318,329
Togo			1,925	2,746	1,192	5,863
Grand Total	33,167	154,999	261,964	247,817	117,251	815,198

Table 9 – Small Ruminant Trade Flows from Mali

Country of Origin	Mali	SMALL RUMINANTS			
Sum of Number	Column Labels				
Row Labels	2009	2010	2011	2012	Grand Total
Cote d'Ivoire	39,852	68,807	67,520	16,970	193,149
Guinea	1,700				1,700
Senegal	168,908	168,648	348,111	85,951	771,618
Grand Total	210,460	237,455	415,631	102,921	966,467

Table 10 - Small Ruminant Trade Flows from Burkina Faso

Country of Origin	Burkina Faso	SMALL RUMINANTS			
Sum of Number head	Column Labels				
Row Labels		2009	2010	2011	2012 Grand Total
Benin	97,968	165,638	152,766	70,015	486,387
Cote d'Ivoire	64,868	89,104	64,111	23,370	241,453
Ghana		2,584	670	422	3,676
Niger			2,763	464	3,227
Nigeria	3,150	968			4,118
Togo	4,059	18,702	16,802	10,127	49,690
(blank)				410	410
Grand Total	170,045	276,996	237,112	104,808	788,961

Table 11 – Maize Production, West Africa, 2000-2010

	Maize Production					
Sum of Value	Column Labels					
Row Labels		2000	2002	2004	2006	2008 2010
Benin	750,442	622,136	842,626	671,949	978,063	1,132,700
Burkina Faso	423,494	653,081	481,474	866,664	1,013,630	1,133,450
Côte d'Ivoire	576,910	592,267	619,831	638,753	630,188	641,610
Ghana	1,012,700	1,400,000	1,157,620	1,189,000	1,470,080	1,871,700
Guinea	329,025	388,679	460,994	546,765	522,695	580,100
Mali	214,548	363,629	459,463	706,737	695,073	1,403,580
Nigeria	4,107,000	4,890,000	5,567,000	7,100,000	7,525,000	7,305,530
Senegal	78,593	80,372	400,555	181,585	397,326	186,511
Togo	482,055	510,084	523,647	543,342	590,106	638,129
Grand Total	7,974,767	9,500,248	10,513,210	12,444,795	13,822,161	14,893,310
Source: FAOSTAT						

Table 12 – Annual Maize Trade Flows

Maize						
Sum of Tonnage per shpmnt	Column Labels					
Row Labels		2008	2009	2010	2011	2012 Grand Total
Benin			32	344	112	710 1,198
Burkina Faso			7,376	27,012	25,600	12,242 72,230
Cote d'Ivoire	3,120	27,959	30,790	27,651	14,940	104,459
Ghana	640	6,753	4,747	3,632	1,148	16,920
Mali	1,160	7,399	2,342	2,698	641	14,240
Nigeria					7,912	7,912
Togo		262	2,034	736	90	3,122
Grand Total	4,920	49,780	67,269	60,429	37,683	220,081

Table 13 = Millet and Sorghum Trade Flows

VALUE CHAIN (Multiple Items)		Millet/Sorghum			
Sum of TONNAGE		Year			
Country of Origin	DESTINATION Country	2010	2011	2012	Grand Total
Burkina Faso	Burkina Faso	2,831	37,549		40,380
	Niger	611	6,046	3,158	9,814
	Ghana	706	6,240	2,784	9,730
	Mali		1,128	715	1,843
	Cote d'Ivoire	4	467	60	531
	Senegal		79		79
	Mauritania		68		68
Burkina Faso Total		4,152	51,577	6,716	62,446
Mali	Mali	11,806	49,136	20,865	81,807
	Cote d'Ivoire	240	2,118	496	2,854
	Senegal	194	2,277	189	2,659
	Mauritania	23	1,531	117	1,670
Mali Total		12,263	55,061	21,666	88,990
Nigeria	Niger	19,146	69,487	88,604	177,237
	Nigeria	10,823	2,560		13,383
Nigeria Total		29,969	72,047	88,604	190,620
Grand Total		46,384	178,685	116,986	342,055

