

Tanzania Livelihood Baseline Profile

Manyoni Maize, Green Gram, Sunflower & Livestock Livelihood Zone (TLZ 23)

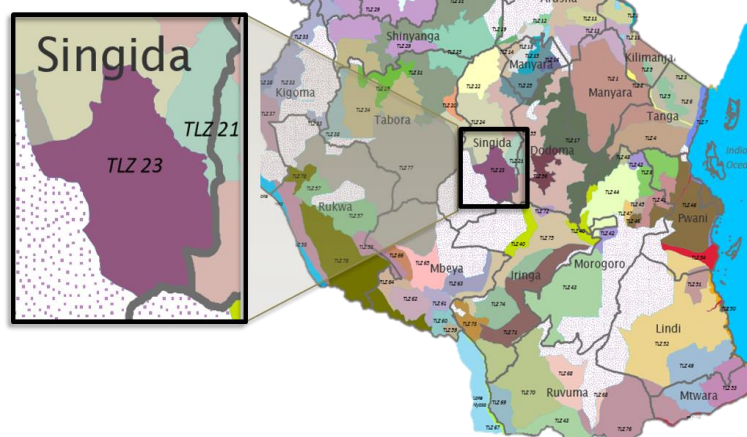
December, 2015¹

Zone Description

The *Manyoni Maize, Green Gram, Sunflower & Livestock Livelihood Zone* is located in Manyoni District, including Isseke, Nkonko, Heka, Chikola and Idodyandole wards. This zone has been the destination for a large number of people from other regions as it has relatively low population pressure (around 10.4 people per km²) and fairly good land fertility. The original inhabitants of this area are from the Gogo and Taturu tribes. Over the past few decades, Nyaturu from Singida District, Sukuma from Shinyanga, Barbaig from Arusha, Nyamwezi from Tabora, Kimbu and Nyachusa from Mbeya and Hehe from Iringa have all made their homes here.

Within the past ten years, an influx of Sukuma people from Shinyanga and Simiyu regions have arrived, bringing with them large herds of livestock.

Manyoni Maize, Green Gram, Sunflower, & Livestock Livelihood Zone



The topography of this highland area is made up of undulating plains covered by a mixed vegetation of bush and grass-covered savannah which is interrupted by large tracts of agricultural land near settlements. There is one major seasonal river – the Kizigo – along with smaller rivers, such as the Kijela and Kisalala. Large baobab trees are found throughout the zone, offering a source of wild food that is exploited especially by poorer households. Temperatures are moderate, ranging from highs of 22 to 24 C° in November to lows of 19 C° in July. Most of the zone falls between 1,100 and 1,300 metres above sea level. Relatively fertile loam soils are found in the higher altitude areas, and black clay soils are dominant in the lower areas, and especially along river valleys. Rainfall averages 500– 650 mm per year, but inter-annual fluctuations are the norm. Droughts are a common occurrence, but in years of good rainfall, agricultural production does well.

Crop and livestock production are the two economic drivers in this livelihood zone. Land is plentiful and – when rains are good - agricultural production is limited not by the amount of land people own, but by the labour they have available and the production techniques they use. Rain-fed agriculture is the norm, and maize, green grams, groundnuts, sesame, and sunflower are the main crops grown. Poorer households depend on hand hoes, whereas middle and better off households use ox ploughs to cultivate their land. This allows better off households to cultivate areas up to fifteen times larger than the poorest households. Both men and women are engaged in all aspects of agricultural production. Most households use their own family labour for farm work but for those who can afford to pay, hiring labour is a common way to increase the area under cultivation by the household. Farmers do not apply chemical fertiliser, however some buy improved

¹ Fieldwork for the current profile was undertaken in October 2015. The information presented in this profile refers to the reference year, which was the consumption year that started in March 2014 and ended in February 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 years (i.e. until 2020). All prices referred to in the document are for the reference year.

maize, sunflower and sesame (*sim sim*) seeds. African bollworm is a common threat to the maize crop and white scale insects can substantially reduce green gram and sesame harvests. Local methods are used for combatting these pests, including local herbs and ashes along with applications of animal dung.

Livestock form a substantial part of the productive asset base for households in this zone, making an even bigger contribution to cash income for better off households than crop production in most years. Cattle and goats are kept along with chickens. Oxen are used for traction; cows are used for milk, and bulls and goats are sold to generate cash. Chickens are also sold throughout the year to bring in small amounts of income. All livestock graze and/or browse freely and water sources for livestock include water pump points and shallow wells dug in seasonal river beds. In some villages households purchase water for livestock during the dry season. Men are responsible for taking care of cattle and goats, whereas women manage the chicken flock.

