

Nigeria Livelihood Profiles

North Central Maize, Sorghum, & Cotton (NG10) ¹



August 2015

¹Data Credits:

The production data is from Bauchi state agriculture development project (ADP). All the food, income and expenditure data graphed in the report is from primary field work. Price data is from primary data collection at Bayara, Dass, Bogoro, Burga and Gadamaiwa markets reflecting the location of the zone across the far northeast of Nigeria.

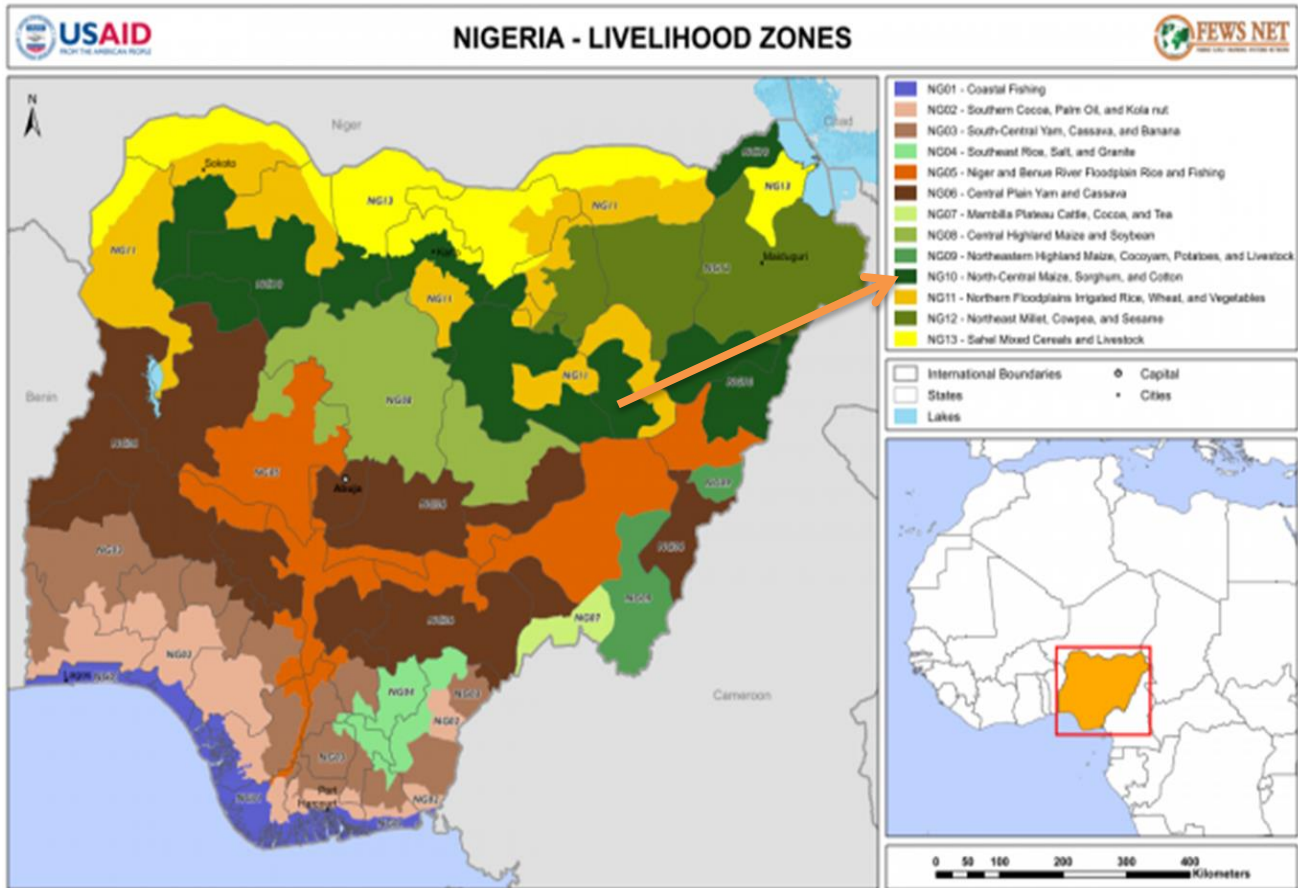
The Currency Rate:

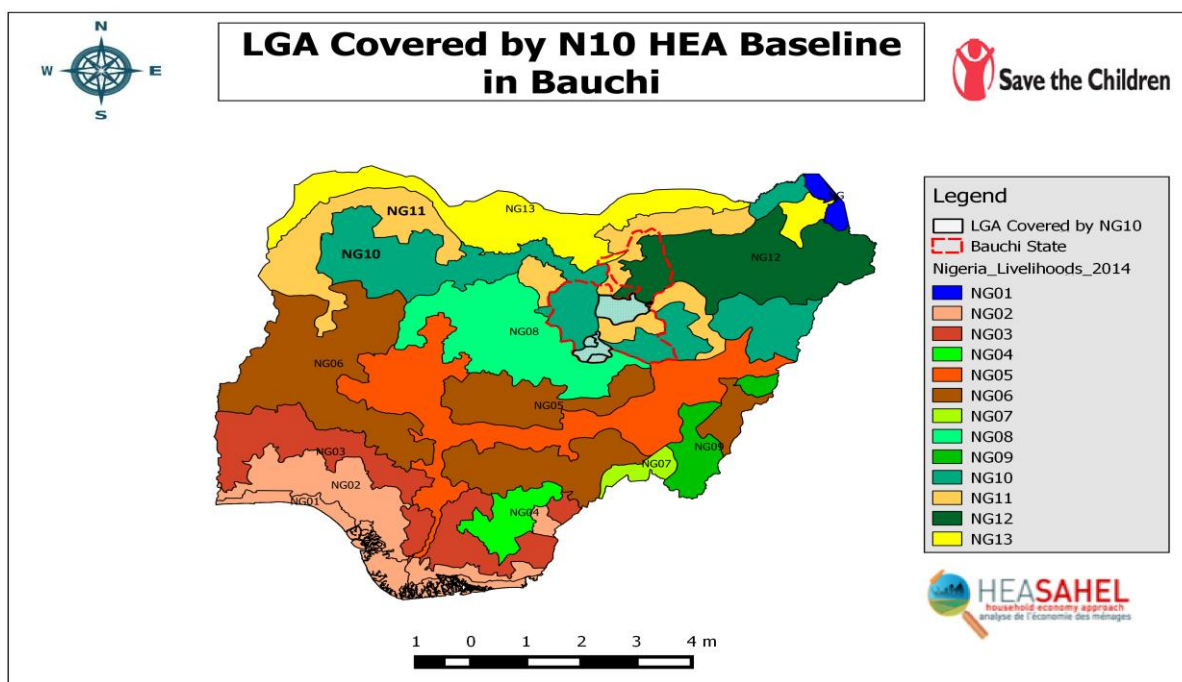
At the time of fieldwork, in May to July 2015, the value of the Nigerian Naira was NGN 198 = USD \$1.

Context

The North central Maize, Sorghum and Cotton Livelihood Zone is one of 13 livelihood zones identified across the 37 states of Nigeria in a FEWS NET zoning exercise in 2012. Livelihood zones are geographical areas in which households essentially share the same production and income options, as well as similar market access.

