

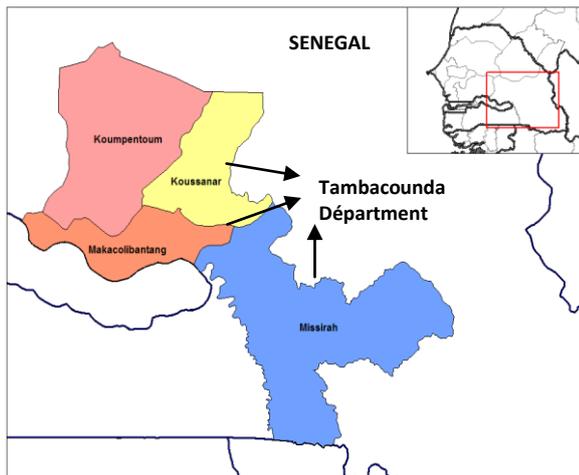
Livelihood Profile Senegal

Agro-Sylvo-Pastoral Zone – Tambacounda Département

April 2011¹

Context

Figure 1 : Location of Tambacounda Département and Arrondissements, Agro-Sylvo-Pastoral Zone



Tambacounda Region is located in the far east of Senegal. (For this reason it was formerly called *Sénégal oriental*.) Based on the most recent administrative boundary changes in 2008, the region's surface area is 42,706 km². In the north, Tambacounda borders Louga and Matam Regions as well as Mauritania; in the east, Mali and Mauritania; to the south, Kédougou Region; and to the west, Kolda and Kaffrine Regions, and the Gambia. There are 8 *communes* and 4 *départments* in the region which are further divided into 12 *arrondissements* and 38 rural communities. The region's 4 *départments* are: Tambacounda, Bakel, Goudiry and Koumpentoum. Within Tambacounda Département itself, there are three *arrondissements* -- Makacoulibantang; Koussanar and Missirah -- and 8 rural communities. In 2009, the population of Tambacounda Département was estimated at just over 250,000. This population is of mixed ethnicities, principally Peuhl (or Fulani), Mandigues, Soninké and Wolof

but also Bambara and Sérères. For the region as a whole, the population in 2009 was just over 630,000 of which about 80% was rural.

For this livelihoods profile, field research was concentrated in Tambacounda Département. This one *département* comprises almost 41% of the region's population. Of the 9 villages selected for the study, 5 were from Missirah - the most populated *arrondissement* in the *département*. The selected villages were mostly located near the boundaries of the other *départements* in order to ensure maximum geographical coverage of Tambacounda Département itself. It also meant that the study villages were similar to nearby villages in neighbouring *départements*. Most of the selected villages were located off the main road. The exception was Touba Fall, a village near Tambacounda town and situated beside the road linking Dakar and Kaolack with Tambacounda (thus benefitting from proximity to transport and urban markets). This "road bias" was accepted as part of the diversity of the zone although in some areas, a separate market-based livelihood zone could arguably be created.

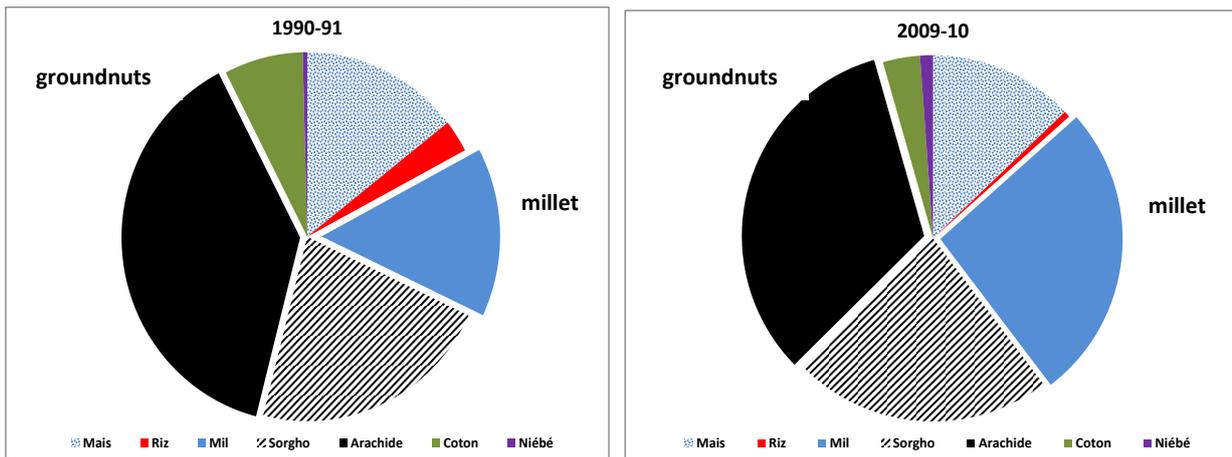
Tambacounda Département lies within a single livelihood zone called the Zone Agro-Sylvo-Pastorale. This zone is part of the vast sahelian belt that lies just south of the Sahara. The sahel is characterised by low and variable rainfall concentrated in a single season. Tambacounda Département itself received over 500 mm annually in 7 of its 8 recording stations in 2009. For that year, cumulative totals for each *arrondissement* were as follows: Koussanar – 618 mm; Makacoulibatang – 597 mm; Missirah – 711 mm; and SDDR Tambacounda – 860 mm. During the 2009 season, rain fell over a 30-40 day period (see the graph on page 5). Such climatic patterns place the zone in the **sudano-sahelian** belt.

Agriculture in the Sahel is a risky enterprise. However, population density is low -- in Tambacounda Region there were an estimated 15 people per km². Consequently, land holdings are relatively large. Even very poor households typically cultivate more than 1 ha of land. Better-off households on average farm more than 10 ha. Cultivated land is divided between subsistence grains and cash crops. Short-cycle cereals, namely millet and sorghum, as well as maize, are the principal food crops. Small amounts of rice are grown opportunistically in natural depressions. Groundnuts and cotton are the chief cash crops (groundnuts are grown as both a food and cash crop). In some villages, vegetable sales are a further important source of agriculture cash income.

¹ Field work for this profile took place in April 2011. All of the data collected refers to the October 2009 – September 2010 reference year, a relatively average year based on local standards. As long as there are no massive, rapid changes in the economy, the information in this profile will remain relevant for around 5 years (i.e., until 2015).