In this part of Tanzania, where rainfall is unreliable, having livestock helps households reduce their risks in bad years, and it helps them consolidate gains when rains are good. Not all households benefit from the contributions livestock make, however. Only those in the top two wealth groups own cattle (including oxen) and goats, which means the poorer two wealth groups lack access to animal traction to cultivate their fields, animal manure to fertilise their fields, milk for both consumption and sale, occasional meat from animals that are slaughtered, and substantial cash income from the sale of livestock on the hoof. Thus, even though land is not a particular constraint in this livelihood zone, and one could potentially move up the wealth scale by expanding the area one cultivates, doing this without the extra cash and labour provided by livestock, and the buffer they offer in bad years, is difficult.

Services in this zone are quite limited. Serious water shortages are common in the dry season, and payment for water is common. In the rainy season water is obtained from wind-mill generated water pumps, shallow wells dug in seasonal river beds, and rain water is also collected in cisterns. Sanitation facilities are poor, with all households dependent on pit latrines. Hospitals are only found in the regional town, although local health dispensaries provide some access to medicine and there are some health clinics in ward towns. In general, though, it is not easy to get access to good quality medical care. Primary schools are found in all villages, and secondary schools are also widely available. However, the costs of attending secondary school (both direct costs, such as uniforms, stationery, and transportation and opportunity costs) are too high for most poorer households, whose children drop out before secondary school is completed. There is no electricity in this zone, and households depend on kerosene and battery-operated torches or – in the upper wealth groups – solar lanterns for light. Most households have mobile phones, although the network is not reliable everywhere. There are no formal savings schemes or sources of credit and no NGOs operating here.

Markets

The transportation infrastructure in this zone is not well developed, however decent gravel roads link most wards and there is a primary tarmac road connecting Manyoni to Dodoma, which is well-connected to Dar es Salaam and a number of other regional centres. People travel by foot, bicycle or by the widely-available *boda boda* (motorcycle taxi) from village to village. Traders are generally able to reach most villages in the zone at harvest time by small vehicle or truck. Some food and non-food goods are also purchased from urban centres for re-sale in village kiosks by wealthier households.

Households in this zone sell a number of crops as well as livestock. All crops are sold at the farm gate, bought up by traders who come to villages to buy directly from farmers and then transport the goods to ward, district or regional markets. Maize is sold from June to September, transported from local markets to Manyoni Town and then on to Dodoma, where it may get sold on to Tabora or Shinyanga. Some surplus maize is retained by middle and better off households; they hold on to these stocks until January and February when local demand for maize (and corresponding prices) are highest. This is when poorer households have run out of their stocks and need to buy food. Green grams, the most important cash crop in this zone, are sold from April to June. The terminal market for green grams is India; traders purchase local surpluses at the farm gate and then

transport them to Manyoni, where they are loaded on to trucks and sent to Dar es Salaam and then shipped to India from the Dar es Salaam port. Sesame, sold from June to September, makes the same journey. Sunflower, another major cash crop, is also sold from June to September, bought up by local traders and transported to Manyoni, where it is processed into oil and then sold to Dodoma, Morogoro, Dar es Salaam, Arusha, Kilimanjaro, and Mwanza. Leftover sunflower cakes are sold to Arusha and Kilimanjaro as livestock feed.

Cattle and goats are sold throughout the year to help households meet cash needs. Peak sales occur from May to September, when livestock are in the best condition and prices are highest. September is also a time when households need to put together money to pay for seeds, and to hire labourers for land clearing and preparation. Households sell one or two animals at a time at the local market; traders collect and transport these animals to Manyoni and then on to Dodoma and Dar es Salaam. The urban demand for meat drives the livestock trade, and Dar es Salaam is the main terminal market for these transactions, although regional towns also buy up a share of the available livestock. Chickens provide small amounts of cash to households in all wealth groups; these are sold throughout the year in local markets, with sales peaking at times when expenditure requirements are high, such as June and December, when school fees need to be paid; or when unexpected medical costs arise.

