

# Livelihood Profile Matam Region

## Matam Agro-sylvo Pastoral Livelihood zone April 2011<sup>1</sup>

### Zone Description

The Matam region is located in northeastern Senegal. Its northern and eastern boundaries are marked by the Senegal river and beyond it Mauritania, to the south and southeast is the Tambacounda region, while Louga region lays to its west and to the northwest is the St. Louis region. Matam region is vast (about 29,000 km<sup>2</sup>) and encompasses three distinct agro-ecological zones: the *Walo* or valley area along the Senegal river where flood recession and irrigated agriculture is practiced; the *Diery* or rainfed agriculture zone; and the *Ferlo* or the forested savannah where pastoralism dominates as the primary way of life. The *Walo* is a narrow strip, not much more than 20km wide, the *Diery*, a slightly broader strip, gently transitions into the *Ferlo*, which makes up the remaining expanses of the region. This livelihood zone profile focuses on households living the *Diery*. The majority of villages selected for the study are located in the Matam department located in the northern part of the region (and also its most densely populated with approximately 265,000 inhabitants or 47 people per km<sup>2</sup>).



While the agro-ecological zones are distinct appear distinct, the livelihoods of households situated in the *Diery* are multifaceted: households exploit forest resources of the *Ferlo* while growing rainfed crops in the *Diery* and occasionally exploiting ancestral lands in the *Walo* when conditions are favourable (though they were not in large part during the reference year). For these reasons, the *Diery* is sometimes referred to as the ‘intermediary zone’. It is important to note that many of the villages situated in the *Diery* were at one time located in the *Walo* and as such, villages still possess land in the fertile, if flood prone, areas of the *Walo*. Villages chose to relocate to the *Diery* for reasons having to do mostly to sheer population pressure and the corresponding need for greater access to pasture for their animals. Forest resources in the *Ferlo* chiefly firewood, but also grass and wild fruits are very important especially to poorer households. Because of their strategic location between the zones, households are able to exploit a greater range of activities offered by natural resources of each of the three agro-ecological zones. One distinguishing aspect of households in this livelihood zone is the importance of cash transfers from family members living abroad particularly in Europe and the United States which have a huge and reverberating effect on the economy of the zone. Culturally, the area is a mix of mainly Peul with a sizable Wolof minority. The households profiled here are settled though there are nomadic and semi nomadic Peul within the livelihood zone on a seasonal basis who make use pasture and importantly boreholes and other water points located within settled villages to water their sizable herds of cattle and small ruminants.

A major highway, Senegal’s N3, is an all weather/asphalt road running along the edge of the *Diery* and the *Walo*, northwest to southeast across the region. The N3 connects Matam region to major commercial and agricultural centers such as Richard Toll and St. Louis (to the west). It also links the major market towns within the region with its economic and commercial center, Ouro Sogui. Matam town, the seat of government in the region, is located 10km off the N3 just to the east of Ouro Sogui on the banks of the Senegal River. Villages in this livelihood zone are concentrated in an area not more than 15 km from the road.

The landscape in this Sahelian zone is relatively flat, gently sloping up from the valley of the Senegal river. The valley is subtly more lowland and distinguished from the *Diery* by the number of year round pools and seasonal streams, such as the Diammel. The *Walo* also possesses the most productive soils for agriculture, rich brown clay vertisols. Shrubby, spiny bushes and small acacia trees and grasses characterize the moderately productive *Diery*, a

<sup>1</sup>Fieldwork for this profile was undertaken in April 2011. The information presented refers to October 2009-September 2010, a generally good year by local standards. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five years (i.e. until 2015).

flat landscape incised with small valleys cut in to the earth by seasonal streams. Moving southwest towards the still flatter *Ferlo*, one encounters a much more sparsely inhabited forested savannah with ample rangelands yet less productive laterite and sandy soils.

There are two main seasons, the rainy season (from June to September) and the dry season. The dry season is comprised of a cold period (from October to February) and a hot period (from March to May). Maximum temperatures of around 40°C are reached in May. Minimum temperatures of 20°C are reached in December and January. It is an arid livelihood zone, with average rainfall ranging from 300-500mm per year concentrated over just four months. The red-brown soils are mostly sandy and of moderate to low productivity. It is a food-deficit zone that produces less than a third of its own food needs. Rainfed production is the dominant type of agriculture practiced in the zone. Millet is the principle crop cultivated followed by sorghum, cowpeas and a modest amount of groundnuts. The vast majority of agricultural production is destined for household consumption, as cash crops are virtually non-existent in this zone. Poorer households use simple tools such as hoes to clear and prepare fields while wealthier households use horse drawn plows and sowing equipment. Field preparation, weeding and harvesting are the agricultural activities that require the most labor- middle and better-off households will hire labor from poorer households to carry out these activities. Households do not use chemical fertilizers or pesticides though they do purchase seed. Manure from cattle grazing in fields is the only way soils are enriched. Production levels are considered modest mainly due to difficulties with rain quantity as well as distribution in time and space. Also, although many households possess fields in the more fertile *Walo* where off season flood recession agriculture is the primary means of production, they are cultivating these fields with decreasing frequency as much of the labor force that would be used to cultivate in the off season instead seeks wage labor in cities and towns. Similarly although some villages in the *Diery* possess rice paddies in the *Walo* nearer to the Senegal river (built by the Government) rice production is generally not an activity most households in the zone practice.

