

Tanzania Livelihood Baseline Profile

Tanga Maize and Cattle Livelihood Zone (TLZ 03)

February, 2016¹

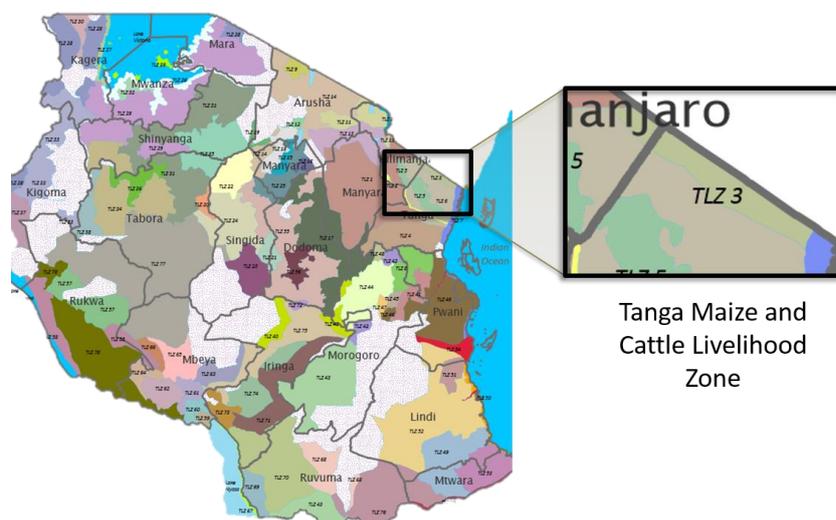
Zone Description

The *Tanga Maize and Cattle Livelihood Zone* comprises a very small area in Tanga Region along the north eastern border with Kenya. The administrative units that make up this zone include Mkinga and Lushoto districts, encompassing Mwakijembe, Mng'aro and Lunguza wards. The main ethnic groups living here are the Maasai, Sambia, Digo, Duruma, Taita, Kamba and Mbugu. The population density is only around 1.2 people per km². This is a small zone both in geographical coverage and in terms of total population. Despite its small size,

the zone is diverse in terms of livelihood patterns. In some villages, such as Mng'aro, Mazinde and Lunguza, there are irrigation schemes which allow households to cultivate rice and plant in three seasons (*vuli*, *masika* and *utagata* – recessional cropping). A further difference discerned by the field teams was that in Lushoto District the main season was associated with the *vuli* rains, whereas in Mkinga District the *masika* rains were primary. The profile below describes a generalized pattern for villages where there was no irrigation. The seasonal production shown below is balanced between both seasons, but it should be borne in mind that one harvest will be more prominent than the other depending on the district. It is likely that this zone is an extension of a larger zone in neighbouring Kenya.

This livelihood zone consists of lowland plains, found between 100 and 200 meters, and covered with grasslands and thickets. The Umba River runs through the zone, originating in the Usambara Mountains and emptying into the Indian Ocean just across the border in Kenya. The mouth of the river marks the eastern-most point on the border between Kenya and Tanzania. Along the river, the Umba River Game Reserve is found, and the Mkomazi Game Reserve is also found in close proximity to the zone. Green granite is mined by a few households here, although it is not a typical source of cash income. Another natural resource found here – wood – is collected by most poorer households and sold either as firewood or turned into charcoal and sold.

Rains come in two distinct seasons - the *vuli* from November to January and the *masika* from March to May; annual precipitation is around 600-1000 mm. Soil fertility is low, and although rainfall is generally adequate, production, which is almost entirely rain-fed, is not very high. Maize is the primary, and only, crop of any consequence grown by local households. Poorer households prepare the land with hand hoes, while middle and better off households generally use ox ploughs and sometimes tractors. All households cultivate maize



Tanga Maize and Cattle Livelihood Zone

¹ Fieldwork for the current profile was undertaken in November and December of 2015. The information presented in this profile refers to the reference year, which was the consumption year that started in June 2014 and ended in May 2015. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to ten years (i.e. until 2020-2025). All prices referred to in the document are for the reference year.

in both seasons, staying busy throughout most of the year with farm-based activities. The most labour-intensive activities are land preparation and weeding. At these times as well as during the planting period, households with larger tracts of land hire those with less (both men and women) to work in their fields. Payment is made in cash. This provides an important source of cash to very poor households in the zone.

Livestock production forms another crucial foundation of the local economy. Relatively large herds of cattle, goats and sheep are raised here, grazing freely, and also benefitting from crop residues after the harvest. Households also raise chickens, which are fed grain and food scraps. Cattle provide milk for consumption and sale and they also provide a means of savings, allowing households to convert them to cash when needed to cover a range of basic necessities. Goats and sheep are also kept here, used for cash income, but not for milk. All livestock are slaughtered and eaten, especially during the festival seasons. Livestock rely on water from rivers during both rainy and dry seasons. Men are responsible for taking care of cattle, goats and sheep, whereas women and children manage the chicken flocks.