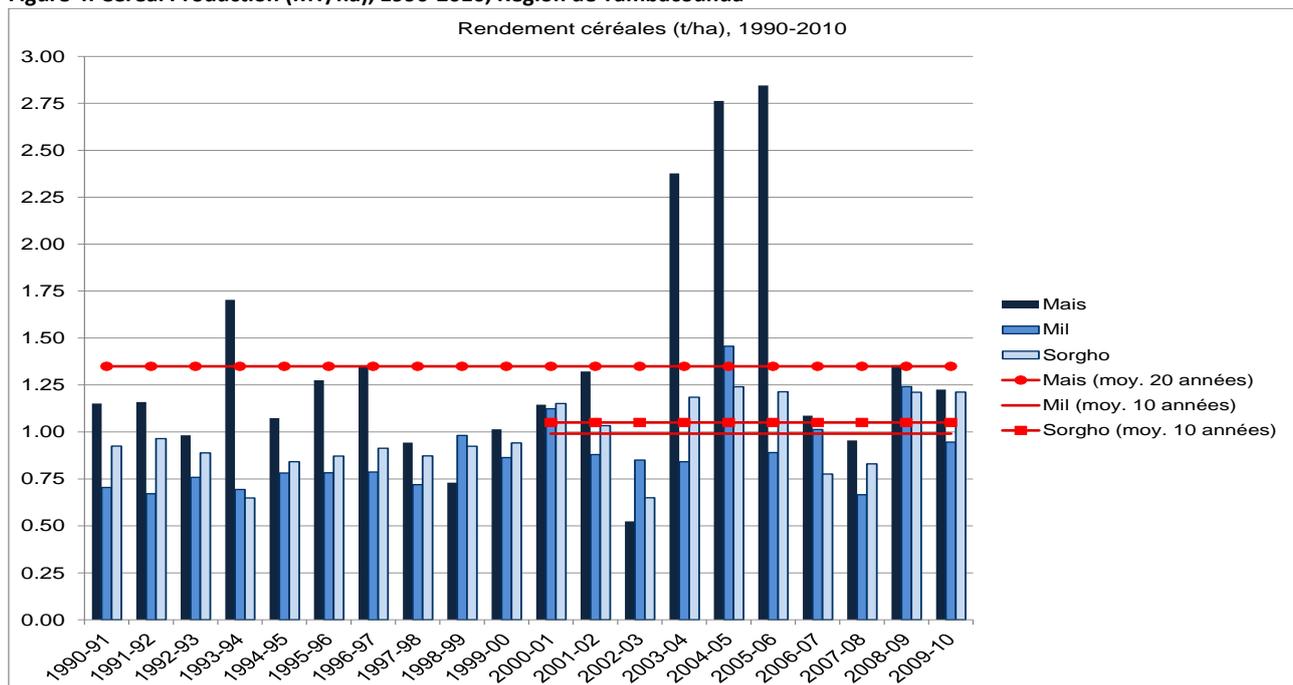
Over the last two decades, there have been changes to how farmers use their land for which crops. Notably, the share of land dedicated to cash crops has gone down. This trend is true for both cotton and groundnuts. For instance, during the 1990-91 growing season, cotton was 7% of the total land area cultivated in Tambacounda Region. This total dropped to 3% of the land area cultivated in 2009-10 (i.e., from 14,632 ha to 6,306 ha). Groundnut cultivation also declined during this period. In 1990-91, 38% of total cultivated land was dedicated to groundnuts, a proportion which decreased to 33% in 2009-10 (i.e., from 78,907 ha to 63,204 ha). Instead of cash cropping, farmers are typically using more land for **millet** production. In the region, the share of land sown to millet increased from 15% in 1990-91 to 26% in 2009-10 (i.e., from 30,319 ha to 50,286 ha). Combined with sorghum and maize, just over 60% of the land cultivated in the 2009-10 season was dedicated to staple grains.

Figure 2: 1990-91, Total Land Cultivated by Crop in Tambacounda **Figure 3: 2009-10, Total Land Cultivated by Crop**



Production of groundnuts as well as millet and sorghum has averaged about 1 MT/ha over the last decade in the region. Only in 2007-08 did groundnut and millet yields fall to below 0.75 MT/ha. Maize output is more rain-sensitive. An excellent rainy season results in a very large output; for instance, in 2003-04, maize yields were on average 2.4 MT/ha. However, the previous year, in 2002-03, due to a poor rainy season, production was a disappointing 0.5 MT/ha. By contrast, average output for millet ranged from a low of 0.7 MT/ha in 2007-08 to a high of 1.5 MT/ha in 2004-05. Thus, maize output more than tripled in a good year whereas millet output only doubled. However, the reverse trend reveals the risks of maize cultivation in the Sahel. In 2007-08, millet output dropped to 50% of its good year high but maize output dropped to 25% of its good year high. Due to these production swings (and notably due to several good production years between 2003 and 2006), the overall 20-year average for maize output was higher than for millet and sorghum. For the region as a whole, the figure for maize was 1.4 MT/ha.

Figure 4: Cereal Production (MT/ha), 1990-2010, Région de Tambacounda





Fertiliser use greatly affects output. **With** fertiliser, millet, sorghum and groundnut yields averaged about 1 MT/ha. **Without** fertiliser, this figure drops by about 50%, or to 450-550 kg/ha (village estimate for 2009-10). Lack of fertiliser inputs largely affects the very poor -- about 28% of households in the 9 selected villages. It also affects many poor households. These differences greatly influence food access outcomes. A very poor household who farms about 1 ha of land with grain can produce only about 500 kg without fertiliser. For a household of 7, this amount comprises about 34% of their annual food needs, or sufficient grain to last about 4 months.

If agriculture is one pillar of the economy for the Agro-Sylvo-Pastoral Zone, livestock production is a second important economic pillar. The proportional importance of livestock production to agricultural production depends on wealth group as well as, to some extent, on ethnicity. Several ethnic groups are found in the zone. The Wolof and Mandigue are more traditionally agriculturalists whereas the Fulani, or Peuhl, are more traditionally pastoralist. Villages comprise mixed ethnic groups although typically one ethnic group will form a majority. In turn, this influences the mix of

economic activities. In general, villages were selected to be representative of a **mixed agro-pastoral** economy. However, there was a lot of variation in levels of livestock holdings amongst the 9 villages due in large part to the ethnic make-up of the village.

For middle and better-off households, livestock are a key form of savings on the hoof. Livestock sales are a significant source of income for these wealth groups even during a relatively normal year. Even poor households typically earned about 10% of their income from the sale of 1-2 *shoats* (sheep and goats) in the reference year. Terms of trade vary significantly by year. In 2009-10, a goat valued at 17,000 CFA francs was equal to 100 kg of millet (one month of food for a household of 6 people). A cow worth 100,000 CFA francs was equal to about 600 kg of millet.

Fresh milk consumption is largely restricted to cow milk. Only in rare instances was goat milk consumed in the sample villages. Milk yields from lactating cows were on average 2 L/day/cow during the 3-4 months of peak production. Yields typically dropped to 0.5 L/day/cow during the subsequent 2-4 months. This milk is largely consumed. However, during peak production, better-off households sold around 10% of their milk.

During the reference year (2009-10), herd sizes remained stable. Livestock purchases were low but offtake (mainly from sales and disease-related deaths) was balanced by births. Overall, about 10-20% of the cattle herd was sold or slaughtered during the reference year. Offtake rates were slightly higher for small stock. On average, 30% of the small stock herd was used for sale or slaughter by poor and middle-income households. For the better-off, offtake through sale and slaughter comprised about 15% of the *shoat* herd. These rates are consistent with herd dynamics in other dryland countries, particularly small stock offtake rates.