Livelihood Zones map of Nigeria (FEWS NET 2012)





The objective of the HEA exercise is to generate two more baselines that would be added to the previous five baselines in northern Nigeria. The approach is strategic in supporting humanitarian actors to understand the food security and livelihood situation in the north east Nigeria. The present HEA exercise focused on the food security and livelihood situation of the population in the North eastern state of Bauchi. The problem of insurgency which led to internally displaced persons to be camped in the neighbouring states of Bauchi and Gombe. There is need to study the food access of the livelihood and other situation which would, add to the store of baseline data on livelihoods and food security in northern Nigeria. It also aimed at increasing the capacity of government officers and the staff of partner NGOs to understand and use the HEA analytical framework, in order to institutionalize the approach and analysis within the Nigerian government's food and nutrition policy, and to contribute to the Early Warning System and to emergency response.

The exercise started with a six-day classroom training conducted from 18th to 23rd May 2015, followed by field level data collection and analysis from the 24th May to 8th June 2015. The field level assessment started with the selection of four LGAs at the state level, then eight villages were selected by the representatives of the four LGA, using the criteria of proximity of village to market and town; purposively to represent the livelihood pattern of the zone. The HEA baseline focuses on household food and cash income access as well as expenditure patterns according to wealth groups. These three elements, together with an asset profile, provide a rounded view of household food and livelihood status.

There are three main steps in the HEA baseline assessment. First, at the State and LGA level, secondary data on production, prices, population and hazards are collected and local units of measure are verified. A minimum set of 8 villages' representative of the zone is purposively selected. The villages are: Yelwa, Durr, Bom, Ndit, Bununu, Waptang, Miya and Zara villages were selected in four LGA that is; Dass, Bogoro, Gamjuwa and Tafawa Balewa. Then at the village level a meeting with key informants is held to develop a seasonal calendar and a five year timeline of major events affecting food production and food security, as well as a summary of the characteristics of very poor, poor, middle income and better-off households in the village (as defined locally).

This wealth breakdown exercise allows the third step to be organised, in which eight household representatives from each wealth group are selected as focus groups and interviews are conducted separately for each focus group. As far as possible, equal numbers of male and female household representatives are chosen for each

focus group. During the three to four hour interview, household representatives are asked to provide quantified information about the amounts of food typically secured during the reference year by households in their wealth group from the different sources: in this case from own crop production, from own livestock (meat and milk), from market purchase, and from payment for work directly in the form of grain ('payment in kind'). They are asked about the sources and amounts of cash obtained during the year (from produce sales, paid work etc.) and about the pattern and amounts of expenditure. This data is entered in a baseline storage spreadsheet. In future, it can be used in conjunction with a livelihood impact Analysis spreadsheet (LIAS) to predict the impact of given shocks or changes (Outcome Analysis).

The baseline data is linked directly with the Livelihood Impact Assessment Spreadsheet (LIAS) that allows planners to make a quantified prediction of the magnitude of seasonal and/or annual food and income gaps measured against defined survival and livelihood protection thresholds. This type of analysis is useful in determining how much support is needed and when, to meet what type of need.

The reference year selected for this study was the 2012-2013 'consumption' year beginning with the harvest in September 2012 and ending in August 2013. This was an average rain-fed production year but marked by fairly low dry season production.

Overview of the Livelihood Zone

The livelihood zone assessed covers the southern part of Bauchi state. The state is one of the states in the northern part of Nigeria that span two distinctive vegetation zones, namely, the Sudan savannah and the Sahel savannah. The Sudan savannah type of vegetation covers the southern part of the state. Here, the vegetation gets richer and richer towards the south, especially along water sources or rivers, but generally the vegetation is less uniform and grasses are shorter than what grows even farther south, that is, in the forest zone of the middle belt.

The Sahel type of savannah, also known as semi-desert vegetation, becomes manifest from the middle of the state as one moves from the state's south to its north. This type of vegetation comprises isolated stands of thorny shrubs. On the other hand, the southwestern part of the state is mountainous as a result of the continuation of the Jos Plateau, while the northern part is generally sandy.

The vegetation types as described above are conditioned by the climatic factors, which in turn determine the amount of rainfall received in the area. For instance, the rainfall in Bauchi state ranges between 1300 mm per annum in the south and only 700 mm per annum in the extreme north, *according to Nigeria Meteorological Agency (NiMET) seasonal rainfall prediction 2014*. This pattern is because in the West Africa sub-region, rains generally come from the south as they are carried by the southwesterly. There is therefore a progressive dryness towards the north, culminating in the desert condition in the far north. So also is the case in Bauchi state.

Consequently, rains start earlier in the southern part of the state, where rain is heaviest and lasts longer. Here the rains start in April with the highest record amount of 1300 mm per annum. In contrast, the northern part of the state receives the rains late, usually around June or July, and records the highest amount of 700 mm per annum. Rainfall official data was not available at the state level so the secondary data is sourced online from NiMET website (www.nimet.gov.ng).

In the same vein, the weather (weather is hottest in the month of April, with temperature rising up to 40.55°C and coolest in the months of December and January when the temperature may fall as low as 09.11°C) experienced in the south and the north varies considerably. While it is humidly hot during the early part of the rainy season in the south, the hot, dry and dusty weather lingers up north. In addition to rainfall, Bauchi state is watered by a number of rivers. They include the Gongola and Jama'are rivers.

The Gongola River crosses Bauchi state in Tafawa Balewa Local Government Area in the south and in Kirfi and Alkali Local Government Areas in the eastern part of the state, while the Jama'are River cuts across a number of Local Government Areas in the northern part of the state. Moreover, a substantial part of the Hadeja-Jama'are River basin lies in Bauchi state, which along with various fadama (floodplain) areas in the state provides

suitable land for agricultural activities. These are further supported by the number of dams meant for irrigation and other purposes. These include the Gubi and Tilde-Fulani dams. There also lakes such as the Maladumba Lake in Misau Local Government Area that further provide the necessary conditions to support agriculture.