Poorer households, who have smaller plots and fewer livestock, depend on seasonal agricultural labour - land clearing, planting, weeding and harvesting - to generate cash income. They also piece together supplemental cash resources throughout the year, collecting and selling firewood or charcoal, selling building poles, brewing or engaging in petty trade – buying and selling small commodities like tobacco, soda, salt and sugar.

This livelihood zone is far from urban centres and service provision here is poor. As most villages are located along the river, both drinking water and water for other purposes comes from the river. It is free, but largely not safe. Sanitation facilities consist of uncovered temporary pit latrines for poorer households and improved pit latrines for better off households. Health dispensaries are found at village level, although for the most part they are not well-stocked. Primary schools are found in the villages as well. Most poorer households send their children through primary school but not to secondary school. Middle and better off households, on the other hand, can afford to send their children to secondary school and even college. Secondary schools are available in the ward centres. There is no electricity in this zone. Households depend on battery-operated torches and kerosene lanterns for light; some better off households also have solar lanterns. Almost all households have mobile phones, with better off households having multiple phones. People do not have access to credit here; there are very limited options for savings (VICOBA for some of the wealthier households); and there are no NGOs or development agencies working in the area.

Markets

The transportation infrastructure in this zone is relatively poor and market access is considered quite bad. The zone is far from any of the main towns in Tanzania and roads are all dirt. They function in the dry season, but quickly deteriorate in the rainy season, leaving much of the area inaccessible by vehicle. The main road stretches from Horo Horo (in Tanzania but on the border with Kenya) to Daluni, Mng'aro and Lunguza. This zone is much more closely tied to the Kenyan market, via Mombasa, than the Tanzanian market, and most people depend on traders who come across the border to buy up local maize and cattle.

Maize, cattle and goats are the main commodities sold by households in this zone. These transactions take place at the farm gate, or – in the case of maize – from house to house. Maize is sold in February, June and July, just after the harvest. Cattle and goats are sold throughout the year to traders who come to local villages and buy up livestock, transporting it to various end points, including Zanzibar (via Horohoro and Tanga); Mombasa (in Kenya); Korogwe (via Mombo); and Lushoto town. Chickens are also widely sold, again bought up by traders who take them to Tanga or Korogwe for sale.

There is also a market for food brought into the zone for consumption by local households. Poorer households need to buy maize grain to cover their needs for a portion of the year, especially September through December and May to June, even in good production years. Maize is the cheapest local staple, and most of this is locally sourced, procured from better off households who generally produce a sizeable

surplus. It is also sourced from Handeni via Tanga and Mkinga or via Mombo, Mnazi, Lunguza and Kikumbi. Rice, purchased almost exclusively by the upper wealth groups, is sourced from Morogoro, Kilimanjaro and Korogwe, distributed via the Tanga market or the Mnazi market. Non-food essentials, like salt, soap, batteries and kerosene, are sold in local kiosks.

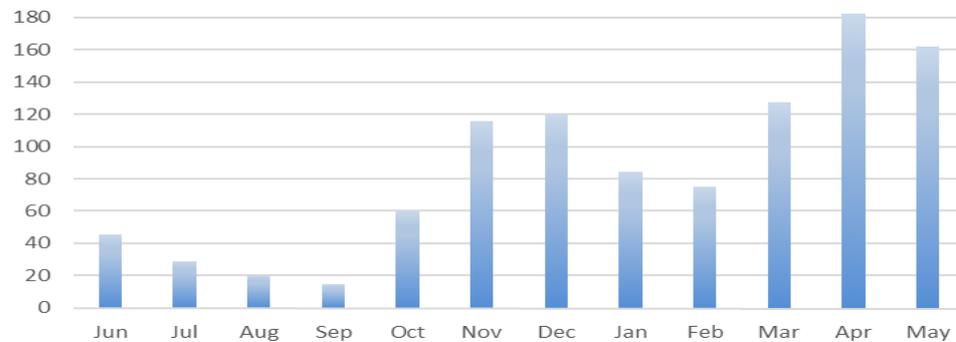
The labour market is largely local. Middle and better off households cultivate large tracts of land, requiring additional labour to help them complete the more intensive seasonal tasks, such as land clearing and weeding. It was estimated that in the reference year, 70% of seasonal labour was found within the zone on local farms. An additional 30% of labour demand came from Maramba in a neighbouring livelihood zone where people travel every year during the lean season. Both men and women from poorer households take on paid agricultural work.