The principal livestock are cattle, sheep, goats and to a lesser extent poultry. Cattle, sheep and goats usually free graze in areas near by the homestead and will migrate to the *Ferlo* when pasture becomes scarce. Animals particularly purchased for fattening (cattle and sheep) are stall-fed and may be kept in the compound They are fed crop residues and cottonseed. Animal fodder is regularly purchased with sales peaking in May/June. The main sources of water for livestock are streams and ponds during the wet season and bore holes during the dry season. Water must be purchased during the dry season. Cows are the main animals milked and most milk is consumed or given as gifts (only middle households sell milk). Households with lactating goats may use the milk, especially to feed children, but this is not a significant food source in the zone. Wealthier households who have larger herd sizes may entrust their cattle to nomadic herders who have contracts with the animal's owner either paid in cash or in kind.

Cattle are sold at 4 years of age, sheep at 1-2 years and goats from 7-12 months. Bulls and milking cows are replaced from within the herd. The principal pests and diseases affecting livestock in the zone are PPR (Peste des Petits Ruminants), Sheep Pox and Pasteurellosis. These diseases are prevented through the use of vaccines that must be purchased. The most important livestock inputs used in the livelihood zone are feed supplements (usually cottonseed), vitamins and salts. All inputs are purchased in the market (rather than provided by NGOs or government agencies). There is limited grazing for animals in the *Diery* and therefore animals will migrate to the *Ferlo* and rarely towards southern Senegal and Mali for approximately 3 months, near the end of the dry season. Even when there is an abundance of pasture, transhumance towards the *Ferlo* is a normal strategy adopted by households. Compared to the inhabitants of the neighboring *Ferlo* where pastoralism is the principle way of life, households in the *Diery* are much less intensively involved in animal production. In the *Diery*, animal production though important, is not the dominant source of income it could be (or perhaps once was). Although wealthier households do invest in livestock, they do not sell all as many animals as they might, choosing instead to consume rather than sell animals and in the case of goats, build up herd sizes. It is again a labor shortage in all households that most probably prevents wealthier households from more intensively pursuing animal production- as many of the men who would normally look after livestock pursue employment opportunities abroad. The importance of wage labor plus the pressures on pasture in the *Diery* make keeping additional livestock less viable for poorer households as well. Poultry are kept by all households, but is not a very developed or intensive practice. It is usually women that take care of poultry and goats while men tend to cattle and sheep.

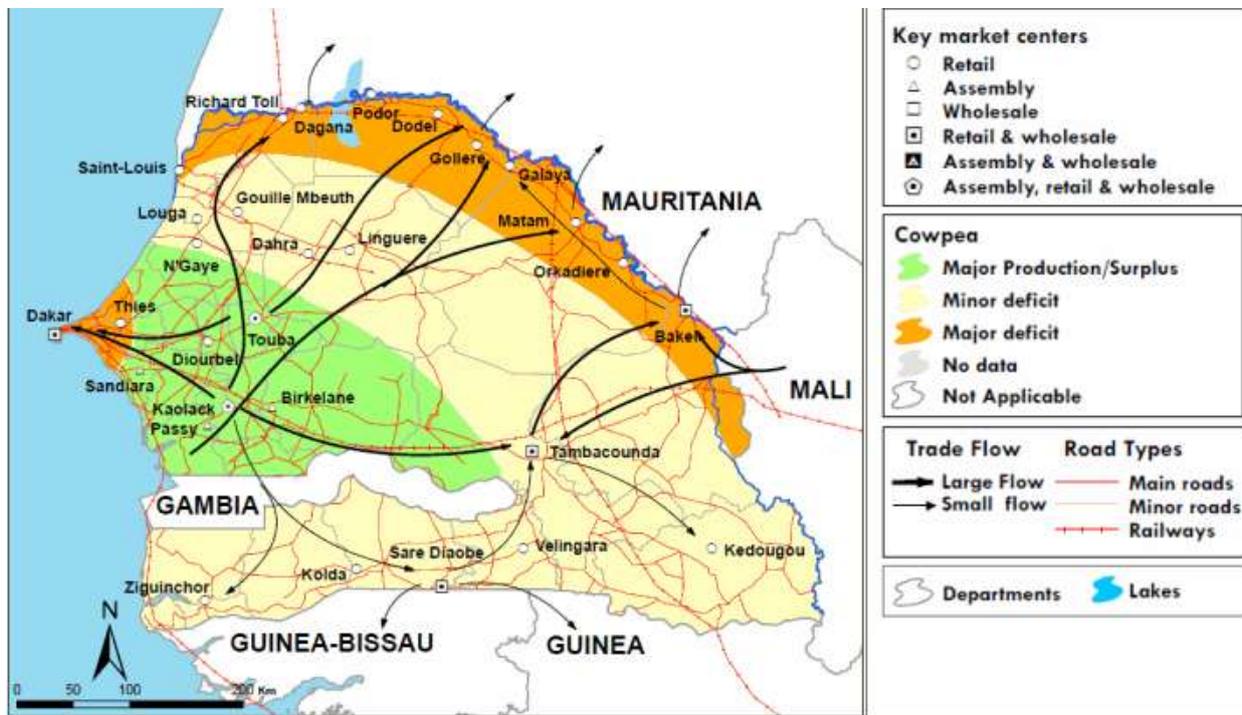
Just as important as livestock in terms of overall cash revenues is income earned through self-employment activities, mainly the collection and sale of forest products: firewood, grasses and wild fruits. Firewood and grasses are collected throughout the long dry season. Donkey carts are essentially to these activities, as forest products collected in the *Ferlo* must be transported fairly long distances to be sold in market towns along the main road. Fruits are primarily collected by women and children during select months of their production (December for Jujube, May for Miroblanc). Men will also weave and sell fences (*secco*) made from millet stalks during the dry season. Commerce, including speculation and trading in grain and animals is an important activity for wealthier households, while poorer households engage in petty commerce, setting up small stalls within the village to sell basic household items such as vegetables, spices and soap.