Crop Production

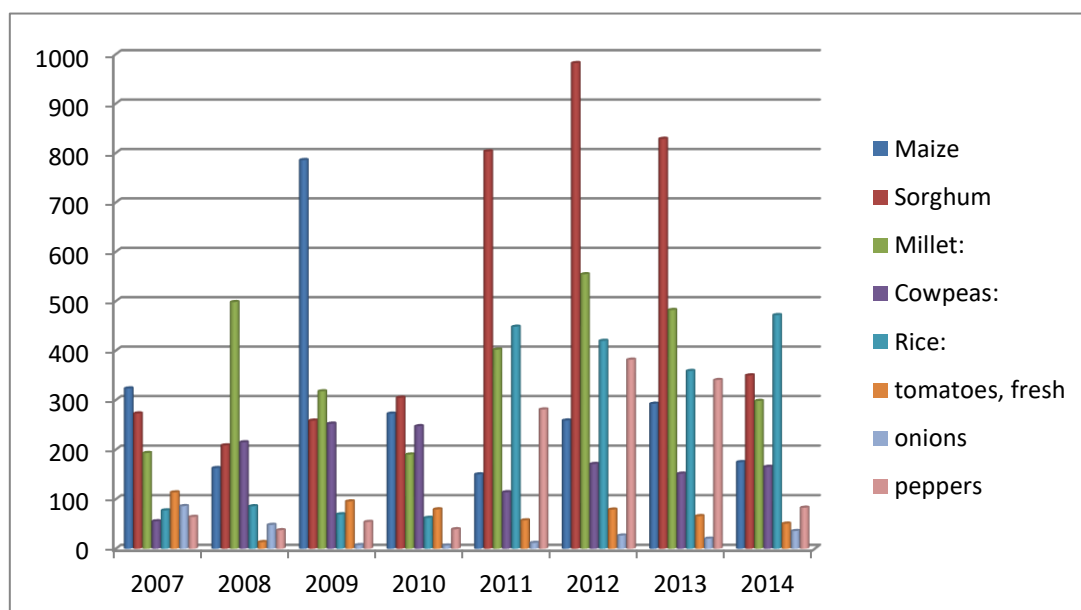
The cropping season involves the dry season farming and rain fed agriculture, though named as; north central Maize, sorghum and cotton, there seem to be no trace of cotton farm around the selected villages. The reason is because the zone stretches up to cotton producing state of Gombe and part of Yobe states. The present study take into consideration access to the villages and risk of encountering insurgent in north east Nigeria by focusing on Bauchi state which has no cotton farm but is named under the cotton zone by the consolidated livelihood zone map of Nigeria. In this zone, land is measured in *hectares and acres* of 0.75m by 100m. Approximately 2.5 acres equal one hectare. Plots of land are acquired as family land both husbands and wives inherit land. Land can also be rented in or out or purchased. As a result, most farmers cultivate plots of land that are scattered rather than consolidated.

The very poor and poor households own about 2 – 4 ha and can cultivate 1-2 ha for food crops. The land portion used by the very poor and households for cash crop is 0-1, that is they usually don't grow cash crops, they may occasionally be involved in dry season production of rice and vegetables. This contrasts with middle income and better-off households whom own an estimated 4.5 – 15 ha and cultivated about 3 – 10 ha for food crops and 3 – 4 for cash crops. Most of this land is cultivated at any one time. Production is overwhelmingly of food crops, but quantities are sold by farmers, so that they could also be considered as cash crops – especially rice, cowpeas. Dry season rice and vegetables are mainly grown for cash.

Local units of measure were verified both in the market as well as in each village to ensure accurate calculations of output and consumption in kilograms (kg).Crop output is measured in mudu (1.2 -1.4kg) for food crops ad cash crops. Once threshed, grain and pulses are measured in *mudu*.

The graph below shows yields of major crops in metric tonnes from 2007 -2014. The production pattern for grains, pulses and vegetables is uniform with an increase in production of Sorghum, Millet and Maize in 2012 farming season as compared to the other seasons. The year was a typical year and rainfall was normal couple with the stable prices of food in the market. The variety of grains grown is an advantage for farmers in the zone because it allows for risk spreading.

Yields of Major Crops (in MT), Bauchi State, 2007-2014: Source BSADP (Bauchi state agriculture development Programme)



The production pattern for food crops and irrigated market vegetables is similar to the production trend for rice; this is because the rice is produced in both dry and raining season. The graph above shows rice production rose in 2011 and remained stable up to 2013 then increased in 2014 significantly above food crops and irrigated vegetables. The agricultural transformation agenda of the government in formulating rice policy to revolutionize the sector, contributed in the increase in rice production where inputs like fertilizers and seeds are made available to farmers on time and at a subsidized price.

Livestock Production

The livestock production pattern in the part of the state selected is not uniform for all villages. The villages are a mixture of pastoralist in crop producers; therefore the herd size shows a huge disparity from one village to another within the same zone. The zone is an area relatively rich in livestock. The floodplains provide good grazing although there are competing land use demands between farmers and herders. During the wet season, cattle are usually taken to pastures outside of the intensively farmed areas. In the dry season, post-harvest (i.e. from around January) cattle are brought back to feed on crop residues and to graze locally.

Livestock have many functions. Milk is both consumed and sold; livestock are sold for cash income; rams are slaughtered for meat during certain religious festivals, and new animals are purchased as a safety net against harvest failure or simply as a way to 'bank' savings. Manure is used to fertilise fields and oxen provide draught power to pull a plough or to transport goods.

In the wet season, dairy cows produce about 1 -2 L per day per cow over a 6-month period. Yields drop in the dry season to about 1 L per day per cow over a 3-4 month period. In the reference year, the better-off and middle-income owners sold some 22-29% of the milk produced.

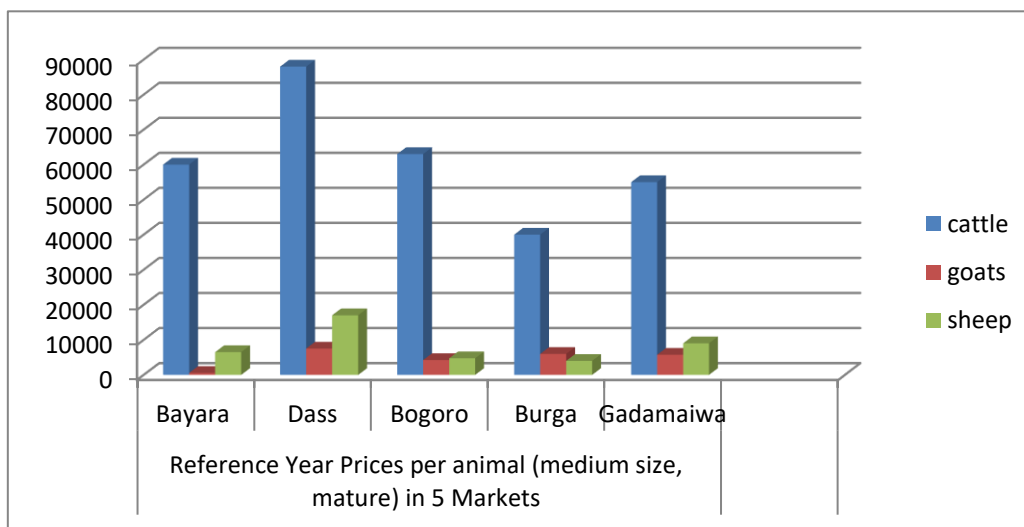
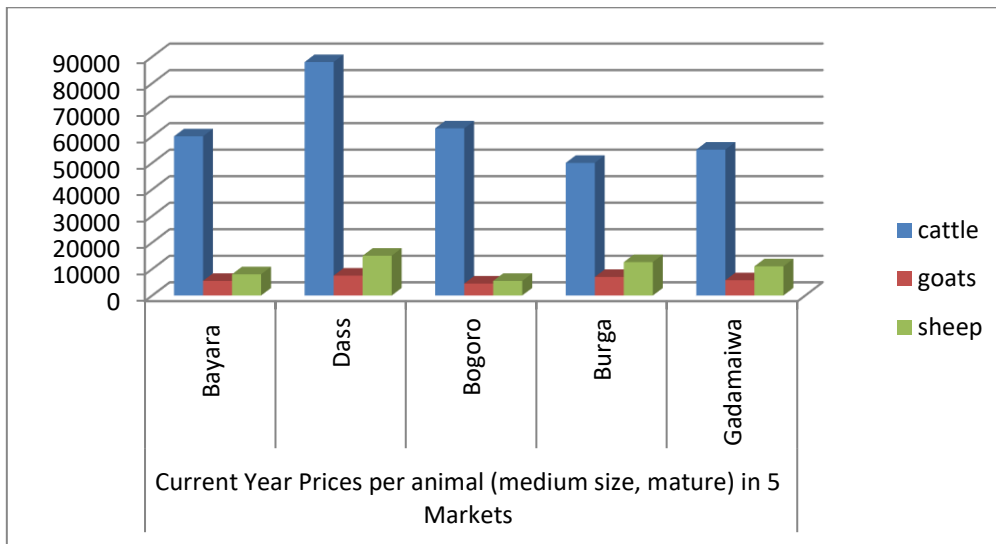
Cattle are rarely slaughtered for meat which contributed 2-3% Kcal of the middle and better-off income household, but they are sold to meet pressing, major cash needs. In the reference year, better-off and middle-income households typically sold about 15-17% of the cattle herd. The very poor and poor households own sheep and goats; shoats sold by the poor add up to 39%, for the middle 44% and the better-off 53%. Small stock and poultry are kept as an investment to be sold when cash needs arise. However shoats are sold by the very poor and poor households, usually to meet pressing household's needs such as paying for health bills and for festivals.