Timeline and Reference Year

The baseline assessment refers to a very specific time period called the reference year. In the *Tanga Maize and Cattle Livelihood Zone* the reference year covered the **consumption** period from June 2014 to May 2015. During community leader interviews, informants were asked to rank the last four years (eight seasons) in terms of seasonal performance with '1' indicating a poor season and '5' an excellent season. The table below, which summarizes the response of the community leaders, shows year quality by *production* year (which starts with the *vuli* season planting period in November/December and ends with the *masika* harvest in July-August of the following calendar year). Thus, the production year of 2013-2014 corresponds to the consumption year of 2014-2015. As shown in the table, the production year corresponding to the reference year was average, with average rains, average crop yields and normal food prices. The incidence of crop pests was low, and livestock diseases were not widespread. In the past eight seasons, two were below average, and six were average.

Production Year	Season	Rank	Critical Events
2014-2015	<i>Vuli</i>	3	Average rainfall; average crop harvest
	<i>Masika</i>	3	Average rainfall; average crop harvest; no livestock diseases
2013-2014	<i>Vuli</i>	3	Average rainfall; average crop harvest; good prices for maize
	<i>Masika</i>	3	Average rainfall; average crop harvest; good prices for maize; crops not badly affected by pests and diseases; no livestock diseases
2012-2013	<i>Vuli</i>	3	Average rainfall; average crop harvest; good prices for maize; crops not badly affected by pests and diseases
	<i>Masika</i>	3	Average rainfall; average crop harvest; good prices for maize; crops not badly affected by pests and diseases
2011-2012	<i>Vuli</i>	2	Below average rainfall; poor crop yield; high staple food prices; low livestock prices; people increased charcoal sales, migrated to Maramba; sold more livestock and chickens
	<i>Masika</i>	2	Below average rainfall; poor crop yield; high staple food prices; low livestock prices; food aid was distributed by the Government of Tanzania; people increased charcoal sales, migrated to Maramba; sold more livestock and chickens
<p>5 = an excellent season for household food security (e.g. due to good rains, good prices, good crop yields, etc.)</p> <p>4 = a good season or above average season for household food security</p> <p>3 = an average season in terms of household food security</p> <p>2 = a below average season for household food security</p> <p>1 = a poor season (e.g. due to drought, flooding, livestock disease, pest attack) for household food security</p>			

The graph to the right shows average monthly rainfall (mm) in Lushoto District based on a 43-year period (1971-2013). Source: TZ Meteorology Department



People in this livelihood zone are busy throughout the year, juggling the many activities involved with managing two production seasons. Poorer households are especially busy during land preparation and weeding periods, splitting the household to work partly on their own farms and partly on others' farms for cash. But when they are able, they take advantage of any drier days occurring from July through January to collect and sell firewood to supplement their cash income.

Human diseases occur throughout the year as well, but respiratory infections tend to peak during the dry seasons, and malaria is highest in the wet seasons. Having a sick household member is extremely taxing, especially for poorer households who need as much labour on hand as possible to manage the demands of their own farms while taking advantage of changing seasonal employment opportunities. They are also more limited in being able to pay for medicines (where they are available) given the severe constraints on their budgets.

Wealth Breakdown

		Wealth Groups Characteristics					
		HH size	Number of wives	Land cultivated (acres)	Livestock	Poultry	Other
Very poor		5-7	1	1.5-2.5	0-2 cattle; 0-8 goats; 0-2 sheep	10-20 chickens	1 cell phone; 1 bicycle
Poor		5-7	1	2-4	0-12 cattle; 5-10 goats; 0-8 sheep	10-25 chickens	1 cell phone; 1 bicycle
Middle		6-8	1	4-6	0-4 oxen; 10-35 cattle; 20-70 goats; 5-25 sheep	15-35 chickens	2 cell phones; 1-2 bicycles; 0-1 motorcycle; 0-2 ox plows
Better off		6-8	1-3	6-10	0-6 oxen; 40-70 cattle; 70-100 goats; 20-60 sheep	20-30 chickens	2 - 3 cell phones; 1-2 bicycles; 1 motorcycle; 0-3 ox plows
0% 20% 40%		% of households					

Note: The percentage of household figures represent the mid-point of a range. The livestock numbers are per wife.

Maize and cattle are the engines of the economy in this zone, so it follows that wealth is determined both by the area of land cultivated and the number of livestock owned. Those at the top of the wealth breakdown cultivate between 6 and 10 acres of land and own 40-70 cattle, along with other livestock; those at the bottom cultivate 1.5 to 2.5 acres and may own no cattle at all, or one or two at most. The difference in access to food and cash income for households at these two ends of the spectrum is quite large, with better off households able to generate all their required food and cash from their own fields and livestock, whereas those at the bottom are just scraping by, needing to supplement their own production with various off-farm pursuits.