Finally, it must be noted that there is a palpable push in the livelihood zone for young men to leave home in pursuit

of work. For poorer households, this usually means a seasonal migration to nearby cities and towns where they may work in construction or in petty trade during the dry season and returning to the village to assist with agricultural activities. Wealthier households who can afford to send their sons further away (to Dakar, Gambia, etc) will do so, with the eventual goal being the ability to pay for a visa and other associated costs to emigrate abroad. This is not only economically important to households, but also culturally valued as a rite of passage.

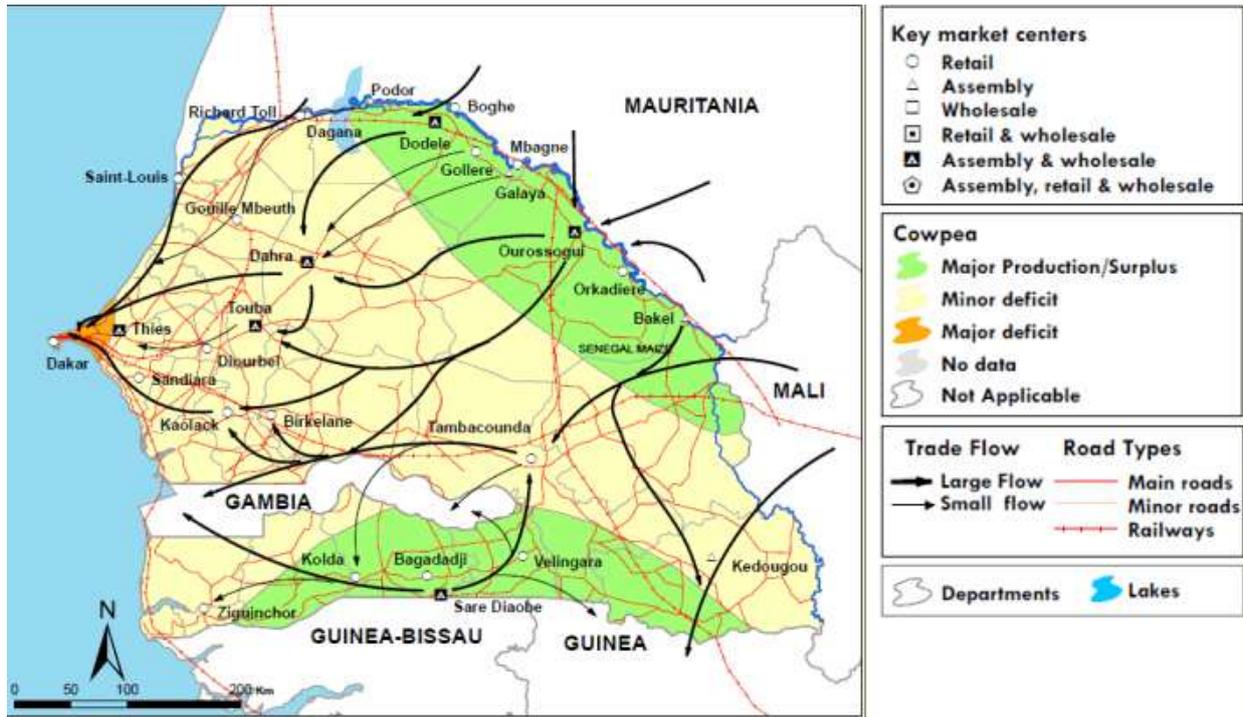
### Markets

Market access in the livelihood zone is considered moderate: while there are a number of markets, access is difficult during the rainy season when roads are muddy and seasonal streams difficult to traverse. This livelihood zone depends greatly on the purchase of food produced outside the zone. Staple foods are purchased most often from the nearest local markets in Kanel, Nabadji, Thilogne, Galoye, N'doundé, Orkadiéré and Matam (market towns that also happen to be the seat of government in each commune). Occasionally households will purchase staples from boutiques located within the village (usually run by people from wealthier households). Millet, maize and rice are the primary staples purchased. Millet is imported from surplus producing areas of Senegal to Matam via markets in Kaolack. Maize produced in the southern reaches of Senegal is imported into the zone from collection markets in Sare Diobe via Kaolack and Touba before reaching the main local distribution market for the livelihood zone, Ouro Sogui. The vast majority of rice consumed is imported from Thailand and Vietnam via markets in Dakar, St. Louis before arriving in Ouro Sogui and finally distributed to local markets.