Table 14 – Detailed Regional Maize Flows

Sum of Tonnage per:		Year				
Country of Origin	Destination	2008	2009	2010	2011	2012
Benin	Burkina Faso		32	344		520
	Niger				20	
	Togo				92	190
Benin Total			32	344	112	710
Burkina Faso	Benin		34	831		
	Cote d'Ivoire		1			
	Ghana		507	249	1,087	114
	Mali		304	154	792	195
	Niger		6,531	25,778	23,652	11,933
	Togo				68	
Burkina Faso Total			7,376	27,012	25,600	12,242
Cote d'Ivoire	Burkina Faso		2,511	2,560	3,808	2,148
	Ghana		70	57	75	124
	Mali	3,120	20,867	17,851	22,011	11,624
	Niger		4,511	10,322	1,702	1,044
	Senegal				55	
Cote d'Ivoire Total		3,120	27,959	30,790	27,651	14,940
Ghana	Burkina Faso	640	2,682	2,809	1,685	548
	Gambia		4			
	Niger		4,067	1,938	1,947	600
Ghana Total		640	6,753	4,747	3,632	1,148
Mali	Burkina Faso		39			
	Mauritania	1,160	7,360	1,234	966	232
	Senegal			1,108	1,732	409
Mali Total		1,160	7,399	2,342	2,698	641
Togo	Benin		35	296		
	Burkina Faso		78	1,276	55	90
	Cote d'Ivoire			142		
	Niger		149	320	681	
Togo Total			262	2,034	736	90
Grand Total		4,920	49,780	67,269	60,429	29,772

Table 15, Table 16 Annual Millet and Sorghum Trade Flows, Selected Countries

Estimated Annual Flows of Sorghum on 14 Markets in Burkina Faso, Benin					Estimated Annual Millet Flows, 11 Markets in Burkina Faso, Benin, Togo				
From	To	Quantity Flow (MT per year)	Total Value (USD)	ave. price (USD/MT)	From	To	Quantity Flow (MT per year)	Total Value (USD)	ave. price (USD/MT)
Burkina Faso	Ghana	2,684	\$ 805,200	\$ 300	Benin	Togo	6,000	\$ 3,060,000	510
Burkina Faso	RCI	1,800	\$ 540,000	\$ 300	Burkina Faso	Burkina Faso	1,700	\$ 544,000	320
Burkina Faso	Mali	1,440	\$ 414,000	\$ 288	Burkina Faso	Cote d'Ivoire	1,240	\$ 583,000	550
Burkina Faso	Niger	500	\$ 142,500	\$ 285	Burkina Faso	Niger	1,200	\$ 444,000	370
Burkina Faso	Benin	20	\$ 5,600	\$ 280	Burkina Faso	Ghana	950	\$ 522,500	550
Subtotal		6,444	1,907,300		Burkina Faso	Mali	30	\$ 16,500	550
Benin	Nigeria	23,240	\$ 8,598,800	\$ 370	Subtotal		5,120	2,110,000	
Benin	Togo	13,860	\$ 8,108,100	\$ 585	Cote d'Ivoire	Burkina Faso	80	\$ 29,600	370
Benin	Niger	3,090	\$ 2,101,650	\$ 585					
Benin	Ghana	500	\$ 292,500	\$ 585	Mali	Burkina Faso	1,200	\$ 660,000	550
Subtotal		40,690	19,101,050						
Mali	Niger	2,000	\$ 600,000	\$ 300	Niger	Burkina Faso	1,000	\$ 600,000	600
Mali	Burkina Faso	90	\$ 27,000	\$ 300					
Subtotal		2,090	627,000		Togo	Burkina Faso	2,200	\$ 814,000	370
Cote d'Ivoire	Burkina Faso	1,500	\$ 450,000	\$ 300	Togo	Benin	1,400	\$ 518,000	370
Sample Total		44,280	\$ 20,178,050		Togo	Ghana	800	\$ 296,000	370
					Subtotal		4,400	1,628,000	
					Sample Total		17,800	8,087,600	