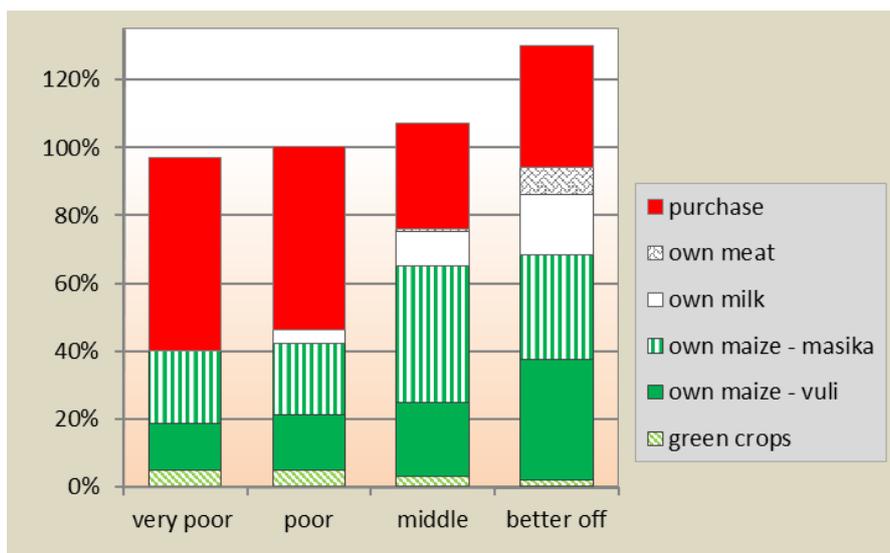
A related factor in wealth differentiation is household size; those with more resources tend to have larger households and those with larger households tend to have more labour, which allows them to maintain more resources. Thus there is some indication that the lower two wealth groups have slightly smaller household sizes, suggesting less access to labour within the family unit. In any case, only middle and better off households hire labour, and they are also in a position to rent or own tractors, which significantly increases the area they have under cultivation. Poorer households cultivate by hand and do not have the cash to hire extra labourers during the critical crunch periods, such as planting and weeding.

There is a certain amount of intra-community redistribution and support here. The local labour market acts as a mechanism for redistributing cash, giving poorer households access to needed cash income and better off households access to the labour they need. Some better off households also lend milking cows to poorer households, providing them with access to milk, and in return having the poorer household take responsibility for the care of the animal.

The distribution of wealth in this zone is fairly even. Very poor (20%) and poor (33%) households together comprise just over half of the households in the zone. Middle (32%) and better off (15%) households combined represent just under half the population. However, as middle and better off households are larger, and some even have multiple wives, it is important to remember that the percent of the *population* (as opposed to the percent of *households*) represented by the upper wealth groups is larger.

Sources of Food

The graph to the right presents the sources of food for households in different wealth groups in the livelihood zone for the period June 2014 to May 2015. June represents the start of the consumption year because it is when people begin to consume green crops from the *masika* season (the main season) and it marks the end of the hunger period. Food is presented as a percentage of 2100 kcal per person per day for the 12-month period. This was considered an average year.



In the 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.

What is striking about livelihood patterns in this zone is the

overwhelming reliance on maize. It is the only crop of any significance grown by all households. Maize is grown in two seasons, with both seasons of almost equal importance. In the reference year, for example, a typical poor household produced around 840 kg of maize in the *vuli* season and 1,260 kg in the *masika* season. A typical middle household produced around 1,000 kg in the *vuli* season, and 1,400 kg in the *masika*. It was common for better off households to produce twice that much. Over half of the maize produced is sold, leaving an amount that does not meet the minimum calorie requirements of any wealth group. Sales of maize are critical here, providing households with a portion of the cash they need to cover their expenditure requirements. However, with maize the only crop of any note grown for both consumption and sale, people's livelihood and food security are highly vulnerable to any hazard that affects maize production, be it a stoppage in rain, damage caused by monkeys (which is pervasive in this area), or any of a wide range of potential crop diseases affecting maize. The risk is countered to some degree by the fact that there are two seasons, however even if rainfall fails in one