This figure shows the market flow for millet within Senegal. Source: Fews.Net

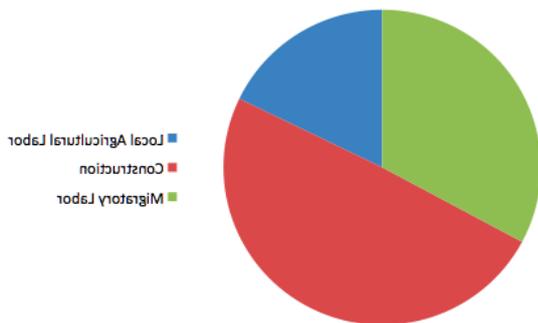
Sugar and oil are frequently sourced from Mauritania, where prices for these foodstuffs are cheaper than their Senegalese equivalents. Also importantly, the Senegalese government sets prices for rice, oil and sugar in order to minimize price fluctuations on these imported commodities. Prices for millet and maize, both mainly produced within Senegal, are not regulated. The poorest households who access a larger percentage of their food from purchased millet and maize (rather than more expensive rice) are potentially more exposed to rising staple food prices.



This figure shows the market flow for livestock in Senegal. Source: Few's.Net

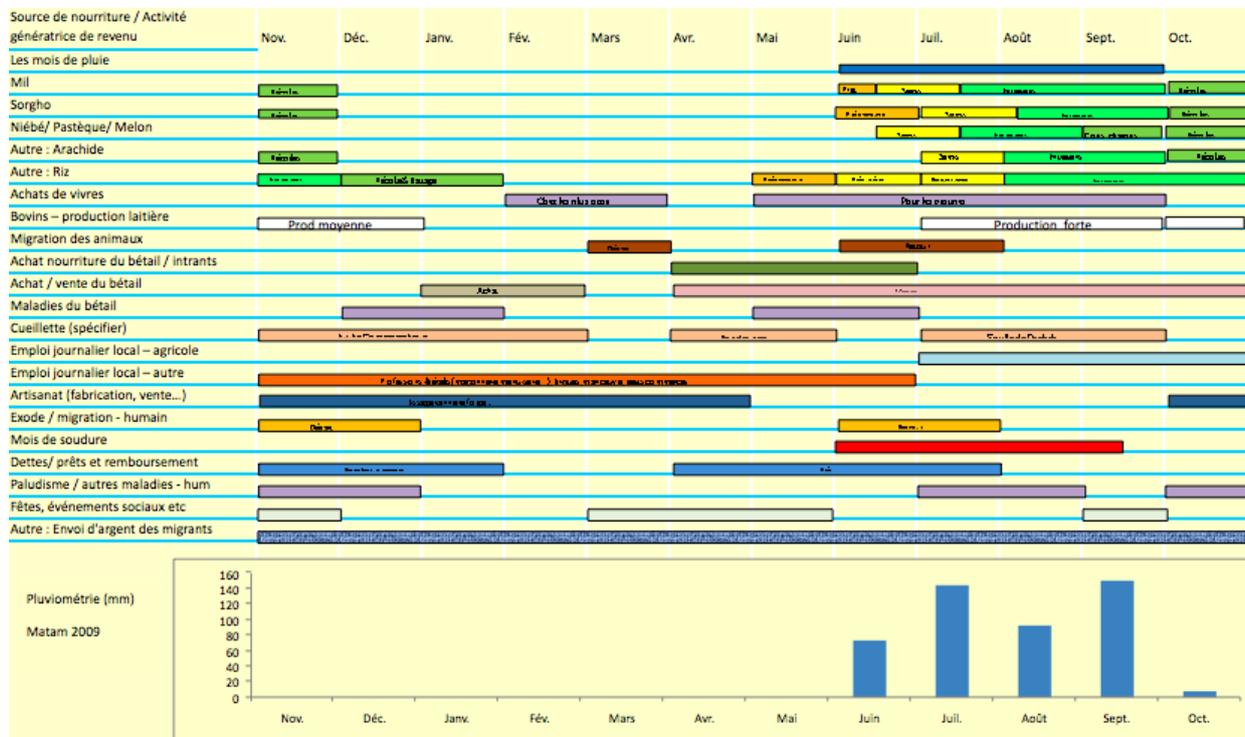
The Matam region is one of the key suppliers of livestock for the rest of the country, with many of sheep sold for Tabaski and other holidays being traded through livestock markets within the zone (Ouro Sogui and Orkadiéré). Animals from Mauritania and Mali are traded into these large collection markets and used to supply other markets such as Dahra, Touba and Dakar. This is important for residents of the livelihood zone in terms of prices fetched for their animals. If for example, there is a disruption in the supply of animals from abroad, prices on the local market for animals will spike. Despite the importance of livestock markets in the zone, livestock sales by households do not account for much of the livestock being sold. The region's role as an assembly market also places additional pressure on pasture and water points as traders bring their animals to market.

In terms of the labor market, the majority of opportunities are local construction jobs pursued within livelihood zone and in nearby urban centers. Migratory labor accounts for approximately a third of the work opportunities pursued by inhabitants of the zone. Workers will seek employment throughout the country including Saint Louis, Kaolack, Dakar, Thies, Touba as well as Birkama and Banjul in the Gambia.