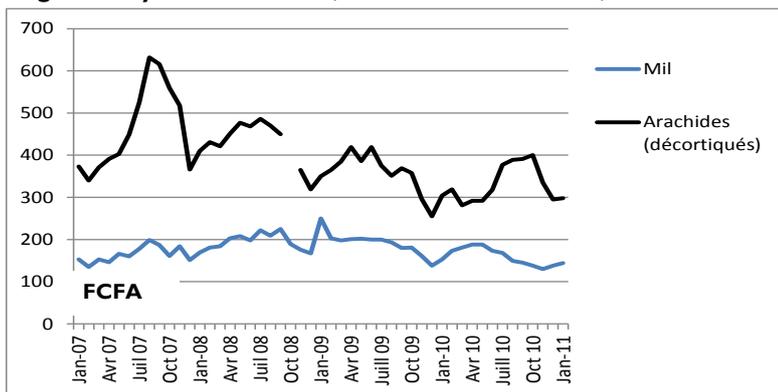
The third critical pillar of the zone's economy is the sale of forestry products. Tambacounda Region has a number of forest reserves managed by the *Service des Eaux et Forêts*. Quotas are set for each producer cooperative. These quotas are derived from an annual assessment of available resources. In 2011, 255 ha were allocated for resource exploitation in the region. Forest products can be collected and sold during 9-10 months of the year. Between August and September (or October), forest land is left for natural regeneration. On the ground, the reserves are managed by local groups. Parcels of land are selected for use over an eight year period. After this period, that parcel of land is rotated out and another parcel of land is selected for use over the next eight year rotation period. Firewood is collected from different parcels of land than charcoal but both are managed through the same system. Other forest products are also sold by villagers but these products are not formally managed by the state. Unregulated products include *pain de singe* (fruit of the baobab tree), *jujube* (fruit of the ziziphus tree), gum mbepp, gum Arabic, honey, and palm leaves to name a few. In all, the region benefits from about 25 forest products. Most of the forestry products from the region are sold without processing. The one exception is the processing of gomme mbepp by SOCOGOMME. This product is used locally by households in the cooking process.

Markets

Markets play an important role in the Agro-Sylvo-Pastoral Zone. Farmers sell produce after the harvest, principally cash crops but also staple grains. They also purchase food from the market, especially rice, during the lean season prior to the next harvest. Sales of vegetables, firewood, charcoal, *pain de singe*, livestock and labour all constitute key sources of income during the off-season.

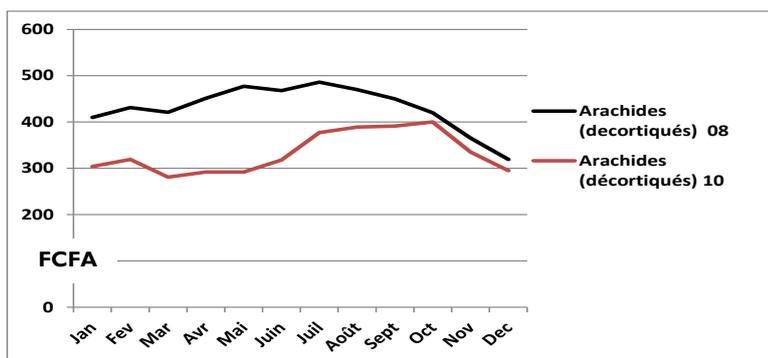
Cash cropping in the zone is a significant (although a declining) activity. Roughly 40-60% of farmers' land is dedicated to the production of groundnuts and cotton. Cotton has decreased in importance but groundnuts remain a principal food and cash crop. In the 2009-10, total production of *arachide huilerie* for the Department of Tambacounda was 24,153 MT (compared to 40,436 MT of cereals). Demand is both internal (i.e., large urban markets such as Kaolack and Dakar with Touba a major peanut collection and processing hub) as well as regional (i.e., Gambia, Guinea Bissau and Guinea) and, most importantly, international. Although international markets are dominated by the three top groundnut exporting countries, namely China, India and the US, Senegal's groundnut **oil** exports constitute a **major** source of groundnut oil on the world market (12/3/2010: Global Agriculture Information Network, USDA). In terms of the national economy, in 2005, groundnut exports (principally groundnut oil) constituted 60% of total agricultural exports (Wikipedia). Today, due to free market reforms undertaken in 2002, the groundnut trade in Senegal is fully privatised. The sector is dominated by SUNEOR a company with domestic and foreign shareholders. For individual farmers, free market reforms on balance led to reduced farmer profits. After the 2002 reforms, for example, although producer prices rose, this rise was off-set by higher input costs (May 2008: AfricaFocus Bulletin). Another concern is that world demand from major buyers (such as Europe and Canada) has declined slowly over the years although local demand also fuels production. On a final note, groundnut production has heavy environmental costs (namely soil erosion) and this issue may influence production patterns in years to come.

Figure 5: 4 year Price Trend, Millet and Groundnuts, 2007 à 2011²



Price dynamics have both a seasonal and an annual element. As the graph at left depicts, prices for groundnuts since 2007 have been on a steady decline. This trend reflects supply patterns rather than producer price advantages. The 2007 and 2008 seasons were very poor. In a relatively normal year, (i.e., 2009-10) local buyers in Gouloumbou market, for example, typically bought 400-500 kg/month over a 4 month period. However, in the bad year, in 2007-08, they bought only 150-200 kg/month. Thus, high prices reflected low supply and drought.

Figure 6: Seasonal Price Trends for Groundnuts, January to December

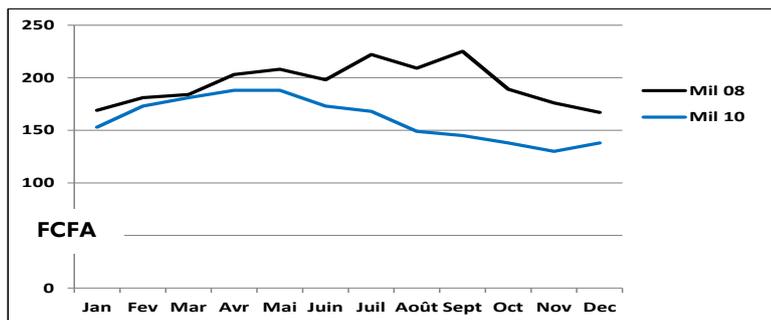


Seasonal price trends for groundnuts are not extreme but prices do rise in the off-season and fall when sales are highest, post-harvest (i.e., October to January). Note in the graph at left the price difference between a good and bad production year. In May 2008, groundnut prices were 50% higher than in May 2010. These high prices hurt poor farmers as few had groundnuts to sell but many were buying their food on the market.

Staple grains are not exported out of the zone. Instead, local grain is purchased by local traders to meet local demand. Millet, sorghum and maize are bought from farmers post-harvest in January and February then sold back to villagers mainly from June to September. Despite some seasonal price movement, the difference between seasonal highs and lows is not huge (see graph above for mil 2010, after a "normal" production year). For instance, at the Gouloumbou market, the price difference during the year was 10-35 CFA francs/kg.

² Price data is from La Service Regional de la Statistique et de la Demographie de Tambacounda, ANSD 2009 : *Situation Economique et Sociale de la Region de Tambacounda*.

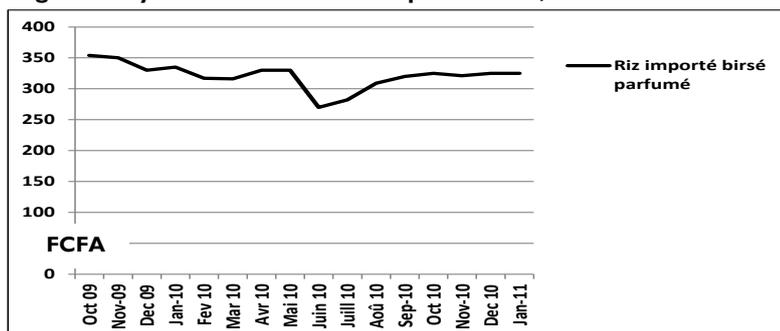
Figure 7: Seasonal Price Trends for Millet, January to December



Annual price trends for staple grains, however, do show some variation depending on supply. During the reference year (a relatively “normal” production year) a large trader at the Gouloumbou market on the Gambia River typically purchased about 60 (50kg) sacks of millet or sorghum. In a bad year, this volume of purchase and sales typically dropped by 50% to 30 (50kg) sacks whereas the price – based on 2007-08 price trends - rose from 150 to 210-220 CFA francs

in the peak price period (Aug/Sept). In these bad years, when the local grain supply is insufficient for demand, maize flour is often imported from overseas (for instance from Canada).