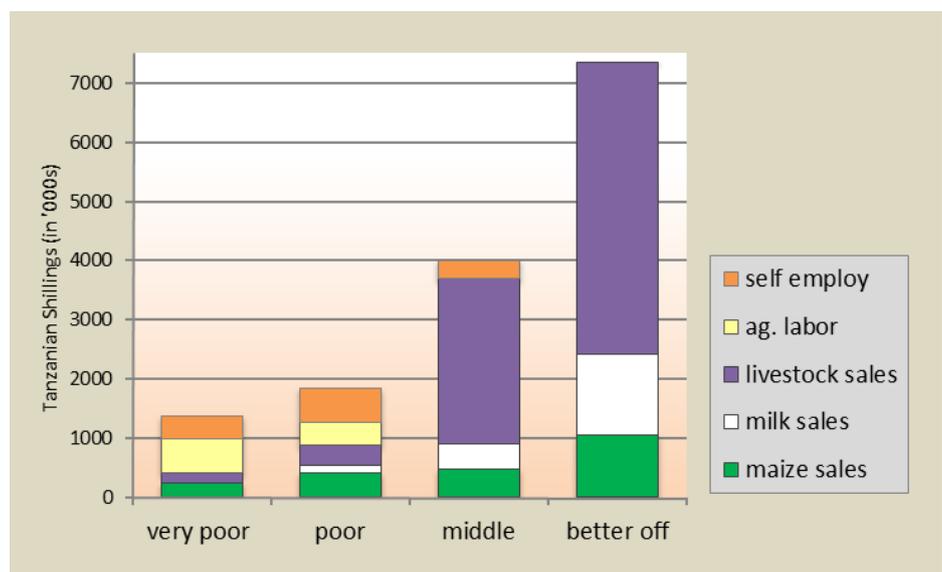
season this wipes out up to half of the annual food and cash supply, a shock that only the better off would be able to withstand.

The lack of alternative crops, and the reliance on maize for both consumption and sale means that all households, but especially the poorer two wealth groups, are highly dependent on purchased food, even in an average year, like reference year. It is important to note that, even with these purchases the typical very poor household does not cover its minimum calorie needs. Very poor households purchased around 40-45% of their minimum calorie requirements and poor households purchased 35-40% of minimum calories in the form of maize grain - the cheapest staple - in the reference year. Middle and better off households generally did not purchase maize grain, instead buying wheat flour and rice along with a number of other more expensive non-grain items, such as beans, sugar, meat, oil, and dried fish. The purchase bar on the graphs above, therefore, represents a different basis for decision making: poorer households bought food because they had to fill a real food gap that they were unable to meet through their own production; middle and better off households, on the other hand, tended to buy food to diversify their food basket. This is further supported by the fact that if better off households had consumed all of their own maize production rather than selling half of it, they would have been able to cover over 250% of their minimum food needs with maize alone. Very poor households, on the other hand, given the same assumptions, would only have gleaned 105% of minimum calories from their own production. Even though this appears to be more than enough, it is not, because maize plays a critical role in covering household cash needs. Thus, households need to sell off maize to meet cash flow requirements after the harvest, putting them at a deficit later in the year.

Milk contributes substantially to the diet of middle and better off households and to poor households as well to a lesser degree, covering 10%, 18% and 4% of minimum calorie needs in the reference year, respectively. Meat from the households' own livestock also accounts for 5-10% of calorie needs for better off households. Poor households rely on the milk from around 2 cows; middle have around 7 cows milking, and better off households have, on average, 18 cows milking. On average, cows here produce 1.5 litres of milk a day during the first rainy season (lasting around four months) and 1 litre of milk a day in the second season (which lasts around three months). When added together, the milk from both seasons amounted to around 495 litres for poor households, over 1700 litres for middle households, and almost 4,500 litres for better off households during the reference year. Around 45-55% of this was sold, providing some cash income (shown in the section below) for these three wealth groups. Very poor households, who generally do not own cattle, benefitted neither in food nor in cash terms from milk. It is important to note that the milk from just two cows could have helped very poor households to close the calorie gap (of around 3% of minimum needs) they had in the reference year.

Sources of Cash Income

As shown in the graph to the right, there are five sources of cash income in this livelihood zone: crop sales, milk sales, livestock sales, agricultural labour, and self-employment. The latter two options are the domain (mainly) of poorer households. Better off households are the only wealth group that can cover all of their cash needs from their own farms, relying exclusively on their crop and livestock production. The bottom two groups rely



heavily on agricultural labour and self-employment; and middle households need to take on some self-employment activities as well to cover all of their cash needs.

The graph provides a breakdown of total annual cash income in Tanzanian Shillings according to income source.

INCOME SUMMARY TABLE (in Tanzanian Shillings)				
Wealth group	Very poor	Poor	Middle	Better off
Annual income per household ²	1,295,000 – 1,640,000	1,640,000 – 2,355,000	3,600,000 – 4,800,000	4,800,000 – 9,650,000

What stands out in this livelihood zone with reference to cash income is the importance of livestock sales, which dominate the income for middle and better off households. If maize was central to the story on the food side, then livestock (and especially cattle) are central to the story on the cash income side. It is no wonder, then, that the name of the zone features both maize and cattle, as these provide the engine for the local economy. Livestock sales make up around 65-70% of annual cash income for middle and better off households; and only around 10-20% for very poor and poor households. In absolute terms, better off households earn from livestock sales almost twice as much as middle households and over 27 times more than very poor households. This is largely due to the sale of cattle; better off households sold 7-8 cattle during the reference year, at around 500,000 Tanzanian Shillings each, providing them with around 3,750,000 Tsh from cattle sales alone. Middle households sold around 4 cattle, and poor households usually sell a single steer once every two years. Very poor households sold no cattle. Goats, worth around only 50,000 Tsh each (or a tenth of a cow), were sold by all wealth groups, ranging from around 2 goats sold by very poor households up to 19 goats sold by better off households. Chickens, which were worth around 9,000 Tsh per hen, were sold most intensively by very poor households, who typically cashed in on around 9 chickens in the reference year. Chickens provided very poor households with almost half of their livestock-based cash income, small as that income may be. Goats and chickens, therefore, are the only source of livestock-based cash for very poor households, whereas the other three wealth groups sell sheep and cattle as well.