Livestock Price Trends

The graph below compares the livestock prices in five strategic markets in the zone. Prices also have seasonal highs and lows which reflect seasonal trends in demand as well as trends in animal health and condition. Prices peak during religious festivals in November / December when demand is highest. Sales are also high and prices are low in April/May at the start of the growing season when farmers need to pay for inputs. Over the last two years, prices have risen slightly and remained stable in the zone due favourable condition such as availability of pasture and fodders to feed livestock.

Comparing the current and the reference prices of livestock, the result shows variation in different markets. This could be as a result of proximity to market and based on livestock sizes. The current analysis uses medium sizes for cattle and shoats, although there was no standard weighing scale to determine the weight of the cattle and the shoats; the livestock traders uses both age and physical observation in determining the selling price of livestock.

The current and reference year price analysis shows high price of cattle and shoats in Dass market as compare to other markets. The market is where cattle is sold for 88,000 Naira (\$ 444), goat sold for 7,500 Naira (\$ 38), sheep sold for 15,000 (\$ 78) Naira in the current year and sheep sold for 17,000 (\$ 86) in the reference. The prices of livestock in this zone remained stable both in the reference year and in the current year, considering the average for both the peak and the low price.



Markets

Market Routes, Demand and Supply

Local markets are connected in the zone and structured in such a way that there are specific days that a market would function. The market actors largely the grain traders and livestock traders' sells their commodity based on the national and international demand. Market routes depend on the item sold. In general, the market flow for livestock is from north to south. The livestock trade in the zone originates in Chad, northeast states of Nigeria as well as from Niger then travels south to meet demand in the major urban centres of central and southern Nigeria (including Plateau, Benue, Enugu, Abuja, Lagos, Port Harcourt, and so on). See Annex I.

Market flow for grains and legumes are typically exported north to Niger and Chad. In 2012, the government put a temporary ban on cross-border exports of grains due to concerns about prices rising locally after a poor production year. Notwithstanding occasional trade restrictions, Niger and other neighbouring sahelian countries are a major destination market for Nigerian grain, including crops from the livelihood zone.

Typically, grains are exported first to Kano State (Dawanau market) or to Yobe, Katsina, Borno, Zamfara and Sokoto States where wholesalers amass the grain for onward export to Niger and Chad.

During the hunger season, millet and maize are bought by local farmers for home consumption. This grain is local, originating from markets within the zone.

Seasonal Calendar

The calendar below presents the production activities and other factors that are dominated by seasonality. It is seen from the point of view of poorer households in such matters as when food purchase begins and the months of the lean season.

Source of food / Income generating activity	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Rainfall months												
Agriculture												
Millet					Land Preparation	Seeding	Weeding			Green Harvest		
Sorghum				Land Preparation	Seeding	Seeding	Weeding					Harvest
Cowpeas							Land Preparation	Seeding	Weeding	Green	Harvest	
Groundnuts	Sales						Seeding			Green Harvest		
Maize							Seeding					
Upland rice												
Cotton												
Yams												
Livestock												
Cattle - milk production												
Grazing migration of cattle			departure									
Animal diseases												
Purchase of animal feed / inputs												
Sales of livestock												
Collection from the bush												
Items collected (specify)												
Other												
Local agricultural paid work												
Other local paid work												
Handicraft sales												
Work migration												
Lean season months												
Loans taken and reimbursement												
Malaria / other illnesses												
Purchase of staple food												
Festivals, social engagements etc.												

LP = land preparation; P = planting; W = weeding; GH = green harvest; H = harvest

Agricultural activities are mostly rain fed. The agricultural season gets underway with land preparation in February/March because the zone enjoys similar weather around Jos Plateau. Farmers plant their crops when the first rains begin in April/ May. June-July-August marks the period of weeding while crops are growing. By mid to late August, maize can be eaten fresh, or 'green', from the field, but this does not entirely break the lean season, when stocks from the last harvest have long gone, food prices are at their annual peak, and poorer people, now almost entirely dependent on the market or payment-in-kind for basic food, live by what can be earned from casual employment, self-employment (e.g. selling firewood)

and petty trade. From September through to October, maize, millet and cowpeas are harvested. The sorghum harvest follows in October-November (and into December). Rainfed (upland) rice is harvested during this same period.

Dry season irrigated production for those with *fadama* land begin once the rain-fed harvest has been threshed and stored. The produce is mainly vegetables and some paddy rice, mostly destined for the market. Land preparation and planting are carried out in late December-January, followed by weeding in February. Crops are harvested in March-April-May. This season may be anticipated by flood-retreat planting between October and December where conditions are conducive. Fishing is also a minority activity during these months.

Milk production from dairy cows peaks during the rainy season when good pasture is more commonly available. However, this is the time when planted crops are in danger of damage by cattle, and so cattle are often taken to rainy season pastures away from the farms. As a result, access to milk by the cattle owners, as opposed to the contracted herders, can be a problem.

Apart from the modest amount of *fadama* cultivation, dry season activities for poorer people include brick-making, house construction and domestic work in local towns, and then from March employment on land preparation for the coming rainy season. Poorer people may obtain casual work in these various forms intermittently over a period of up to eight months.

Household expenditures have seasonal peaks and lows. Farm input expenses tend to be highest in January when workers are paid off for harvest work and in April when fertiliser is purchased. School uniforms and writing etc. materials are due in January, and the other school terms begin in April and September. Better-off and middle-income households typically sell cattle to pay for these major farm inputs. Health and education costs are other key seasonal expenses. Treatment drugs – if they can be afforded – are often paid for through small stock sales. Malaria is highest during the rainy season but the cooler dry season brings coughs and colds too.