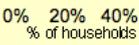


### Seasonal Calendar

As noted above, there are two main seasons in the livelihood zone: the rainy season that spans June to September and the dry season from October to the end of May. The dry season can be broken out further in to the cold dry season (from October to February) and the hot dry season (from March until the end of May). The consumption year begins with the harvest of millet in October. All crops are short cycle crops and are planted in June and July just after the arrival of the rains. The main harvest begins in October and stretches into November though cowpeas are harvested slightly earlier with green consumption beginning in September. Crops are usually intercropped and grown together on the same plots. Livestock migration is common for larger herds and occurs when nearby pasture becomes sparse beginning in March. Animals are taken into the *Ferlo* to forage, returning to their localities with the onset of rains and corresponding growth of new grasses in June. Labor migration towards cities generally occurs after the harvest in December, when there are fewer local labor opportunities available. Migrants will return in June to begin work on the next agricultural season, preparing fields, sowing and weeding. The hunger season lasts from June until September, when harvesting begins. Unfortunately, the hunger season corresponds with an intensified demand for agricultural labor as well as one of the peak periods of human illness. The dry season is when self-employment activities are at their peak and collection of firewood and grasses and wild fruits, put on hold during the rainy season begin again in earnest. Construction jobs (brick making, masonry and general labor) are also most common from December to June. Transfers from abroad occur throughout the year, with families receiving payments either at the end of each month or on a quarterly basis.



## Wealth Breakdown

		Wealth Group Information				
		HH size	Land area cultivated (ha)	Livestock Holdings	Transport Animals	Other Assets
Very Poor		10-14	1-2	3-5 goats, 3-7 sheep, 4-10 poultry	0-1 donkeys	
Poor		13-17	1-3	4-8 goats, 8-12 sheep, 2-14 poultry	0-2 donkeys, 0-1 horses	0-1 donkey Carts
Middle		15-25	2-4	10-20 cattle, 10-20 goats, 20-30 sheep, 4-8 poultry	1-3 donkeys, 1-3 horses	0-2 donkey carts, 0-1 plows
Better-off		20-25	2-6	30-40 cattle, 15-25 goats, 30-50 sheep, 0-10 poultry	1-4 donkeys, 1-4 horses	1-4 donkey carts, 1-3 plows
 0% 20% 40% % of households						

The relative wealth of households within the zone is distinguished primarily by livestock holdings and possession of transport animals. Household sizes are rather larger and tend to increase across the wealth groups with the very poor consisting of 10-14 members to the better-off who have 20-25 members. Households were not always easy to define or distinguish as extended families living within the same compound shared resources and would also often take turns preparing meals. However the typically household would be composed of the household head, usually a man and his wife or wives and children as well as his brothers and their wives and children. Land holdings do not seem to vary all that greatly. More interesting perhaps is the wide range in the amount of land cultivated within wealth groups, for example the better-off are cultivating anywhere between 2-6 ha. Key informants within the villages noted in this livelihood zone there is no shortage of land for cultivation. It appears to be more of a choice made by some wealthier households to not cultivate more crops because of a lack of sufficient labor (due to the push towards out-migration) coupled by the risks presented by unreliable rainfall patterns and crop pests.

Work migration within the region and Senegal versus those who migrate abroad is another aspect differentiating the relative wealth of households in the zone. Migrants from poorer households tend to seek work opportunities within the region or at least within Senegal as most are expected to return to their households just prior to the agricultural season, preparing fields for cultivation, planting, weeding and finally harvesting. Wealthier households with the ability to pay for agricultural labor also have larger family sizes (another source of agricultural labor) as well as the means to support family members efforts to travel abroad (paying for visas, plane tickets and otherwise facilitating travelling).

The livelihood zone's location between the *Ferlo* and the *Walo* underscores the importance of transport animals and possession of donkey carts. Horses are faster and can travel greater distances. Donkeys are more resilient and are able to pull greater loads, and generally much easier and cheaper to take care of (as feeding horses can be a significant expense).

Children are relatively well educated in the zone. An additional value is place on schooling here perhaps as education is seen as an important factor in the ability to migrate abroad. Households in the poorer wealth groups describe children as completing primary school, while children in better-off households generally complete secondary school and even sometimes university level studies.

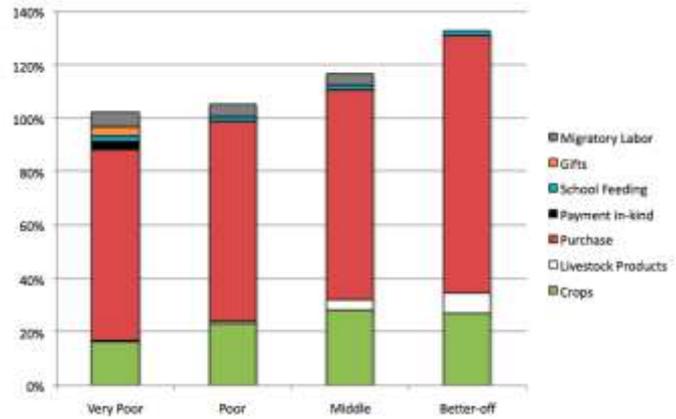
## Sources of Food

The two main ways households in the livelihood zone access food are through the market and through their own agricultural production. During the reference year, all households are able to meet basic food requirements, though very poor households are able to do so only through gifts from wealthier households, through school feeding programs and by the food “saved” by family members temporarily migrating for employment purposes.

The livelihood zone is a net importer of food, purchasing millet, maize produced in other parts of Senegal as well as rice imported from Asia. Middle and better-off households produce only enough crops to cover about 4 months of food needs while the poorer households produce only enough to cover 2-3 months. All households rely on the market for more than 70% of total food. This reliance on the market reveals the potentially dire effects that food price increases could have on households. The amount of food accessed through own crop production hovers around 15-30%. Better-off households do not access more food through own production even though they have more access to land and greater household sizes, perhaps a reflection of the decline of the importance of farming in the zone due to the influx of money from abroad weighed against the inherent risks of rainfed agriculture in a Sahelian environment. There is also a noted preference for imported rice over millet and sorghum, as wealthier households reported eating rice at least once a day. Wealthier households also have access to milk and meat from their own animals, whereas poorer households generally do not.