Having cattle affords the upper three wealth groups with access not just to a larger pool of money from the sale of live animals, but also cash earned from sales of milk. As noted above, households with milking cows sold 45-55% of the milk they generated in the reference year. This resulted in substantial income for especially middle and better off households, bringing in, on average, 126,500, 433,400, and 1,375,000 Tsh for poor, middle and better off households respectively, or 7%, 11% and 19% of their annual cash income, respectively.

Crop sales – which, in this livelihood zone means maize sales – accounted for 12-22% of total cash income for households in the reference year. In absolute terms, better off households earned around four times more from selling maize than very poor households, and twice as much as middle households. Maize is sold in both seasons, and better off households usually sell their maize for a higher price per unit than poor and very poor households. For example, the *masika* season maize, which is harvested in July and August, was sold by very poor households for around 278 Tsh/kg; better off households sold their maize for 400 Tsh/kg. This is mainly due to the timing of these sales; better off households store their grain and sell it when prices are highest, whereas poorer households usually need to sell right at harvest time, when prices are lowest. The result is that not only do better off households earn more cash from crop sales because they sell more maize, but also because they get significantly more money per unit of maize.

Very poor and poor households, because their cash income from crop and livestock sales is so limited, must turn to other sources of cash to make ends meet. Agricultural labour is the most important alternative source for very poor households, making up just over 40% of their annual cash income in the reference year. For poor households, agricultural labour accounted for around 20% of their annual cash income. Land clearing is an especially arduous task, and poorer households are routinely hired throughout the two months when this work is undertaken, bringing them over half of their agricultural labour income. Planting, weeding and harvesting times also see an increase in the demand for seasonal labour, and these three periods bring in the rest of the

² The average exchange rate from June 2014-May 2015 was 1 USD = 2,000 TZS

cash income in this category. Most of the labour is performed for local middle and better off households, but some people also go to a neighbouring livelihood zone (the *Tanga Maize, Orange and Jackfruit Midlands Livelihood Zone*) to find work.

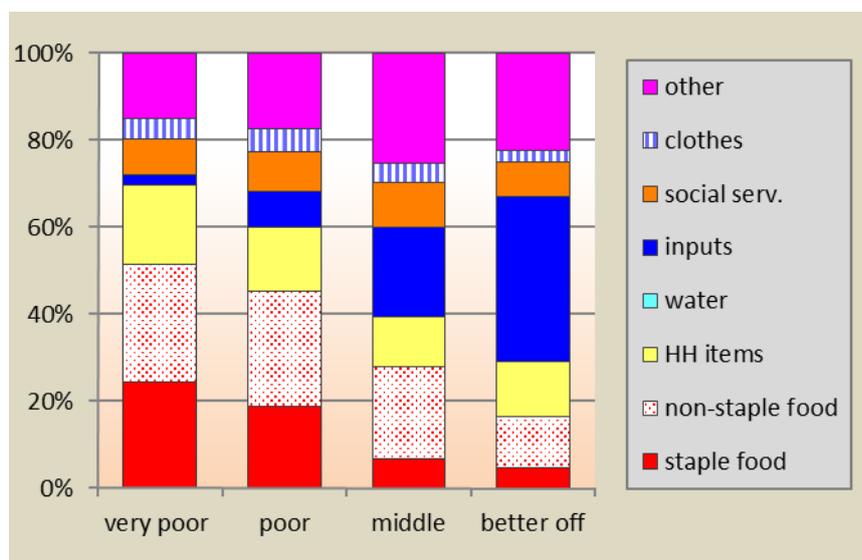
The other source of cash income on the graph above is 'self-employment'. This covers a range of activities that households undertake to try to earn cash at different times of the year. For very poor households this represents around a third of cash income and includes mainly firewood and charcoal sales. For poor households these activities also make up around 30% of cash income, but in addition to firewood and charcoal sales, these households earn cash from pole sales, brick sales and brewing. Middle households also supplement their crop and livestock sales with self-employment activities, but instead of firewood and charcoal, they focus mainly on mining, ox hire, petty trade, prepared food sales and some with motorcycles pursue *boda boda* (motorcycle transport).