Wealth Breakdown

The table below show the first step in the field methodology, which is to discuss with the villages representatives on their definition of the characteristics wealth group. Within the same village, with the same basic livelihood factors, there are great differences between one household and another as regards the number of members 'eating from the same pot', the amount of land cultivated, the assets in livestock, and the possession of ploughs or other productive assets. As the livelihoods are based on primary production, these are considered by villagers the prime elements which dictate wealth status.

Further discussion then brings out details: the number of wives tends strongly to increase with wealth and so the size of households too; poorer people may have more dependents, mainly younger children, as a proportion of the household whatever its size, and by the same token fewer working adults to support the family – sometimes too few even to be able to cultivate their land properly. We note that the limited amounts of flood retreat/irrigated *fadama* land belong to the wealthier households, especially the better off. Wealth and education are also related, at least in that the children of the wealthier will not only complete primary school but go through secondary school too, while amongst the poorer some children do not complete even primary school and indeed some do not go to school at all.

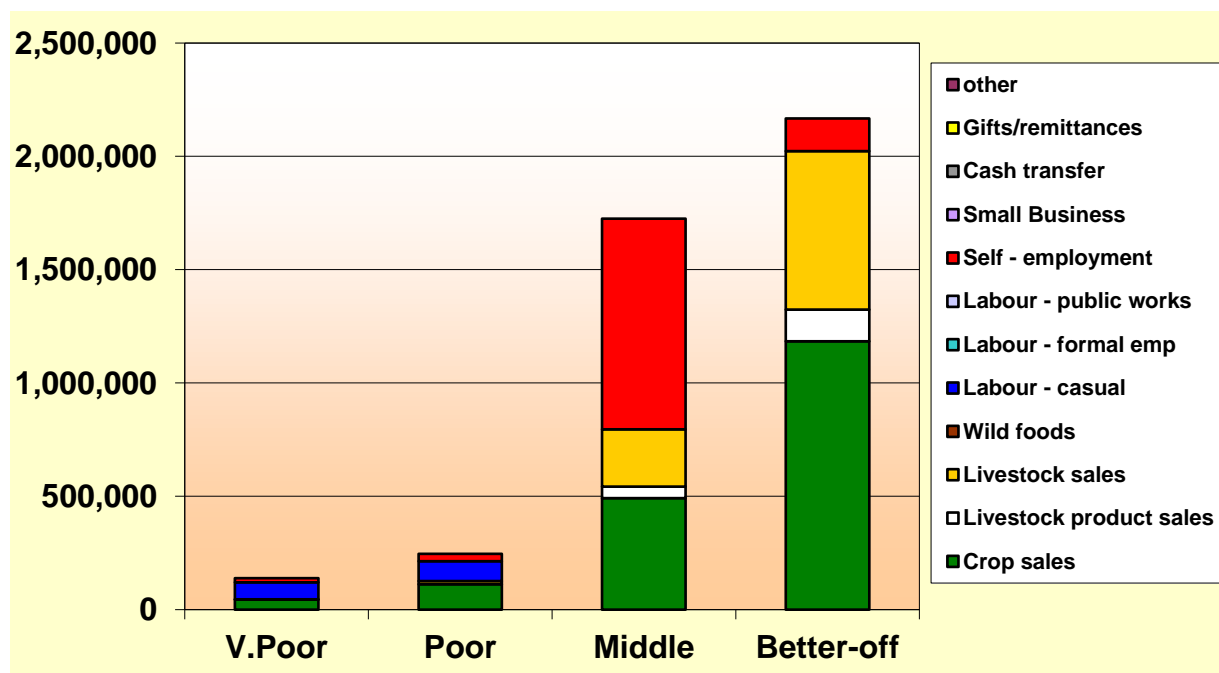
The overall result from the graph above depicted that there is no food shortage in the reference year for all the wealth groups in the zone. That is to say households were able to meet their minimum energy requirement per annum in kilocalories; therefore there is no initial survival deficit. Regarding the very poor, own crop consumed covers about 41%, payment in kind 8%, staple purchase covers about 31%, non-staple 19%, and gift and remittance is less than 2%. This is similar with poor households except that own crop consumed added about 59% of Kcal requirement, then gift and remittance covers about 1%; staple purchase covers about 28%; payment in kind covers about 5% and non-staple 16%. In contrast to very poor and poor households, middle and better-off households; own crop consumed added about 86% and 89%, livestock product added about 15% and 21% of Kcals in the reference year as well non-staple consumed contributed significantly to their total kilocalories, which is about 19% and 12% respectively.

Majority of poorer households in this zone don't usually receive zakat or gift even though they sell little or none of their cereals harvest, they are only able to provide themselves with half or less of the calories they consume in the year, and nearly all the balance they purchase or receive as direct payment for labour. Their purchase of staple and non-staple is high, because they do not grow enough food and vegetables. Their diet – virtually totally lacking in milk too – is not varied or well-balanced nutritionally, because they do not own cattle only some small ruminant usually kept as asset. This clearly defines the poverty situation being faced by the poorer households in the zone.

For the middle and better off the story is different: they eat very largely from their own produce, including significant amounts of milk, and what they spend they spend on non-staple food, further varying their diet. The difference between the better-off and the middle households is not about potential self-sufficiency: both groups sell substantial amounts of grain, the middle far more than they purchase.

Sources of cash

Sources of household cash in the reference year by wealth group (Nigerian naira)



There is huge income gap between the better-off and the very poor households which is typical of rural northern Nigeria. The graph above shows that the better-of households earned an average income of about 2,167,454 naira (\$10,947) per annum, when compared with the average income earned by the very poor which was about 136,560 naira (\$689) per annum. The wealthier households earned about 15 times

more than the very poor households. It is remarkable to note that all the wealth group earned part of their income from crop sales. The very poor who cultivated about 1-2 hectares in the reference year with an average household size of 7 people also manage to sell part of their stocks. This is due to lack of storage facilities and the need for quick cash to upset debt by the poorer households.