Even in good production years, poorer households run out of food from their own harvests by December or January. They need to buy food at this time to cover their staple food needs. This maize is sourced from local households who produce a surplus (those in the upper wealth groups) and it also comes from Mbeya and Dodoma via the Manyoni market. The external supply of maize becomes more important in bad years, when local stocks, even for better off households, dry up quickly. Rice, a preferred 'luxury' staple is purchased by better off households throughout the year, and especially from June to September when they have extra money from their crop sales. This rice comes from rice-growing areas in Dodoma, Tabora, Shinyanga and Manyoni, like Chikuyu, Kintinku, and Igunga, brought into Manyoni by traders and then distributed to local village markets throughout the zone. Non-food essentials, like salt, soap, batteries and kerosene, are sold in local kiosks, often owned by better off farmers.

Charcoal is sold by poorer households to raise cash for food and other essential goods. The season for charcoal production is August through to December. There is relatively high demand for charcoal in towns like Manyoni and Dodoma. Urban demand for building materials, like building poles and bricks, also generates income for poorer households in this zone.

Seasonal labour opportunities here are almost entirely local, driven by the demand for agricultural labour on the larger farms. It was estimated that in the reference year, 90% of casual labour was found within the zone. Both men and women take on paid agricultural work. There are three peak periods of labour demand: September to December for land clearing, land preparation and planting; January and February for weeding; and April to June for harvesting. A very small number of people also find work outside the zone, but most people do not travel outside the zone for work unless it is a bad year. In bad years the demand for local agricultural labour falls and people need to find work in towns like Manyoni, Singida and Ikungi. The period for migratory work during bad years is December to January.

Timeline and Reference Year

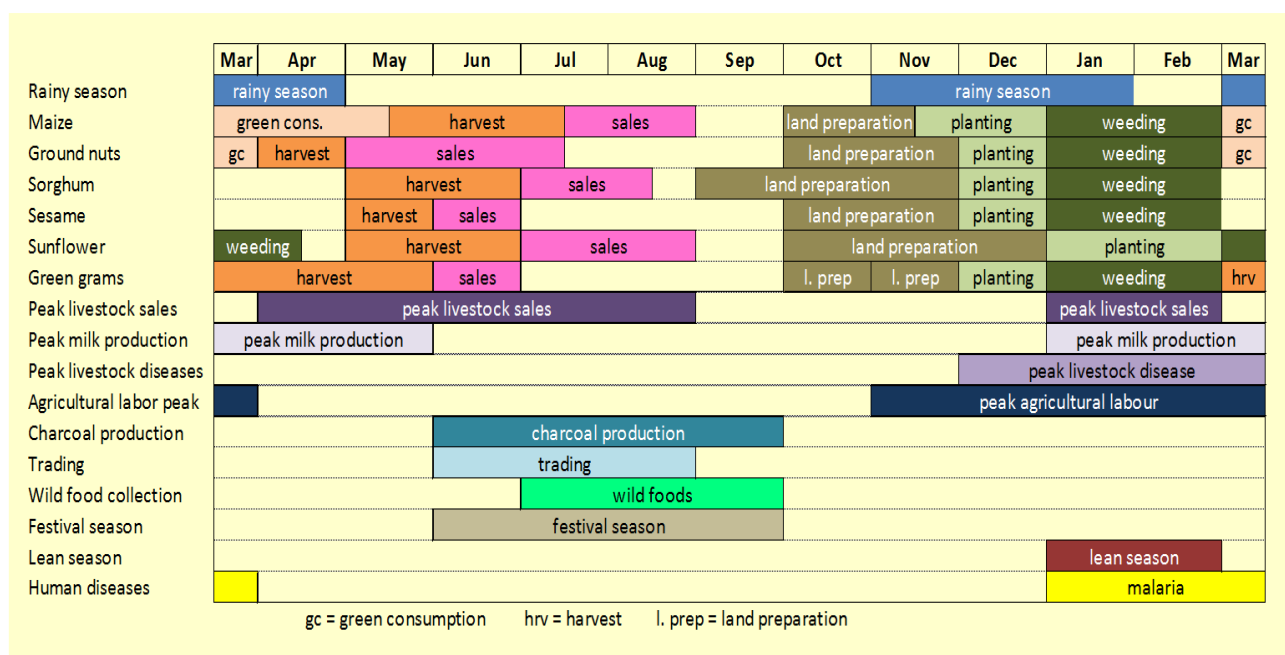
The baseline assessment refers to a very specific time period called the reference year. In *Manyoni Maize, Green Gram, Sunflower & Livestock Livelihood Zone* the reference year covered the *consumption* period from March 2014 to February 2015. During community leader interviews, informants were asked to rank the last five years 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 planting season in November/December and ends with the harvest in March-June 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 reference year was the best of the past five years, with average

to above average rainfall. Furthermore, the reference year followed another average year, which allowed people to recover from the prior two bad years. The baseline information presented in this profile, therefore, provides a view into how households in this livelihood zone make ends meet in an average to above average year, drawing on a normal range of options.