An additional point to make is that there is a large spread in income distribution, with those at the upper end of the wealth spectrum generating, on average, seven times more than those at the bottom. Owning livestock is the critical differentiator in this zone, with cattle sales alone for the better off equivalent to more than the total cash income of middle households and over twice the total annual cash income of both very poor and poor household.

Expenditure Patterns

The graph presents expenditure patterns for the reference year June 2014 to May 2015. While absolute expenditure increases with wealth in line with total cash income, the expenditure breakdown by percent in this graph shows the *relative* amount of income spent on different categories.

Households here, as in other areas of Tanzania, need to spend money throughout the year on a range of goods and services. These include: staple and non-staple food, household items, productive inputs, social services like schooling and health, as well as clothing and other miscellaneous items. There are three main points that emerge when delving into the data that supports the graph above.



The graph provides a breakdown of total annual cash expenditure according to category of expenditure

First, relative expenditure on food, both staple and non-staple, decreases as we move up the wealth spectrum. Even in a normal year like the reference year, very poor households must devote large proportion of their annual cash to meeting food needs, with the proportion of annual cash spent on staple foods highest for very poor households. In the reference year, households in the very poor wealth group bought around 44% of their minimum calories in the form of maize grain, the cheapest staple, and poor households bought 36% of their calories in the form of maize grain. This was the equivalent of around 560 kg and 450 kg of maize, respectively. Middle and better off households did not purchase any maize grain at all³. All households also spent money on other foods, such as dried fish, oil, sugar, rice, meat, vegetables and potatoes. These items are more expensive, and thus take up a larger proportion of annual cash for all wealth groups. In absolute terms, better off

³ What appears on the graph as 'staple' purchase for middle and better off households is beans, oil and dried fish.

households spend more than twice as much as very poor households on these other foods, but because their cash income is more than seven times higher, in relative terms their expenditure is lower than poorer households.

Second, in the graph above, the 'hh items' category includes basic household necessities, such as tea, salt, soap, kerosene, grinding services and utensils. Within this category, the two poorer wealth groups spent the most money on payment for grinding (taking up anywhere between 34% and 55% of the household items budget) followed by kerosene and soap. Kerosene and soap combined comprised 30-44% of the inputs budget for poorer households in the reference year. Better off households spent the most on kerosene followed by utensils. On an annual basis, spending on basic household goods, which occurred in weekly or daily incremental outlays, comprised 12-18% of total expenditure, generally decreasing in proportional terms (although increasing in absolute terms) with increasing wealth.

Third, it is striking that the investment in productive inputs increases markedly with wealth group. Very poor households generally devote only 0-5% of their annual budget to productive inputs, either unable or unwilling to spend more. Better off households, on the other hand, invest almost 40% of their annual cash back into their production. In absolute terms, better off households spend over 80 times more than very poor households on productive inputs. 'Inputs' on the expenditure graph above includes the following: livestock drugs, house repair, ploughing, seeds and tools, labour, livestock purchase, and phone credit. Households here generally do not buy pesticides or fertilizers. Of these items, the poorer two wealth groups spent the majority of their money on phone credit, followed by livestock drugs and seeds and tools. Poor households were distinct from very poor households in that they also invested in livestock purchases. Middle households spent the most on labour, spending more than two-thirds of their inputs budget on hiring people to help on their farm. Phone credit was the next most important investment for these households, followed by livestock drugs, livestock purchases and then seeds and tools. Better off households invested large amounts of their budget into buying additional livestock, spending around a third of their inputs cash on this category. The next most important expenditure was labour hire, followed by livestock drugs, ploughing (effectively hiring tractors to help till their land), phone credit and then seeds and tools. The priority of better off households is clear from these numbers, and it is in line with the engine of growth here: the accumulation of cattle.

Households also spent money on education and medical services, which are shown on the graph as 'social services'. Schooling expenses included school fees, uniforms, stationery and transportation, where relevant. On a per capita basis, holding household size constant, absolute spending on school during the reference year increased substantially as you moved up the wealth spectrum. Better off households spent around 1.5 times as much as middle households; middle households spent around 1.5 times as much as poor households; and poor households spent around 1.5 times as much as very poor households. As you move up wealth groups, households are spending more on stationery, books, uniforms and, ultimately, the costs that are associated with secondary school. Very poor households are unlikely to be able to afford to send their children beyond primary school, whereas those at the upper ends of the wealth scale are likely to send them through at least secondary school, and sometimes on to college. With respect to health costs, better off households spent more than six times as much as very poor households on a per capita basis; it is likely that these households sought treatment, when necessary, at facilities other than the village dispensary.

Spending on clothes and other miscellaneous items are the last two categories included here. The 'other' category includes things like beer, tobacco, cigarettes, cosmetics, hair braiding, bicycle service, savings, transportation and festivals. This is discretionary spending that can be reduced or redirected in bad years to buy more essential items if necessary. In both absolute and relative terms, those at the upper end of the wealth spectrum have the most available in this discretionary budget; and because the reference year was a relatively good year, the two bottom wealth groups have more in this budget than they would in a bad year.