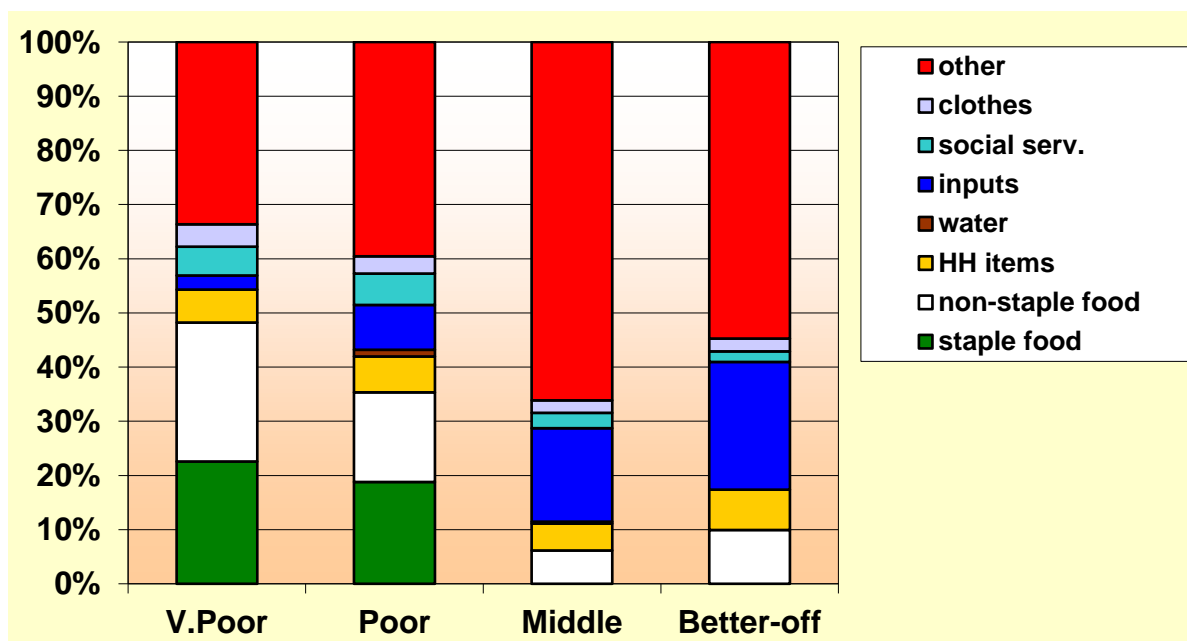
The main sources of income in this zone include crops sales, casual labour, self employment, livestock sales and livestock product sales. For the better-off household, crop sales value to about 1,184,083 naira (\$5,980) per annum showing that most of the better-off in the zone are crop traders who buy crops, store and later sell when the price is high. Income from livestock sales and livestock product is significant since the zone is a mixture of agro pastoralist and pastoralists, the income from livestock sales average about 699,400 naira (\$3,532) and from livestock product 139,971 naira (\$707). Self-employment which consists of petty trade (sales of clothes, tailoring ...etc) also adds to the overall income of the better-off households which is about 144,000 naira (\$727).

In contrast to the very poor and poor households, their main sources of income come from casual agriculture labour which is sourced from the farms of the middle and the better-off. For the very poor, the average income earned from casual labour was about 74,040 naira (\$374) and the poor, 88,538 naira (\$447). The poor and the very poor also engaged in self-employment in order to generate income; this self-employment is usually done by women who are usually involved in the sales of prepared food and managing small scale grocery shops. Income from self-employment in the reference year for the very poor households amount to about 18,620 naira (\$94) and 32,400 naira (\$164).

The difference between the middle and better off is that the latter have far more substantial income from selling livestock and livestock products and also depends hugely on trading crops. Taking all the wealth groups together, crops sale is the source of more absolute income than livestock sales. This doesn't mean that the zone is not productive in livestock and livestock products; but it is because there are more crops produced and the pastoralist living in the zone also engages in crop production. It is interesting to note that the villages selected in this zone are a mixture of pastoralist and agro pastoralist, so that the animal holdings show huge variance from one village to another.

Expenditure

Proportionate Household expenditure in the reference year by wealth group



The proportion of wealth group income used in purchases depends largely on the needs and the total money that is available to meet the needs. A glance at the graph above shows that all the wealth group spends their income on similar items, although it seems as if the very poor and the poor spends more than the middle and better-off. The very poor and poor wealth groups devote a large proportion of their incomes in buying non-staple as depicted on the white bar, this is in addition to staple purchased.

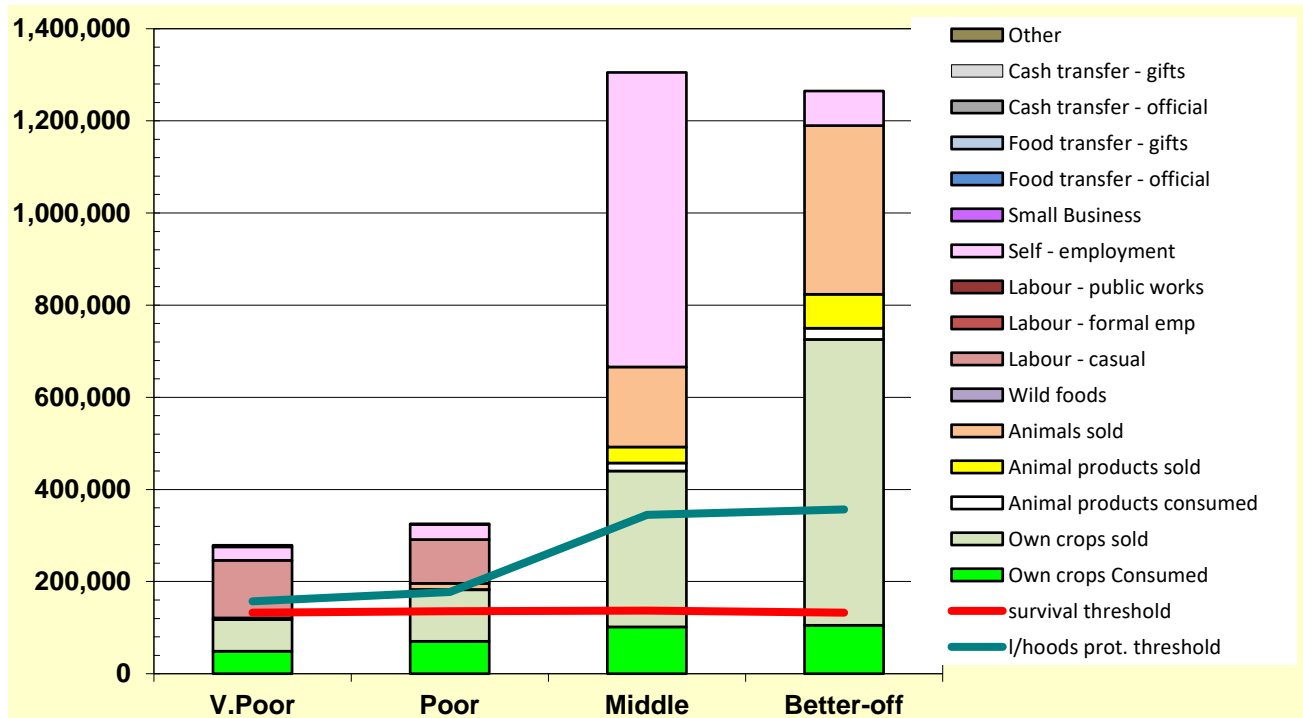
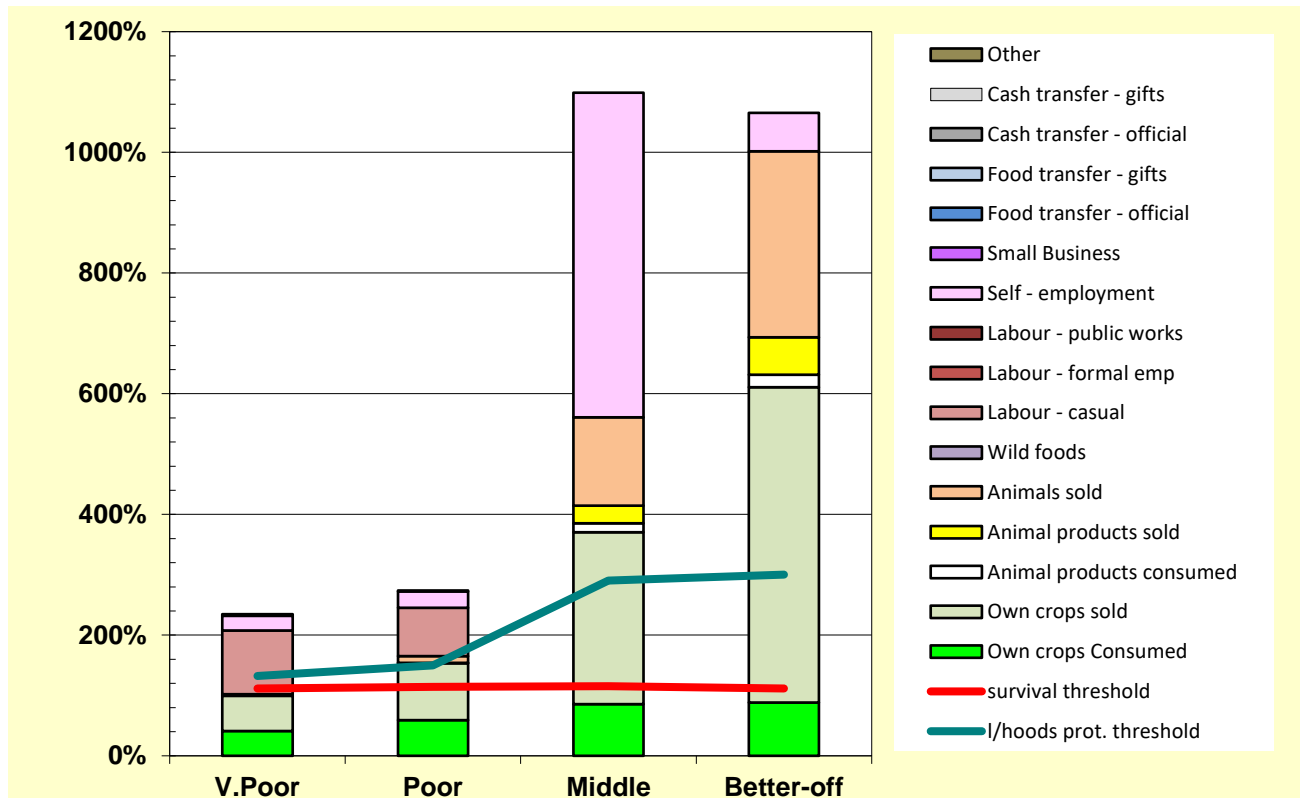
About 30% of the very poor income was spend on non-staple which amounted to 35,528 naira (\$179) and the poor about 20% amounted to 40,800 naira (\$206) in the reference year. Other expenditures for the very poor income was input (seeds, fertilizer...etc), taking less than 10% of the money which amounted to 3,596 naira (\$18) and for the poor which is equal to 20,380 naira (\$103). The total expenditure on staple food by the very poor and poor is considerable high as compared to expenditure on non-staple and other items. The proportion of money apportioned by the very poor for staple food purchase was about 22% which is equals to 31,249 naira (\$158) and the poor about 18% which is equal to 46,396 naira (\$234). Expenditures on clothes, other items which include communication and transportation as well as for social services is very important for the poorer wealth group in this zone.