Figure 8: 2 year Price Trend for Imported Rice, 2009 à 2011



In contrast to millet or sorghum, local rice production is insufficient to meet local demand. Consequently, the zone imports rice from overseas markets. Asia and the US are the main source markets for imported rice which is routed through Dakar to Tambacounda and other major markets in the zone (Koussanar, Missirah, Dawady and Sinthiou Malème to name a few). Volumes traded do not shift greatly year to year.

Large-scale traders in Gouloumbou reported selling an estimated 20 MT /month during the June to September period. (Note, sorghum sales were about 3 MT during the same period.) Sales drop in December at harvest time to an estimated 6-7 MT/month. Prices are fixed by the state and currently are set at 310-325 CFA francs/kg.

Livestock sold by agro-pastoralists in Tambacounda are not typically exported out of the zone. Instead, they meet local demand for meat both urban and rural. Demand spikes during festivals, notably during Tabaski (Feast of the Sacrifice) which usually falls in November. Livestock prices show enormous swings both seasonally and annually. In a relatively normal year, low season prices (i.e, in April-June) drop about 50% for cattle and 20-25% for small stock. However, during the famine of 1985, in the low season (April-June) cattle sold for as little as 12,500 CFA francs compared to 100,000-150,000 CFA francs during the reference year.

Cotton marketing in Senegal remains controlled by the state. Prices are fixed and various collection points (235 in the Departement of Tambacounda servicing 297 cotton-producing villages) provide the transport and payment link.

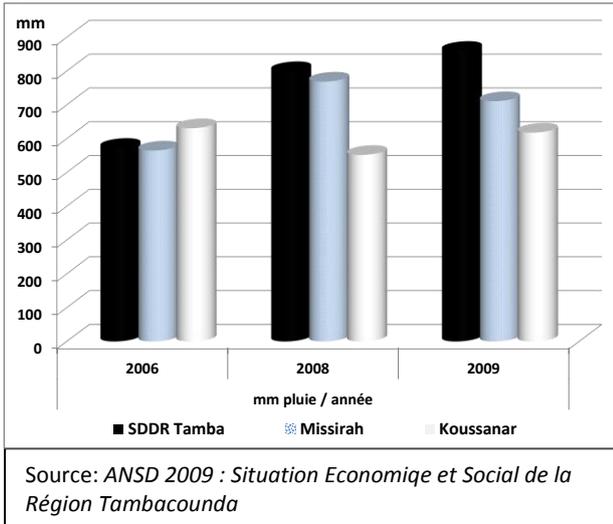
Seasonal Calendar

The seasonal calendar in the Agro-Sylvo-Pastoral Zone is dominated by the agricultural cycle. The season begins with soil preparation in late April to May. With the start of the rains in June, planting begins. Weeding is undertaken during the growing season (August, September). In early September, to cope with food shortages, some of the very poor begin eating fresh maize. The rest of the maize crop is harvested in late September and October. By November, the millet, sorghum and groundnut crops are ready for harvesting too.

Livestock provide fresh milk to cattle-owning households beginning in August. Cattle do not migrate far in the dry season (mainly to nearby riverine areas). Subsequently, cattle are given some supplementary feed using groundnut by-products. Livestock sales are highest during festival periods, particularly Tabaski in November.

Livestock sales in November and groundnut sales in January provide important income to households. Some of these earnings are used to re-pay agricultural credit taken in April/May or to pay off other loans received prior to the harvest. Loans or gifts are crucial during the months of *soudure* (the lean season) as it is at this time that the demand on household labour for own-farm work is highest, local paid agricultural work is limited and forest reserves are expected to be left for regeneration during the rains.

Figure 9: Annual Rainfall in 2006, 2008, 2009



The actual duration of this belt-tightening period differs by wealth group and by the outcome of the previous harvest. Typically it falls in the months of June, July and August.

Pursuit of additional income sources occurs between January and April. Some household members from poor households migrate into Tambacounda town or other key urban centres in the region in search of daily labour opportunities. Almost all households, however, earn some income through sales of forest products. Sales of firewood, charcoal and other products are almost a year-round activity. Only during the rainy season are forest reserves restricted from harvesting in order to ensure natural regeneration.

Figure 10: Seasonal Calendar

Activités/Evenements	Oct	Nov	Dec	Jan	Fev	Mar	Avr	Mai	Juin	Juil	Aout	Sep
Mois de pluies												
Agriculture												
Mil		Récolte					Préparation du sol		semis			
sorgho			Récolte				Préparation du sol		semis			
Niebe			Récolte				Préparation du sol			semis		
Mais							Préparation du sol		semis			Récolte
Arachide			Récolte	Vente			Préparation du sol		semis			
Coton				Récolte	Vente		Préparation du sol		semis			
Maraichage												
Elevage												
Bovins-production laitiere		Lait										Lait
Migration												
Achat nourriture betail/intrants												
Maladies du betail												
Achat/vente de betail												
Exploitations forestière												
Bois de chauffe												
Charbon de bois												
Cueillette												
Autres												
Achats de vivres												
artisanat												
Emplois agricoles												
Emplois non agricoles												
Exode/migration												
Periode de soudure												
Dettes/prêts/remboursements												
Paludisme												
Evenements sociaux												

Wealth Breakdown

To be a better-off household in the Agro-Sylvo-Pastoral Zone is to own the equipment needed to be a self-sufficient farmer – for instance, a plough and pair of oxen (or work horses), as well as a cart, seeds and tools. Better-off families have milk cattle as well as savings in the form of small stock. Families are large (one husband will typically be married to 2-3 wives) hence family labour is sufficient to pursue a number of different income generating activities including trade, vegetable gardening and sales of forestry products. Children are educated to secondary level (or further), as needed, and income is sufficient to hire additional labour for herding or farm work.

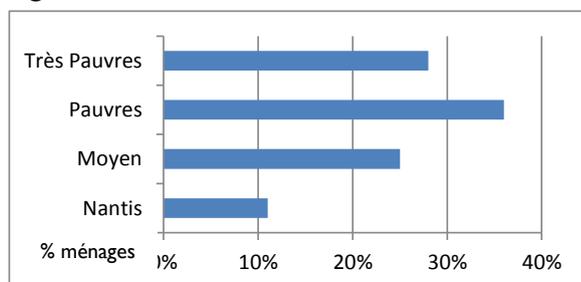
Figure 11: Description of the Wealth Groups

Wealth Group Description									
	%	Household Size	Ave. Income p. person FCFA	Land Cultivated (ha)	Livestock			Equipment	
					Cattle	Sheep/Goats	Other	Plough Cart	Other
Very Poor	28%	7 (3-10)	53,800	1.5 (0.5-2)	0	goats 0.5 (0-2) sheep 0	horses 0 donkeys 0 (0-1)	plough 0 cart 0	0
Poor	36%	11 (6-15)	57,430	3 (1.5-6)	2.5 (0-10) oxen 0.5	goats 2.5 (0-10) sheep 3 (0-10)	horses 0.5 (0-1) donkeys 0.5 (0-2)	plough 0.5 cart 0	hoe 0.5
Middle	25%	14 (10-20)	91,630	6 (3.5-15)	10 (0-40) oxen 1.5	goats 10 (3-20) sheep 11 (5-30)	horses 1.5 (0-2) donkeys 1.5 (0-3)	plough 1 cart 1	sower 1 hoe 1
Better-off	11%	20 (15-30)	116,900	11.5 (5-20)	50 (20-100) oxen 4.5	goats 25 (10-60) sheep 24 (6-50)	horses 2.5 (0-6) donkeys 2 (0-4)	plough 2 cart 1.5	sower 1.5 hoe 1

Middle-income households in the zone have similar **types** of assets as better-off households but own fewer of each asset. Thus, most, but not all, middle-income households, own a pair of traction animals (oxen or horses). Total land holdings are less, as is herd size, as is household size. Harvests during the reference year were typically sufficient to last 6-8 months. By contrast, better-off households typically produced sufficient crops to meet their food needs for 8-10 months of the year.