Hazards

There are a number of hazards that affect this zone on a regular basis. The first is **livestock disease**, such as Food and Mouth disease (FMD), East Coast fever, trypanosomiasis, affecting cattle, sheep and goats, as well as contagious bovine pleuropneumonia (CBPP) and contagious caprine pleuropneumonia (CCPP) for cattle and goats, respectively. Helminthiasis (worms) is also a common problem, along with New Castle Disease, which can wipe out an entire flock of chickens. The second is **crop pests and diseases**. Stalk borers, which affect maize; and American bollworm, pollen beetles and yellow blight, which affect beans, cause problems throughout the zone almost every year. **Wild animals** pose additional challenges, ruining crops and causing damage in fields on a regular basis.

The main, and most devastating, periodic hazard is **drought**, which leads to severe crop failures, degradation of pastures, drying up of local water sources and spikes in food prices and severe declines in livestock prices.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through a number of strategies. These strategies are detailed for this livelihood zone below:

- All households try to **reduce expenditure** on non-essential or more expensive items first, buying less sugar and rice, for instance, and using that money to buy the cheaper staple – maize – instead, or cutting down on festivals, tobacco and beer.
- All households also try to increase their **livestock sales**. Poorer households have less protection, because they can afford to sell only a few animals and still maintain viable herds. Better off households tend to have larger numbers of excess livestock to draw down on. However, it should be kept in mind that the value of livestock tends to drop in bad years, both because supplies increase as more people try to earn cash in the same way, and because their body condition deteriorates as grazing and water resources decline.
- Very poor and poor households try to increase cash income through **increasing self-employment**, especially making more charcoal and collecting and selling more firewood. This option is limited because as the year worsens, the number of people attempting to increase their income in this way rises, increasing supplies on the market and pushing down prices. The amount of wood available locally is also limited.
- Poorer households also try to find more work, either locally (working in many cases in direct exchange for food) or migrating outside the zone to Maramba, to the *Tanga Maize, Orange and Jackfruit Midlands Livelihood Zone*, where labour demand is higher, or even to Kenya. The expandability of this option is limited in bad years because of the increase in labour supply as more and more people look for work. This puts a downward pressure on wages so that even if people do find more days of work, they may earn less per day, making it hard to substantially increase cash income above normal year levels.

Key Parameters for Monitoring

The key parameters listed in the table below are food and income sources that make a substantial contribution to the household economy in the *Tanga Maize and Cattle Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through on-going monitoring systems or through periodic assessments.

It is also important to monitor the prices of key items on the **expenditure** side, including staple and non-staple food items.

Item	Key Parameter - Quantity	Key Parameter – Price
Crops	<ul style="list-style-type: none"> • Maize - vuli – amount produced • Maize – masika – amount produced 	<ul style="list-style-type: none"> • Maize - vuli – producer price • Maize - masika – producer price
Livestock production	<ul style="list-style-type: none"> • Cow milk – yields • Cattle – herd size • Goats – herd size • Sheep – herd size 	<ul style="list-style-type: none"> • Cow milk – price • Cattle – producer price • Goats – producer price • Sheep – producer price
Other food and cash income	<ul style="list-style-type: none"> • Agricultural labour (land clearing and preparation, planting, weeding) – number of jobs • Agricultural labour (harvesting) – number of jobs • Firewood/charcoal – amount collected • Self-employment – level of activity 	<ul style="list-style-type: none"> • Agricultural wage rates (land clearing and preparation, planting, weeding) • Agricultural labour rates (harvesting) • Firewood/charcoal - prices • Self-employment – return on activities
Expenditure		<ul style="list-style-type: none"> • Maize grain – consumer price • Wheat flour – consumer price • Sugar – consumer price • Oil – consumer price

Programme Implications

The longer-term programme implications suggested below include those that were highlighted by the wealth group interviewees themselves and those made by the assessment team following detailed discussions and observations in the field. All of these suggestions require further detailed feasibility studies.

- 1) Construct dam to create water source for irrigation
- 2) Provide affordable loans for agricultural inputs and livestock purchase
- 3) Improve access to and availability of safe and reliable water supplies for humans and animals
- 4) Improve access to more reliable supplies of drugs and improve health services
- 5) Improve education services, deploying sufficient numbers of primary and secondary school teachers and adequate school facilities
- 6) Provide electric service throughout the zone
- 7) Improve road infrastructure and invest in maintenance of existing roads
- 8) Develop and support the marketing infrastructure to enable the proliferation of reliable and fair markets for crops and livestock
- 9) Provide more affordable access to agricultural and livestock inputs
- 10) Improve communication networks/infrastructure