In contrast with the poorer households expenditure, a large portion of the wealthier expenditure goes to 'other', which is about 50%-65% for the middle and better-off. Expenditure on 'other' includes transport and cellphone communications, very important for trade, as well as payments for social obligations and festivals, both of which are costs for the poorer as well as the wealthier households. 'Household items' means such costs as milling, lighting, firewood, cooking utensils, and everyday condiments including, for instance, tea and Maggi cubes. Expenditure on social services means education and medical matters and is modest all round. Expenditure on clothes also seems rather modest for the wealthier, and there may be a degree of underestimation here. The total amount amount expended by the middle and better-off households on 'other' was about 1,140,675 naira (\$5,761) and 1,185,902 naira (\$5,989).

The wealthier households also devote around one half of their budget to buying inputs and household items, with a very small additional expenditure on non-staple foods. It looks as if the wealthier households have less need to buy staples than the poorer households; but in fact the green bar for the very poor would rise well above the 30% mark if we added the cash value of the grain that they receive directly as payment-in-kind for labour. The wealthier households spend little or nothing on staples, but more on non-staples.

The blue bars, representing production inputs, show how much more the wealthier spend in proportionate as well as absolute terms. In fact the middle and better off spend nearly 20% -30% of their income on inputs, which is about 297,820 naira (\$1,504) and 511,647 naira (\$2,584) of their income on agricultural inputs on total hectare of land cultivated; and the total budget on livestock inputs (on veterinary drugs), of which more money is devoted to purchasing new animals to increase their herds and flocks and/or to replace animals sold, slaughtered or lost to disease.

Total Income (Food +Cash)



The total income in terms of food and cash as expressed in terms of actual monetary value and the proportion in percentage and as expressed in kilocalories indicates; that the very poor and poor households depend more on casual labour and own crop sold and consumed. The total income for the

very poor households is approximately 272,480 naira per annum (\$1,376) which is over 200% Kcal. Casual labour contribute significantly to the total income, own crop consumption also account for about 20% for the very poor and 40% of total energy requirement for the poor households. The very poor and poor households were able to meet their minimum energy requirement in the reference year. That is to say they were able to meet the survival and livelihood protection thresholds.

Apart from the contribution to their total income coming from casual labour and crops sales, self-employment like petty trades usually plays an important role when labour demand falls from December to March in adding to the total income of the very poor and poor households, though with changing situation and during the lean season, this income will drop considerably and households will resolve to coping strategy to survive.

When compared with the middle and better off households; whose bulk of total income comes from own crop sold, animal sold and self-employment. Own crop sold for middle income value at 338,526 naira (\$2,121) about 285% and for the better-off income value at about 620,234 naira (\$3,132) about 522%, self-employment for the middle income value at 638,904 naira (\$3,227) about 538% and animal sold for better-off value at 366,352 naira (\$1,850) contribute significantly to the total income of the better- off, since they serve as markets intermediaries collecting crops and livestock and storing grains during harvest and to resale during scarcity or lean season. Animal products consumed like meat and milk also added significantly to the total income of the middle and better-off households; contributing about 21% for the better-off and 29% for the middle households value at 24,690 naira (\$125) for better-off and 17,358 naira (\$88) for middle income. The overall result shows no initial survival and livelihood protection thresholds for all the wealth groups in the zone analyzed.