The poor and the very poor are, by definition, without sufficient assets to generate grain surplus or cash savings. The very poor do have enough land to cultivate both food and cash crops but they own almost no livestock nor do they own farm equipment. Some very poor households gain access to livestock (and hence to manure and other products) by taking care of a cow or goat for better-off households. At times, fresh milk produced in surplus by better-off households may be shared with the poor. However, in general terms, the **very poor** are not livestock owners. They do not generate income from livestock nor do they gain access to food from livestock. **Poor** households are livestock owners but they rarely own a pair of plough animals and they own only minimal farming tools. Nonetheless, they are able to generate a little income from livestock sales and they also produce small amounts of fresh milk. Both very poor and poor households, as is the custom in this zone, may be polygamous although it is more likely that the household is comprised of a husband with 1 wife (middle households typically comprise a husband with 2 wives). In general, very poor households are smaller than poor households.

Figure 12: Wealth Breakdown



In each of the 9 sample villages, village representatives estimated the breakdown of their population into the four wealth groups. On average, 28% of households are considered the very poor; 36% of households are the poor; 25% of households are middle-income; and 11% of households are the better-off. About two-thirds of the population, therefore, fall into the very poor and poor categories. This means that about two-thirds of the population in the Agro-Sylvo-Pastoral Zone either have no or very few livestock and

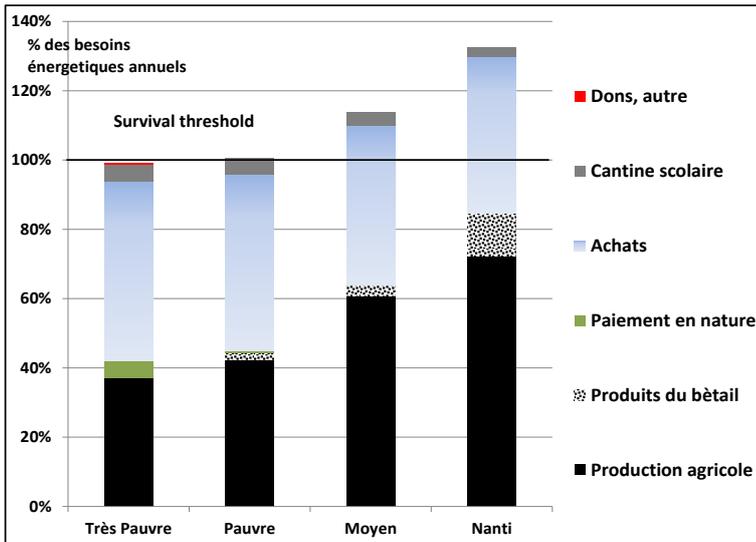
most of their food and income is derived from agriculture, forest product sales and seasonal labour. Moreover, in years of marginal rainfall and poor crop yields, about two-thirds of the population may seek support from the other third (through gifts or as a source of additional work for instance). As middle-income and better-off households will be unlikely to cover the food and income shortages of poorer households in the village, as well as cover their own crop losses during droughts, there is greater pressure on the poor to turn to migratory work to cope with deficits. In this way, migratory labour has become a key coping strategy of the very poor in times of crop losses and drought.

Food Sources

In the Agro-Sylvo-Pastoral Zone, the two chief sources of food for all wealth groups are own-crop production and purchases. For the poorer households, food purchases mean buying staple foods to ensure that survival food needs are met. For middle-income and better-off households, a certain portion of food purchases goes toward diversifying what they eat (more protein, oil, and sugar for instance).

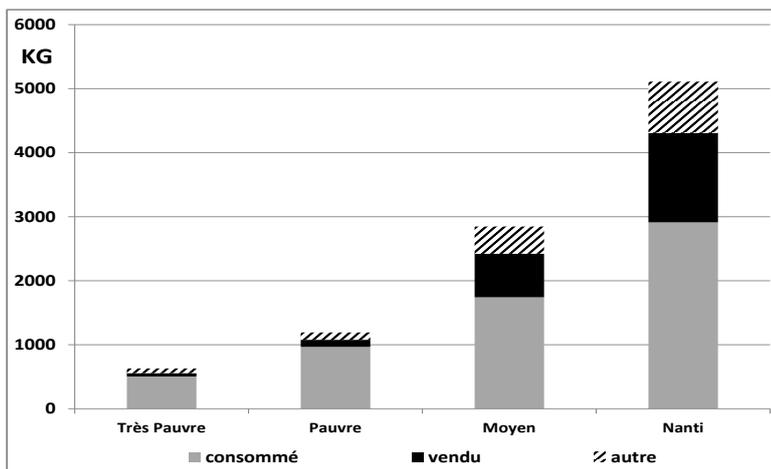
Figure 13: Food Sources by Wealth Group, 2009-10

The graph shows different food sources expressed as a percentage of total annual household food energy needs (2100 kcal per person per day) for each wealth group. Production agricole = **Crops**. Produits du bétail = **milk/meat**. Paiement en nature = **work paid for in-kind**. Achats = **purchases**. Cantine Scolaire = **school lunch**. Dons, autre = **gifts, other**.



Amongst the very poor and poor, on average own-crop production meets about 35-40% of their annual food needs. This translates into about 3-5 months of food from own-crops. In addition to food from own-crops, poor households have access to a little fresh milk in season from either their own cow(s) or from the cow(s) that they take care of for better-off households. During a relatively normal year, most very poor and poor households get by without much support from the better-off. The main source of "aid" is the *cantine scolaire* although most households also contribute their own resources to this programme. Local on-farm work paid in grain or groundnuts is an important food source principally for the very poor.

Figure 14: Production and use of cereals and legumes, 2009-10



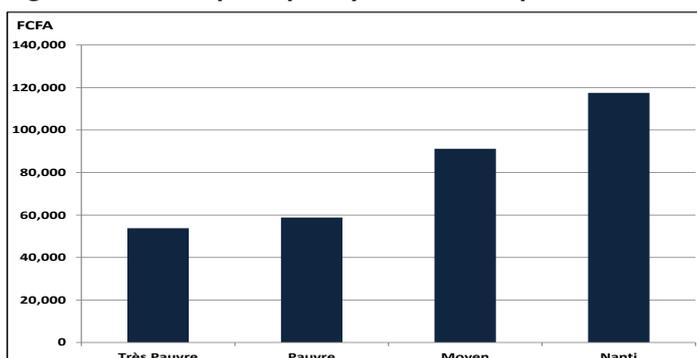
Middle-income and better-off households secure about 60-70% of their food needs through own-crop production in a normal year. The proportional importance of own-crops as a food source is determined by how much of the crop is sold for cash. At present, farmers view cash cropping as advantageous and use the income in part to purchase other essential food. Typically, households sold about 50% of their groundnut crop (for the very poor, sales were 30% or 52 kg of groundnuts). While there is a price advantage, a large proportion of the groundnut crop will continue to be sold. It is notable that the price per kilo of imported

rice is similar to groundnuts and hence there are no terms of trade advantage in this case.