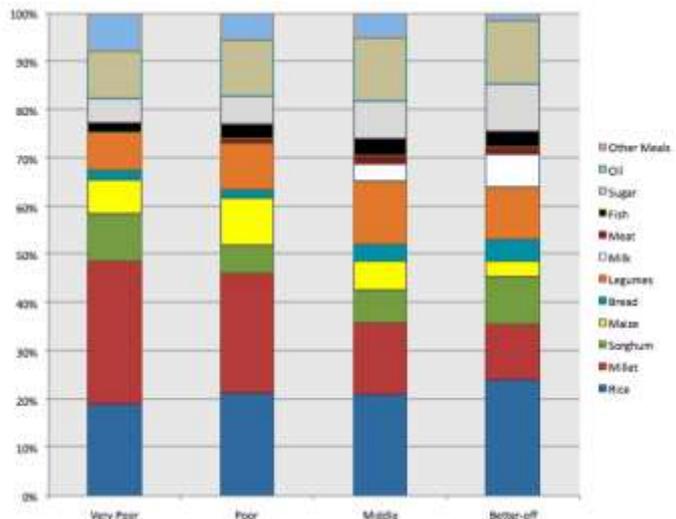
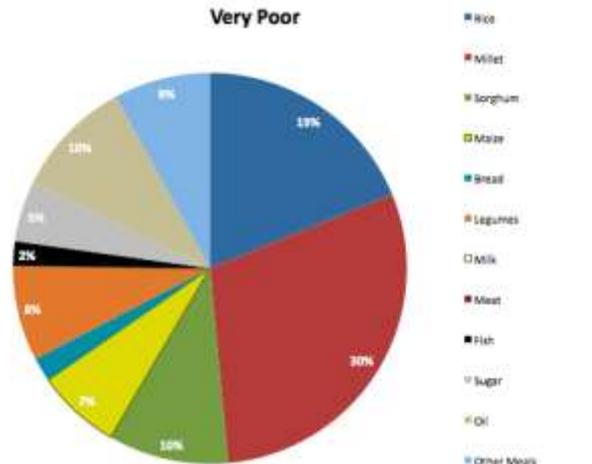
Payment-in-kind here refers to payment of millet in exchange for hulling the grain, which is another way in which the poorest households are able to meet their total food needs. Broadly speaking all households regardless of wealth group participate in school feeding programs. These programs vary from village to village. Some are administered by Counterpart International working on behalf of the World Food Programme. The most typical example of the school programs provided one meal for school aged children three days a week for 7 months out of the year.

Other sources of food include gifts of grain that are given by wealthier households to the poorest. Though it is a relative minor source of food, this internal social safety net reflects the value that households in this livelihood zone place on taking care of others who have less. Meals taken outside the household when family members are working away from the village (but generally within Senegal if not the region itself) contribute a small but important 'saving' of food for all but the wealthiest households.



**Sources of the basic food consumed by typical households**

In this graph, food access is expressed as a percentage of minimum food requirements, taken as an average food energy intake of 2100 kcals per person per day.



**Types of food consumed by typical households**

Note: HEA is not a study on nutrition as it tracks only households' access to total energy needs (kilocalories). HEA does not take in to account access to essential micronutrients.

**Dietary Diversity**

Although HEA is essentially concerned with the way households access food in order to satisfy energy requirements, dietary variety is important especially for different micronutrients. As demonstrated by the graphs above, all households in this livelihood zone have a relatively diversified diet. The main differences across the wealth groups is a decreasing trend in the consumption grains (particularly millet) as wealth increases and an increasing trend in the consumption milk, meat, sugar, oil and white rice as wealth increases.

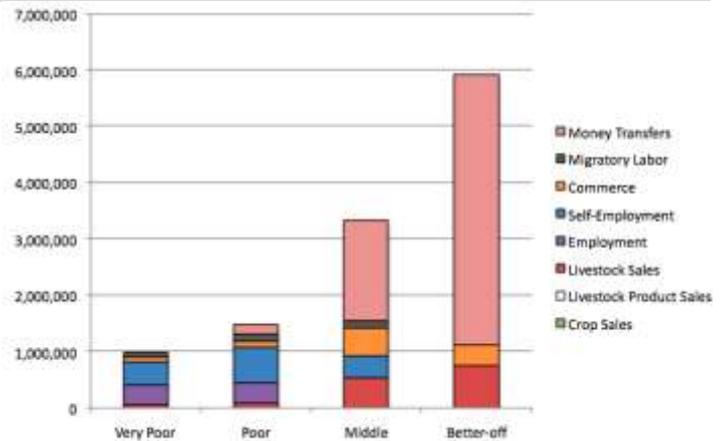
**Sources of Cash**

The most striking aspect of household revenues in this livelihood zone is the extreme differences in cash incomes between poorer and wealthier households, a result of cash transfers wealthier households receive from family members living abroad. The per capita income chart below shows that even when accounting for the much larger family sizes in wealthier households, there are still significant disparities in income levels. It is also notable that in a livelihood zone often referred to as begin agro-pastoral, there is very little sale of crops and livestock sales, while important, do not play a role of primary importance for most households. In fact the amount of income earned from self-employment activities in the reference year is slightly more than income earned from the sale of livestock.