Hazards and Coping

Year	Season	Rank	Events
2014	rains + harvest	3	Major drought which affected production increasing prics of staple food and pest infestation
	dry season	2	Drought in some areas affected the prices of livestock
2013	rains + harvest	4	Normal rains, good yield and stable prices of staple food, input fertilizer was available
	dry season	3	Flood retreat (fadama farming) was good and complimentary harvest was good, also livestock prices was stable
2012	rains + harvest	2	Excessive rainfall, fuel scarcity affected prices of commodities
	dry season	3	Flood retreat (fadama farming) was good and vegeable harvest was good, also livestock prices was stable
2011	rains + harvest	3	Mild dry spell causes low harvest increasing the price of staple food
	dry season	2	High prices of food and animal diseases such as poultry
2010	rains + harvest	5	Very good harvest, good staple prices
	dry season	1	low dry season farming due to water shortages

The above table outlines the intermittent hazards faced by all wealth groups in the zone as from 2010 to 2014, considering dry season and rains plus harvest. The main chronic constraints identified by households were access to basic education, the bad road network linking more remote villages to markets, and access to subsidised inputs or credit facilities to purchase seed, fertilizers, and water pumps for dry season farming.

The major hazards in this zone is seasonal dry spell which usually lead to increase in crops and livestock prices due to low productivity of both food and fodder for livestock. Excessive rainfall was also witnessed in 2012; leading up to the harvest that began the reference year, the zone joined much of the country in suffering floods and fuel scarcity. The result of these hazards led to increase in prices of commodity during the rainy season. Though some farmers, who have access to flood retreat plain took advantage to grow extra cowpeas, a prime cash-crop as well as food crop. Livestock migration and sales increased in 2012 but significantly reduced in 2013 as a result of early rains and the expectation of particularly good local grazing. The early rains also meant that migrant workers returned early to begin the agricultural cycle.

When there are major production shortfalls, households have three basic options: increase income; reduce non-essential expenditure and switch it to buying staple food; and reduced food intake as a last resort. However a reduced quality of diet comes sooner, through the switching of expenditure from non-staple foods to staple purchases.

The table below shows the major options for expenditure reduction reported by households for times of hazard to deal with threatened shortfalls in the capacity to pay for basic food and other essentials.

	Reduced	Increased
Very Poor	Food consumption, clothes	Manure usage, wild food consumption, firewood cutting
Poor	Fertilizer usage, food consumption, Clothes purchase	Manure usage, wild food consumption, firewood cutting
Middle	clothing, Festival and transportation, reduce the use of kerosine	Firewood for cooking
Better off	Festival, clothing and communication, reduce kerosine usage	Firewood for cooking

Individual households faced by unusual economic hardship or misfortune may turn to better-off relatives to secure gifts of food or cash. Without such support, and under high stress, they may decide to pull children out of school, especially girls, to support the family by for instance selling processed food or cooked meals in the market centres, or collecting baobab leaves and fruits and other bush items for sale. Children may even be sent out begging. Poorer households may begin selling their productive assets, beginning with their handful of livestock but in the extreme going on to sell part of their inherited land.

Application of HEA in Understanding Early Warning, Coping Strategy and Intervention

If incorporated into Early Warning Systems (EWS), HEA result can provide household level information that complements other information, and gives an accurate picture of the household situation often a component lacking in EWS. This would enable a much more timely intervention, because most EWS information has to do with rainfall, crop production, prices, and markets all of which are related to food production, but don't directly reflect the issue of access to adequate food.

Incorporating HEA information into EW information has the added advantage of providing baseline information for the Coping Strategy so that programmers and Managers have a target level of household food security, as indicated by the HEA tool, which an emergency intervention should aim to restore. If

enough information is collected, an analyst can get an idea of roughly what level of Coping Strategy Index score represents the norm for a given location, adjusted seasonally, so that there is some idea of the range of scores above which the situation is clearly deteriorating (note such a range should not be reduced to a “cut-off” point, and any range is probably situation-specific).

HEA can be used in conjunction with other methods to assess food insecurity and to estimate the requirement for Safety net i.e. Food aid and Cash Transfers and well as for prevention and management of food crisis. However, HEA is not appropriate as a stand-alone tool for this purpose. Its main application in analysis is to provide triangulation or verification of other indicators that defines parameters like *food access, income, expenditures and coping strategy*, to get a more overall analysis of household food insecurity.

Because each HEA parameter is specific to its context, there is a designated threshold (Minimum Energy Requirement of HH) or Survival and livelihood protection thresholds in which a household would be considered “food secure” and below which it would be considered “food insecure.” But it can be used in cross-sectional analysis to determine which households are better off and which are worse off, and what is the correlation between these two kinds of households. This is important in assessment, and particularly in household targeting. If monitored overtime, the HEA- Outcome Analysis can also help to distinguish transitory and chronic food insecurity a necessary distinction in assessments.

Implication of HEA

The HEA baseline is useful as a stand-alone product to though complimentary to other useful tools in understanding how local farmers secure their food and income, and how food and income access differs depending on a household’s level of assets. The baseline becomes an even more powerful tool when combined with impact (or scenario) analysis. The HEA data and spreadsheet tools allow planners to run scenarios – predicted or real – in order to judge what is really needed to meet project goals as well as to protect livelihoods and prevent hunger in the event of a crisis.

The value of this calculation lies in using the data to assess what household resources are available for basic survival and livelihood protection when a shock occurs. This analysis can be combined with an assessment of the positive contribution of a project intervention (or interventions).

The total resources available from all food and income sources can be expressed as a percentage of annual food energy requirements. In this case, not only the food sources but also cash income is calculated in terms of how many household kilocalories that source secures. On first glance, the graph underlines previous observations: the value of agriculture for own consumption and for income generation for all wealth groups in the zone. The graph also visually reinforces the other findings, namely the importance of livestock production for most wealth groups, and of labour for the very poor.

Recommendations

- Infrastructural development: Irrigation, output market and road linkages.
- Safety net should be an option during lean season to allow very poor and poor households access to food and income for survival.
- Stable access to land and livestock by the poor for asset recovery
- Linkages between research and extension should be encouraged and diversification in the output market.
- Value chain: Reduced cost of production, stable price and credit service policy to enhance access to income and food by the poor.

Conclusions

The very poor and poor households with their one or two hectares were able to obtain food from their fields to give them 41% and just over 59% respectively of their annual calorie consumption. In both cases by far the main way they make up the gap, and also see to all their non-food needs, is by undertaking paid labour for their wealthier neighbours. This in turn allows their employers not only to produce enough food on their land to make them more or less self-sufficient but to concentrate their income earning efforts on other things, notably trade, and most notably the livestock trade. Meanwhile, if the very poor and poor did not earn substantial food as direct payment for labour they would have to spend over 22% and 18% of their household budget just on basic staple food. Because they depend on the market and have some kilocalories added from own crop produced and consumed, the very poor and poor household devote a substantial amount of money to non-staple purchase covering about 30% and 20%.

This and the fact that their total budget is extremely marginal, means that they must be considered food insecure; although they do make some money from crop sales. For both groups, a modest failure of their crops, and/or a dip in their employment, would put them in peril of hunger, and for the very poor in particular, selling their couple of goats would not tide them over for very long. But with their one or two hectares of land it is likely that for these groups any permanent improvement in their economic status, short of regular welfare payments, must come from further off-farm activities. In this respect the best help in adding value to their work might be in terms of improved skills, e.g. carpentry, masonry, or in capitalising certain activities: for instance, access to an ox-cart, even if the ox has to be hired, would give a man a significant capacity to earn more income from transporting goods and people.

ANNEX I: Markets

Trade routes of main products



Livestock trade route —————>

Grains and legumes trade route —————>

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