For the better-off, access to own-milk and meat provides diversity to a diet of staple grains. For middle-income households, less than 5% of their annual food needs are met through milk or meat. For these households, livestock are an important source of income but their herds are too small to provide a significant source of protein.

Sources of Cash Income

Figure 15: Income per capita by Wealth Group, 2009-10

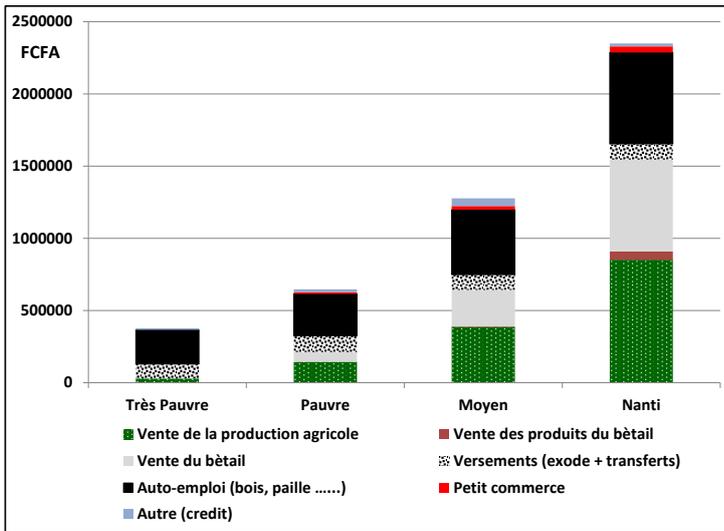


For the two poor wealth groups, the most important income source is self-employment. In the Agro-Sylvo-Pastoral Zone, self-employment typically means income earned from sales of forest products (firewood, charcoal, straw, various fruits and tree gum). The category also includes types of work such as the sale of mats and woven goods, as well as the sale of small game or birds and petty trade.

Figure 16: Income Sources by Wealth Group, 2009-10

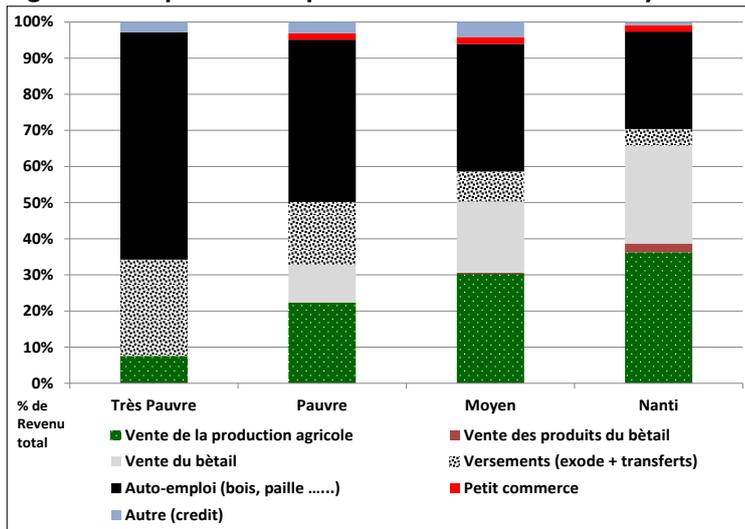
The graph below shows the value of average cash income provided by different income sources during the reference year for a typical household in each wealth group.

Vente de la production agricole = **crop sales**. Vente des produits du bétail = **milk/meat/hide sales**. Vente du bétail = **livestock sales**. Versements = **income from migratory labour + remittances**. Auto-emploi = **self-employment**. Petit commerce = **petty trade**.



Firewood and charcoal sales alone accounted for just over 40% of all self-employment income of the very poor. Moreover, sales of firewood and charcoal alone accounted for about 30% of the total revenue of the very poor. Interestingly, better-off households earned more money from firewood and charcoal sales than the very poor. This reflects a larger household size -- the better-off have more people to gather and sell firewood -- as well as access to carts and horses, both of which create opportunities for higher levels of sales. Nonetheless, the proportional importance of firewood and charcoal sales in annual income is much higher for the very poor (at 30%) than for the better-off (at 15%).

Figure 17: Proportional Importance of Income Sources by Wealth Group, 2009-10.



Per capita annual income is only slightly higher for the poor than for the very poor (see Figure 15). Poor households earn more cash from groundnut and cotton sales as well as from the sale of some livestock (i.e., 1-2 goats and a cow every other year). However, their household size is larger so their annual income must be spread over more people.

For the middle and better-off households, the three pillars of the Agro-Sylvo-Pastoral Zone economy are all important sources of income. Sales of livestock and sales of cash crops (as well as some grains) each contributed roughly one-third of the income of better-off households in the reference year. Self-

employment also constitutes about 30% of annual revenue of which firewood and charcoal sales contribute half of the self-employment income. Middle households earned proportionately more of their annual income from self-employment (about 36% of total annual income), most of which came from sales of forest products.

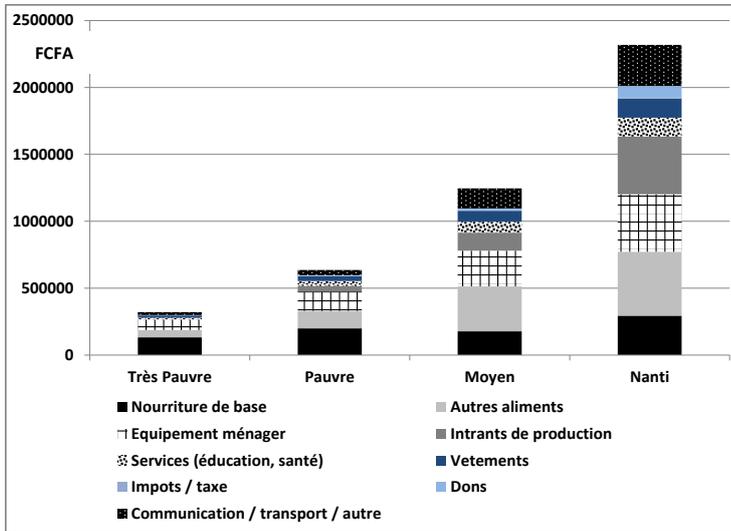
Migratory labour – including earnings in the form of transfers or savings from seasonal work within the region or remittances from overseas family members -- is another important income source in the zone. For the very poor, without much income from livestock or crop sales, labour revenue is proportionately very important (the third pillar of their cash economy). Overall, the amount of cash earned from this category was similar across wealth groups. However, whereas seasonal work earnings and remittances accounted for just over 25% of the annual income of the very poor in 2009-10, it accounted for only about 5-10% of the annual income of the middle-income and better-off households. Within the zone, money earned from seasonal or migratory work is not typical in every village although it is nonetheless significant even in a “normal” year.

Credit is significant but not typical for the very poor, poor and better-off wealth groups. Only for the middle-income group was credit common in most villages during the reference year. Middle-income households have the means to repay debts but are not so well-off that they do not need to take the loan (i.e., for agricultural inputs). Proportionately, credit comprised about 5% of the annual income of middle-income households.