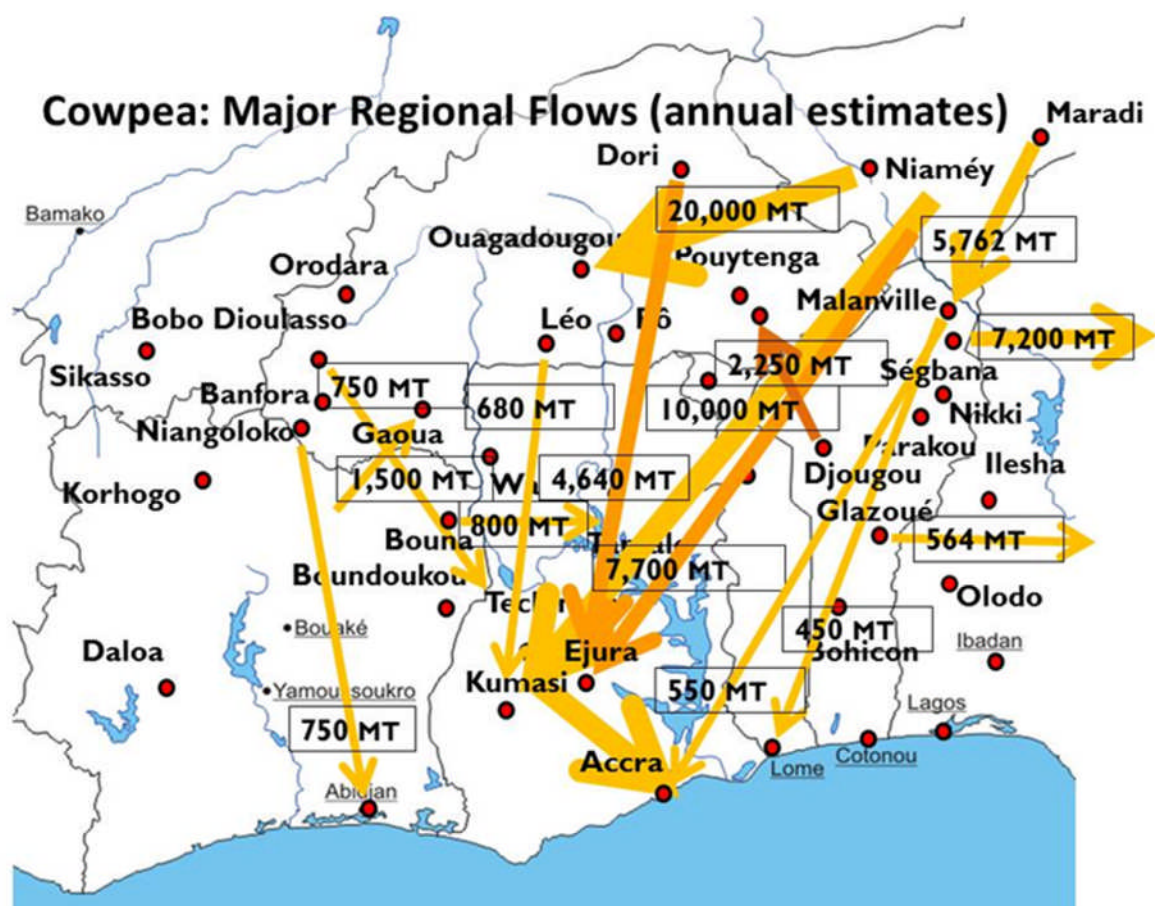
Table 17 – Regional Flows of Parboiled Rice

VALUE CHAIN	(Multiple Items)	Rice		
Sum of TONNAGE		Year		
Country of Origin	DESTINATION Country	2010	2011	2012
Benin	Nigeria		643	1,360
	Togo		300	613
	Burkina Faso		46	
	Niger		7	27
Benin Total			996	2,000
Burkina Faso	Mali		837	1,143
Burkina Faso Total			837	1,143
Nigeria	Nigeria	12,324	5,002	
	Niger	3,161	699	
Nigeria Total		15,485	5,701	
Grand Total		15,485	7,534	3,143

Table 18 – Onion Trade Flow Monitoring Data

		Onions			
Sum of Tonnage per shpmnt		Year			
Country of Origin	Destination Country	2008	2009	2010	2011
Burkina Faso	Cote d'Ivoire	1,138	15,695	10,207	8,784
	Ghana	301	4,353	8,532	11,608
	Togo	844	6,596	1,202	658
	Benin				15
Burkina Faso Total		2,283	26,645	19,940	21,065
Ghana	Ghana	192			
Ghana Total		192			
Niger	Ghana	1,913	49,493	74,434	75,823
	Cote d'Ivoire			7,419	7,759
	Benin	24	7,047	3,303	1,692
	Togo		452	1,837	1,176
Niger Total		1,937	56,992	86,992	86,450
Grand Total		4,411	83,636	106,933	107,515

Map 20 – Regional Cowpea Trade (market surveys)



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