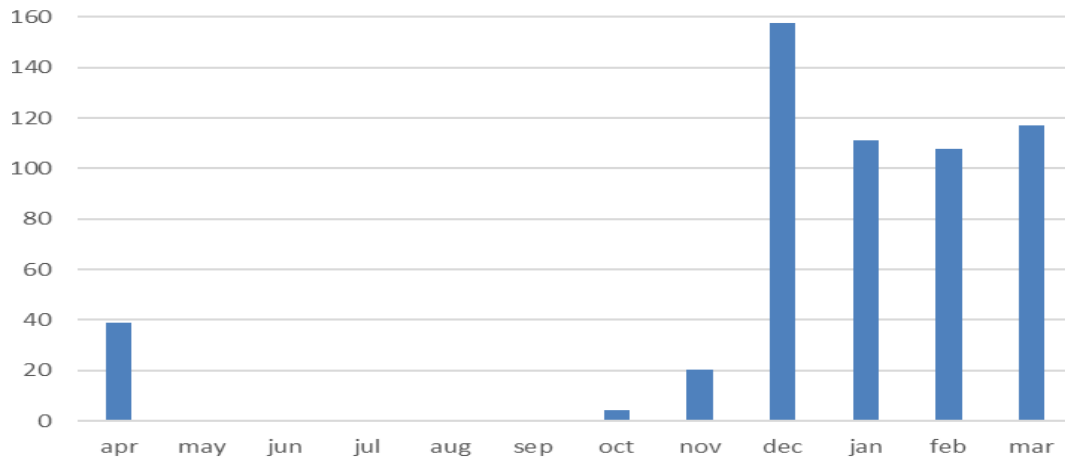
| Production Year | Rank | Critical Events |
|-----------------|------|---|
| 2014-2015 | 1 | Drought conditions with very poor harvest, poor pasture and high staple food prices |
| 2013-2014 | 3.5 | Average to above average rainfall, average crop yields, average crop prices. |
| 2012-2013 | 3 | Average rainfall, average harvest, high crop prices. |
| 2011-2012 | 2 | Poor rainfall, poor harvest and high staple food prices. In response, people increased charcoal production, sold more livestock, collected more wild foods, sought work locally and outside the zone, and relied on food aid. |
| 2010-2011 | 1 | Poor rainfall, poor harvest and high staple food prices. In response, people increased charcoal production, sold more livestock, collected more wild foods, sought work locally and outside the zone, and relied on food aid. |

5 = an excellent season for household food security (e.g. due to good rains, good prices, good crop yields, etc)
 4 = a good season or above average season for household food security
 3 = an average season in terms of household food security
 2 = a below average season for household food security
 1 = a poor season (e.g. due to drought, flooding, livestock disease, pest attack) for household food security

Seasonal Calendar for Reference Year



The graph to the right shows average monthly rainfall (mm) in Dodoma Region based on a recent 10-year period (2005 – 2014). Source: TZ Meteorology Department







There is one long rainy season in this livelihood zone, starting in November and lasting until April, although this is typically interrupted by a month-long dry spell in February. Land preparation (clearing and ploughing), by hand for poorer households and with animal traction for better off households, starts in September and lasts through November. Most planting takes place in December, once the rains are established. Maize is intercropped with cowpeas, groundnuts and sorghum. Green grams are usually grown as a single stand, although may be intercropped on smaller fields. Sesame and sunflower are also grown as single stands. Once crops germinate and begin to grow, weeding is vital. This takes place in January and February and typically involves a lot of hired labour on the bigger farms. Maize and groundnuts are eaten “green” in March and April. The main harvest period starts in March with green grams, followed by groundnuts in April, followed by sorghum, sesame and sunflower in May. Maize is harvested in June. All crops are sold during the months following their respective harvests.

The post-harvest period is when the festival season occurs, since there is more cash in the local economy and people can afford to take some time off after the heavy demands of the agricultural season. Trading, much of which revolves around transporting and re-selling crops, is highest at this time as well. Poorer households take advantage of the post-harvest dry season to increase charcoal production and collect wild foods for sale in an effort to put money together for the coming agricultural season and to pay back any loans accrued in the past year.