Household Expenditure

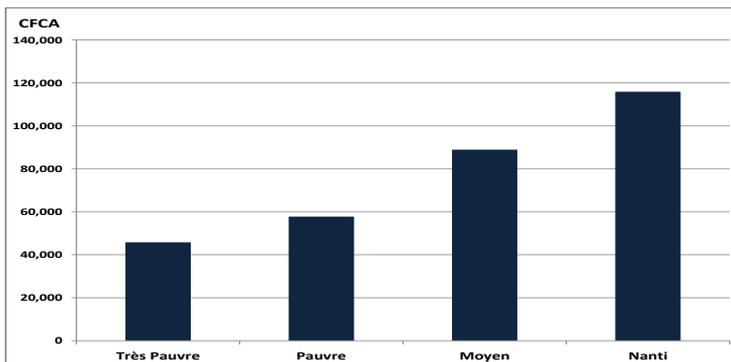
Figure 18: Household Expenditure: The graph below shows the annual cash value of different types of expenditure during the reference year for a typical household in each wealth group.

Nourriture de base = **staple food**. Autre aliments = **non-staple food**. Equipment ménager = household items. Intrants de production = **productive inputs**. Services = **health/education**. Vêtements = **clothes**. Impôts = **tax**. Dons = **gifts**.



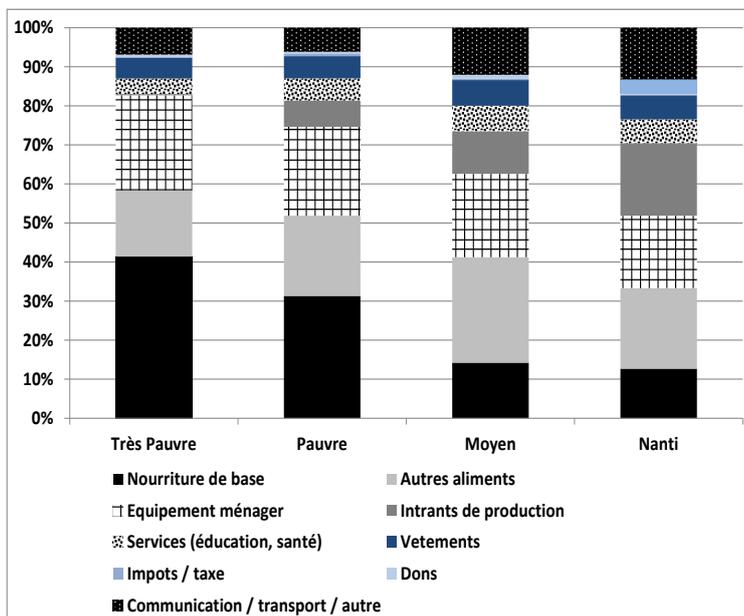
In the Agro-Sylvo-Pastoral Zone, spending patterns differed greatly by wealth group (and hence by income level). Poorer wealth groups spent proportionately more on food than the better-off wealth groups. About 40% of very poor households' expenditures went toward staple grains. When combined with spending on other food, almost 60% of the very poor's annual expenditures went toward **food** during the 2009-10 reference year. This figure drops by about 10% for each wealth group. Hence food was an estimated 50% of annual expenditures for poor households; 40% of annual expenditures for middle-income households; and just over 30% of annual expenditures of the better-off.

Figure 19: Annual Expenditure per capita



Significantly, **staple grains** comprised only 12-15% of annual expenditures for the middle-income and better-off groups compared to 30-40% for the two poor groups. Even more importantly is how the **type of grain** purchased differed by wealth group. For the better-off, rice constituted almost 75% of their staple grain expenditures. This figure dropped to 55% for the middle-income; 35% for the poor; and just over 30% for the very poor.

Figure 20: Proportional Household Expenditure, 2009-10: The graph shows the proportional importance of different types of annual expenditures during the reference year for a typical household in each wealth group.

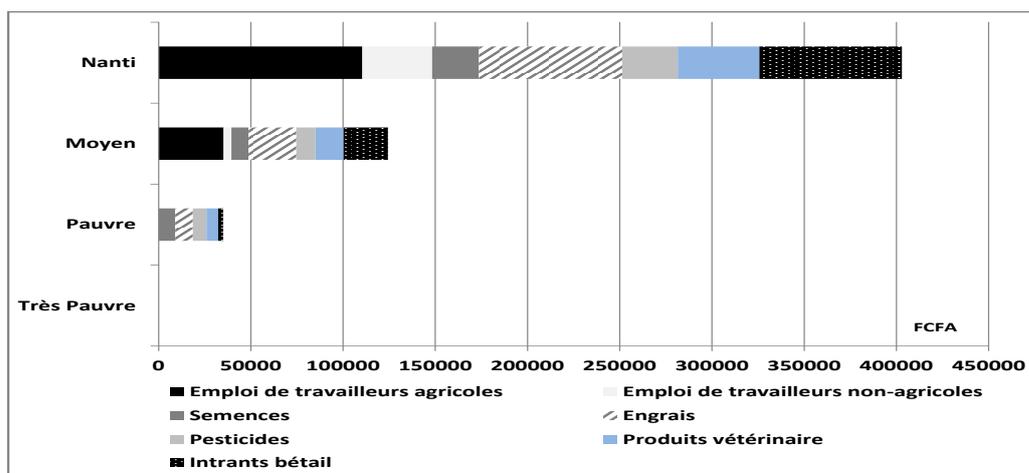


It is also important to look in more detail at the "**other food**" category. "Other food" comprises protein foods as well as sugar and oil. For most of the wealth groups, this category comprised about 20% of annual expenditures. The question is: Did the types of food in the "other" category significantly differ by wealth group? On the whole: no. The main protein food that was purchased by all wealth groups and which was typical in most villages was *poisson fumée* (smoked fish). Across all wealth groups, *poisson fumée* comprised just 1-3% of their annual expenditures. Middle and better-off groups supplemented fish purchases with a little meat. Very poor and poor households (as well as the middle-income) supplemented fish purchases with groundnuts. Occasionally, a very small amount of fresh fish or milk was bought. Proportionately, the

annual expenditure on cooking oil across wealth groups (per person as well as per household) was also similar: an estimated 3-4% of annual expenditures for the two poor groups and 5% of annual expenditures for the middle-income and better-off groups. Sugar was the top item in the “other food” category. Across all wealth groups, sugar comprised 5-8% of annual expenditures during the reference year. Overall, middle income households spent proportionately the most on protein food and sugar (per household as well as per person) as their greater income provided more cash for “luxury” food. Greater grain production also meant less need to buy staple cereals. Better-off households produced more grain, groundnuts, milk and meat. Hence, they had a complete and diverse diet without the need to buy much more additional food. Instead, they could choose to spend money on other essential non-food goods and services.

Equipements ménager (household items) is another important expenditure category. In the case of the Agro-Sylvo-Pastoral Zone, spending was not so much on utensils or pans but rather on spices, tea/coffee/cola and soap. For the better-off and middle households, spending on stimulants was proportionately the most important; for the very poor and poor households, spending on seasonings and spices was proportionately the biggest item.

Figure 21: Productive Expenditure, by Wealth Group 2009-10



Income / Expenditure FCFA	Very Poor	Poor	Middle	Better-off
Income / on-farm employment	67,523	49,357		
Expenditure / Payment to farm labourers			35,143	110,429

Spending on productive inputs was another category which differed greatly by wealth group.