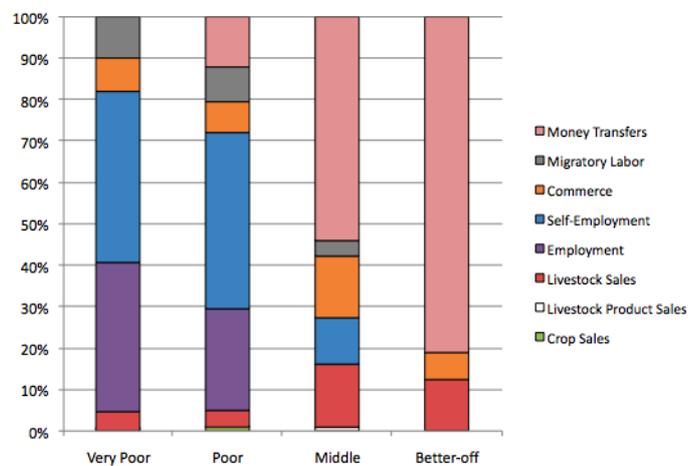
As noted above, one of the factors that distinguish between wealth groups is the number of people a household has abroad sending home cash to his relatives. It is the wealthiest households that may have 2-3 people sending cash while middle households may have 1-2 family members doing so.

For poorer households, there is an importance reliance on the collection and sale of forest products of the *Ferlo* such as firewood, grasses and wild fruits, sources of income that constitute the majority of self-employment activities (about 40% of incomes). Such is the importance of *Ferlo* to households in this livelihood zone that even middle households collect and sell firewood or wild fruits (about 10% of income). The primary fruits that are collected include Miroblanc *Balanites aegyptiaca* and Jubjube *Zizyphus mauritiana*.

Wage labor is the second most significant source of income for poorer households, and refers to both agricultural labor and construction. It is important to note here that construction is booming in this zone, with many wealthier households investing in more durable housing (concrete brick, corrugated roofing). Construction labor makes up about three quarters of employment income and is earned by men through brick making, masonry and general labor. Agricultural



The graph above shows the median of the sources and amounts of cash income in the reference year for typical households in each wealth group.

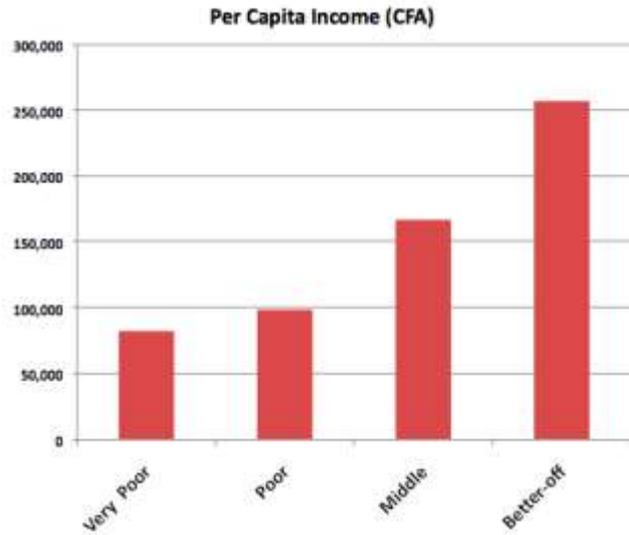


The graphs above show the proportion of cash income from the different sources for each wealth group

labor (land preparation, weeding and harvesting) makes up the remainder of income from employment.

Livestock sales constitute the second most important source of income for wealthier households, though all households earn some amount of cash from the sale of their animals. Wealthier households earn the majority of income from livestock from the sale of cattle. Middle households also sell goats and sheep, more in fact than better-off households who do not sell as many small ruminants despite having larger herd sizes (instead wealthier households slaughtered many more animals for consumption and also built up herd size). The poorest households may sell a goat and a sheep as well as some poultry. Wealthier households do not sell poultry.

Commerce for poorer households, refers to petty trade of small essential households items such as vegetables, soap, spices and batteries. Vegetable trading is important for all but the wealthiest households and can occupy several women within a household, who purchase vegetables at the weekly markets for sale throughout the week in their locality. Animal and grain speculation, purchasing when the price is low and selling when the price is higher, is generally the type of commerce practised by wealthier households in the zone. Migratory labor refers to household members who depart on a temporary, seasonal basis to work outside the village. Employment options are varied, with many poorer households having family member working within the region doing construction related work. Ouro Sogui is one of the main destinations. Migrant workers may also head further away towards St. Louis, Kaolack, Thies, Touba, Dakar and Gambia in search of seasonal work.