Livestock sales occur throughout the year, but peak at different points. From April to August, when livestock body condition is good and prices are high, better off households sell livestock to save up money for expenses such as agricultural inputs like seeds and labour that will come later in the year. In June and December livestock sales also peak because households need cash to pay for school fees in these months. Poorer households sell chickens in January and February because they need cash at this time to cover their food needs. For better off households, who sell milk as well as livestock and crops, milk sales are highest from January through May.

The April, May and June harvest covers the food needs of poorer households for 5-6 months in an average year. By December or January, the stocks from the previous year’s harvest are gone for these households and food purchases rise, as do food prices. This is also considered the “lean” season, a time when people are reliant on food purchases just as prices are highest. This period - January and February - coincides with a point in the agricultural cycle when demand for weeding labour is high, so to earn cash, poorer households seek employment on better off households’ farms. This means that poorer households are unable to fully care for their own farms and yields suffer as a result. The lean season is also when the incidence of malaria peaks. This is a particularly bad time of year to be sick since labour demands are high and every household member’s efforts count towards making ends meet.

Wealth Breakdown

| | | Wealth Groups Characteristics | | | | | |
|----------------------|---|-------------------------------|-----------------|-------------------------|--|------------------|---|
| | | HH size | Number of wives | Land cultivated (acres) | Livestock | Poultry | Other |
| Very poor |  | 5 - 7 | 1 | 1 - 3 | none | 0 - 10 chickens | 0-1 cell phones; 0-1 bicycle |
| Poor |  | 5 - 7 | 1 | 2 - 4 | none | 5 - 10 chickens | 1 cell phone; 1 bicycle |
| Middle |  | 6 - 8 | 1 | 5 - 10 | 0-8 oxen; 0-15 cattle; 5-20 goats; 0-5 sheep | 10 - 20 chickens | 1-2 cell phone; 1 bicycle; 0 - 2 ox plows |
| Better off |  | 8 - 10 | 1 - 2 | 10 - 15 | 4-12 oxen; 20 - 80 cattle; 20-40 goats; 0-8 sheep; 0-4 donkeys | 15 - 25 chickens | 2 cell phones; 1 bicycle; 1 - 2 ox plows |
| 0% 20% 40% | | % of households | | | | | |

Note : The percentage of household figures represent the mid-point of a range.

In the table above, information about wealth and associated productive assets is presented; these assets form the basis of local livelihoods and help to explain differences in the way people obtain access to food and cash income. The main determinant of wealth in this livelihood zone is how much land a household is able to cultivate. This is partly regulated by the amount of land owned and partly by the capacity of the household to cultivate and manage their land. This capacity is determined by how much labour the household has, how much it can hire, and whether it has plough oxen and ploughs. Better off households cultivate as much as fifteen times more than very poor households because they own plough oxen and they have the cash to hire seasonal labourers to work on their land.

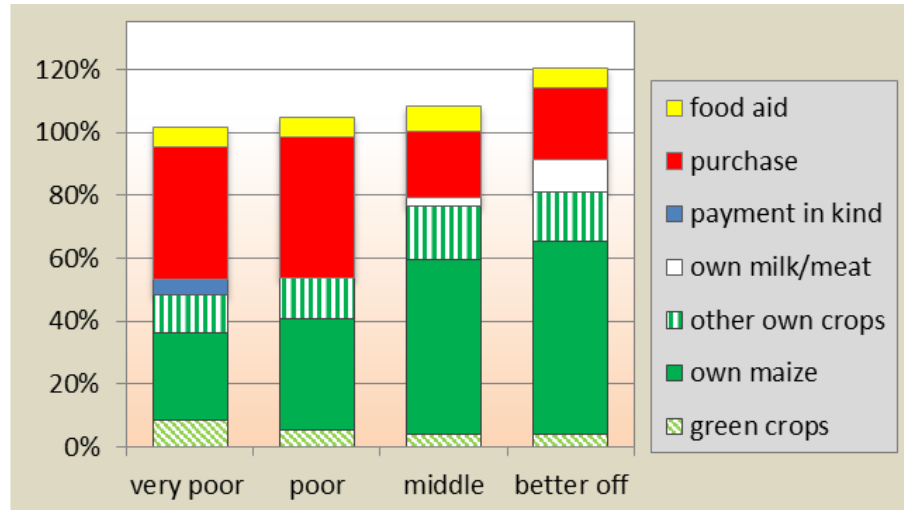
A secondary determinant of wealth and status is livestock ownership. The more livestock a household owns, the more income it can generate, and the more food it produces (in the form of milk). Cattle, goats, very small numbers of sheep are owned by the upper two wealth groups; the bottom two wealth groups own only chickens. Cattle are used for milk, some meat, and to generate cash income through sales of milk and live animals. Oxen are also critical for land cultivation, and these are owned by better off and middle households. The importance of livestock is reflected in the charts presented in the 'Sources of Cash Income' section, below. For better off households, livestock-related income is more important than crop-related income.