The very poor typically spent nothing during the reference year on inputs. By contrast, the better-off and middle-income households had a range of expenses, including paying for agricultural labour (*emploi*), fertiliser (*engrais*) supplementary cattle feed (*intrants bétail*) and other livestock inputs (vaccinations or treatment drugs or *produits vétérinaire*). Poor households paid for seeds, fertiliser and pesticides as well as a little on livestock care. Better-off and middle-income households play an important economic role by hiring labourers on a seasonal basis for local on-farm work. In a bad year, this expenditure typically decreases, affecting the incomes of poorer farmers/labourers and creating pressure to look instead for migratory work.

Figure 22: Per capita Actual Expenditure on Education and Health Services by Wealth Group, 2009-10

Expenditure FCFA p.person	
Education / Health	
Very Poor	1,816
Poor	3,266
Middle	5,820
Better-off	21,548

Between 5-7% of annual expenditures went toward social services during the reference year. This was similar for all wealth groups. However, actual per capita spending on health and education differed significantly. Better-off households spent much more both on education as well as on medical fees and drugs than any other wealth group. Clearly, with greater disposable income comes greater spending on essential services.

Communication and transport are increasingly an important part of the annual expenditure picture. Mobile phone use is widespread, especially amongst the middle-income and better-off groups and these expenses are a rising proportion of household budgets. Communication and transport spending was typical even amongst the very poor and poor households. For better-off households, actual spending on communication and transportation was in the same range as actual spending on staple grains. By contrast, the very poor spent more CFA francs on soap, for instance, than for communication and transportation.

Risks and Shocks

Chronic risks face farmers world-wide. In rain-fed agricultural systems, these risks are typically weather related – in short, either too little, or occasionally too much, rain, or rainfall that is not well distributed during the season. Crop parasites and insects also reduce crop performance. Finally, a disadvantage of farming in a forested region is the risk of wild animals (notably monkeys) attacking ripening crops. Protecting crops from such attacks requires extra labour to guard the crops day and night.

Agriculture Risks	parasites	drought flood	wild animals
Risks to Livestock	epizootic	livestock theft	

The main risks facing the livestock sector are livestock diseases as well as livestock thefts. Vaccination campaigns are carried out by both government workers and by private

veterinarians. Prices paid by farmers for immunisation drugs are fixed by the state. However, 100% coverage is difficult to obtain as each year throws up different constraints. In the 2008-09 campaign, for instance, local elections affected the availability of local officials to participate in the campaign. Moreover, private agents were involved in a different campaign for cattle and were therefore unavailable for the vaccination campaign. Consequently, for example, coverage for small stock immunisations was 50% of the estimated population of sheep and goats.

Year	Event
2010-11	Flood
2009-10	Average
2008-09	Good year
2007-08	Early end of the rainy season
2006-07	Lack of rain

Certain years are remembered for major events that affect most villages across most of the zone. The box at right summarises these events. For instance, the 2010 heavy rains were noted for the resulting floods in the region. By contrast, the 2009 agricultural season was relatively normal. It was preceded by a good agricultural year in 2008-09. Prior to this, the zone suffered two relatively poor years, particularly 2007-

08. This was a poor agricultural year across much of West Africa. Looking back further, the last poor agricultural year was in 2002-03 (a very poor year indeed). Thus, from 2000 to 2010, there were three poor agricultural years due to low or poorly distributed rainfall.

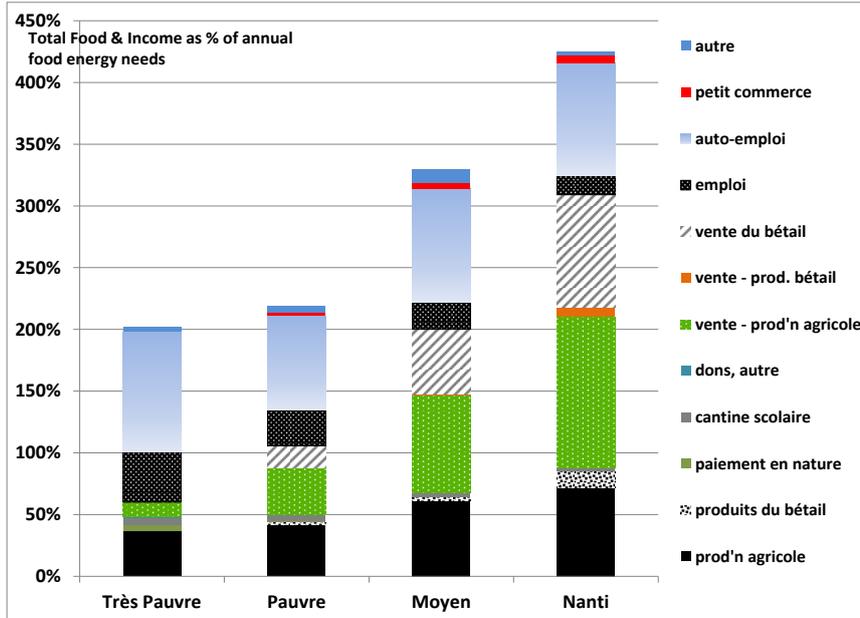
The Agro-Sylvo Pastoral Zone does not regularly receive external food aid. Despite relative poverty, villagers have various coping options that have allowed them to meet their food needs. In part, this is achieved by reducing their purchases of non-essential items and then switching cash into the purchase of staple food. The various non-food items, as well as non-staple food items, that are usually reduced during bad years are summarised in the table below. Of note is how very poor and poor households cope by reducing spending on health and education as well as on protein (fish). This suggests that during bad years, providing cash or vouchers to support non-staple food purchases or supporting access to essential services would be appropriate.



Coping Strategies - Expenditures

Very Poor, Poor	Middle, B/Off
Reduce Expenditures	
sugar	rice
tea	fish
salt/pepper	milk
fish	social aid
clothes	gifts in kind
medicine	
education	
transport	
batteries	
zakat/gifts	

Figure 23: Total Food and Income by Wealth Group, 2009-10



Villagers also have ways to increase income to off-set harvest losses. The graph at left shows that if all income was converted into staple grain, the the total value of food and income expressed as a percentage of annual food energy needs in the reference year is an estimated 200% for the very poor. In a year of harvest losses, the shock would initially mean a decrease in total food and income although it would unlikely fall below 100% (the basic survival threshold). The purchase of sufficient grain, however, would have a cost, namely the forfeit of other essential goods and services (i.e., leading to an **expenditure deficit**). Only by maximising those income sources

that can be expanded during a crisis will households be able to meet their essential non-food needs. Income generation strategies during a bad year are summarised by wealth group in the table below. Notably, pursuing migrant labour (more household members and/or migrating for a longer period) and increasing the sale of forestry products is a common strategy for all wealth groups.

Coping Strategies – Income

Very Poor	Poor	Middle	Better-off
Increase the number of migrant labourers and/or prolong the period away in search of work			
Increase the production and sale of charcoal, firewood, grass or hay and other forestry products, including woven mats.			
		Increase livestock sales.	
		Secure seasonal (skilled) employment.	Increase commercial activities.

In a bad year, labourers typically leave for more distant locations. They travel to major cities of the nation or to neighbouring countries or even to countries overseas in search of work. On balance, these strategies have allowed households in the zone to meet their food needs and to cope with harvest losses without major overseas aid. However, major drought periods that affected the entire Sahelian region and which saw the widespread collapse of village economies at the time required a major relief effort to save lives.



COMMISSION EUROPÉENNE



Aide humanitaire