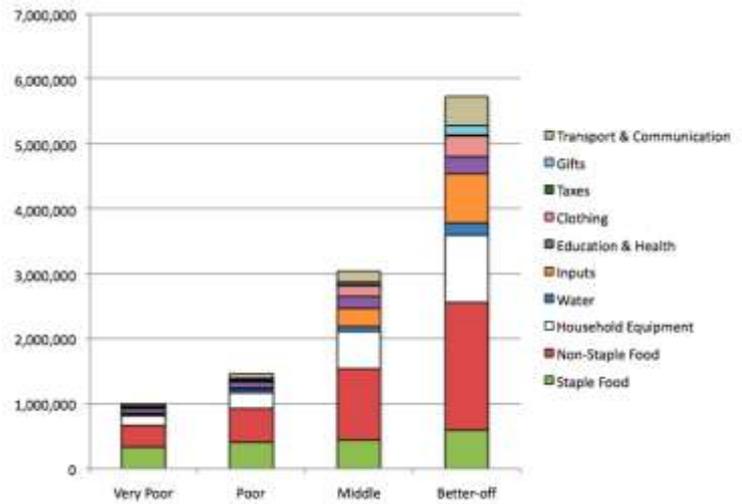
## Expenditure Patterns

Expenditure patterns for very poor and poor households are quite similar, with spending on staple and non-staple foods comprising about two thirds of total expenditures. Wealthier households spend a smaller percentage of total incomes on food purchases, particularly on staple food purchase. Rice, as in most of Senegal is the preferred staple in the zone with the cheaper broken rice imported from Thailand and Vietnam sought over locally grown, long grain rice. Cheaper (in the reference year) millet and maize are purchased as well, but in decreasing percentages as wealth increases. Non-staple food purchases of milk, meat, sugar and oil increase in overall expenditure by wealth group. Expenditure on bread, the breakfast staple (along with sweet coffee and powdered milk) was also notable for all wealth groups.

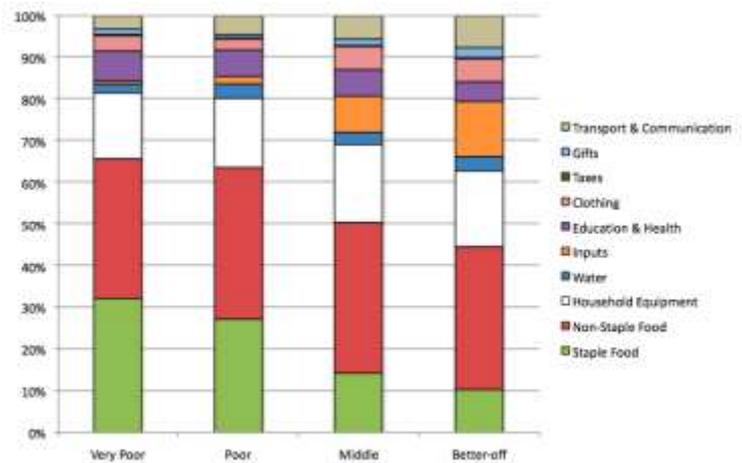
Spending on essential household supplies refers to vegetables and other ingredients for sauce, milling of grain, batteries, coffee, firewood and cooking equipment. The main expenses in this category are vegetables and condiments for cooking and firewood purchase. Even though poorer households collect and sell firewood, they also must purchase some amount to meet household needs.

Spending on inputs includes the money spent on care and feeding of livestock, purchase of additional animals, purchase of seeds, hiring of agricultural labor and construction labor. While all households will purchase seeds and tools and invest in care of their livestock, only wealthier households have the ability to hire labor. Wealthier households also possess much greater numbers of animals and therefore spend more on the care of their livestock.

Health and education spending is roughly in equal proportions of 4-8% of total expenditures. As noted above, children are relatively well educated as education is seen as an important factor in the ability to migrate abroad. Transport and communication costs also make up a significant amount of spending, especially with the prevalence of mobile phones in the livelihood zone. Even poorer households have at least one telephone and purchase airtime on a monthly basis. Transport costs refer to fares paid to get from villages to commercial centers such as Kanel, Nabadji, Thilogne, Galoye, N’doundé, Orkadiéré and especially Ouro Sogui, the main hub of commercial activity in the zone. Gifts refers to gifts given for baptisms (even the poorest households must give gifts for baptisms), holiday spending on special clothing and foods especially for Tabaski as well as community contributions. Also important to note is that all households must pay for access to water for household use. All but the very poorest also pay to access water for livestock as well.



The graph provides a breakdown by wealth group of the proportions of cash expenditure according to category.



The graphs above provide a breakdown by wealth group of the proportion of cash expenditure according to category

## Hazards

The main hazards facing farmers within this zone are summarised in the table below:

Crop	Late rains (especially the 'planting rain') and false starts of the 'planting rain' leading to multiple reseeded. Insufficient rain overall Poor spread of rain Birds Insects (aphids, grasshoppers)
Livestock	Livestock diseases Insufficient pasture Insufficient water for animals
Livestock & Crops	Price shocks including high price of staple foods, lower prices received for livestock

When faced with hazards, households generally will try to intensify the activities they do normally in order to generate additional cash. Poorer households will seek additional migrant labor opportunities, either going for longer periods of time or increasing the number of people from the household who go. If possible, poorer households will also seek to expand the amount of local construction labor they normally pursue. They will also intensify self-employment activities, such as firewood sales. Better-off households respond to most shocks firstly by reducing the amount of money spent on transport, clothing and mobile phones. In order to generate additional cash, wealthier households will increase the amount of livestock they sell, sell jewellery, reduce gifts to poorer households and ask relatives living abroad to send additional funds. This is not an area that generally receives food aid, though school feeding programs do represent one form of support.

Not surprisingly in this arid zone, where water is scarce, many hazards are directly a consequence of reductions in the amount of rainfall or changes in its timing. Access to water, as well, for drinking and watering for animals is certainly one of the main constraints to livelihoods and is felt throughout the zone.