An important distinction between poor and middle households is whether the household hires labour, or is hired by others to carry out seasonal labour activities. Poorer households provide the labour that better off and middle households need to make their land as productive as it can be. Working on the farms of others helps poorer households secure enough cash income to make ends meet. This means that they are often not able to time the labour inputs into their own land in an ideal way, resulting in lower yields on less land.

There is a fairly even distribution of wealth in this zone. The very poor (25%) and the poor (30%) together comprise just over half of the household population. Middle (30%) and better off (15%) households combined represent just under half the population. However, as middle and better off households are slightly larger on average (7-9 people) than the very poor and poor households (6 people), the proportion of *people* (as opposed to households) in the top half would be more or less the same as the bottom half.

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 March 2014 to February 2015. March represents the start of the consumption year because it is when people begin to consume green crops 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.



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.

Households here obtain their food in four ways: they grow it or

produce it themselves (own crops and milk/meat); they purchase it from the market; they receive it in exchange for work they do ('payment in kind'); and/or they receive it as food aid.

For all but the very poor wealth group, the crops people grew themselves accounted for the majority of the food they consumed in the reference year. Maize is the most important crop, and it contributed 35-65% of households' required calories; this included the maize that was eaten green, or fresh, in the months before the main harvest. Poorer households consume more of their maize green than better off households because they run out of their previous year's harvest sooner and are less able to continue buying food to fill the gap; when the green harvest becomes available, they take fuller advantage of the relief it brings. This also means they have less to harvest and store for the coming year, helping contribute to the vicious cycle that creates their impoverishment. In addition to maize, all households grow and consume sorghum, groundnuts and sunflower, and middle and better off households also consume some of their green grams. These other crops made up 12-17% of minimum calorie needs in the reference year. Just as importantly, the groundnuts and sunflower provided an important source of protein and fat, otherwise missing from the maize-heavy diet of poorer households.

Food purchased from the market accounted for 21-45% of household annual calorie requirements in the reference year, making it the second most important source of food for all households. The relative importance of purchased food decreases with wealth because the richer you are, the less you need to buy food and the more you rely on your own crop production to meet your food needs. This reality is reflected in the balance between staple and non-staple food purchases shown in the table

Breakdown of purchased food

| | Very poor | Poor | Middle | Better Off |
|----------------------------|-----------|------|--------|------------|
| staple purchase | 35% | 34% | 7% | 10% |
| non-staple purchase | 7% | 11% | 15% | 14% |

The figures are a percentage of minimum food requirements taken as an average food energy intake of 2100 kcals per person per day.

to the right. Very poor and poor households bought over a third of their staple food needs in the reference year, filling a significant gap in calories, whereas middle and better off households bought only 7-10% of their staple calories. In addition, while very poor and poor households purchased the cheapest staple – maize grain – middle and better off households bought rice and wheat flour, which costs more than three times as much. Non-staple purchases include beans, sugar and oil for poorer households and beans, sugar, meat, oil and dried fish for the upper two wealth groups. In fact, middle and better off households buy food to diversify their diets rather than to meet a production deficit. If these upper two wealth groups had kept everything they produced during the reference year for consumption, they would have been able to cover 177-183% of their minimum calorie requirements. Very poor households, on the other hand, would have still been left with a calorie deficit

of over 20% of minimum needs. These poorer households purchase food because they need to fill an actual food gap; they cannot cover all their calorie requirements otherwise.

For the poorest wealth groups, ‘payment in kind’ is an additional source of food. These households get paid in both food and cash for local agricultural work, which they undertake for middle and better off households. Land clearing and weeding may be paid in food, with an acre of weeding bringing in 36 kg of maize, and other activities garnering half of that. Payment in cash is more common, however, and this activity accounted for only around 5% of very poor households’ minimum calorie requirements in the reference year.

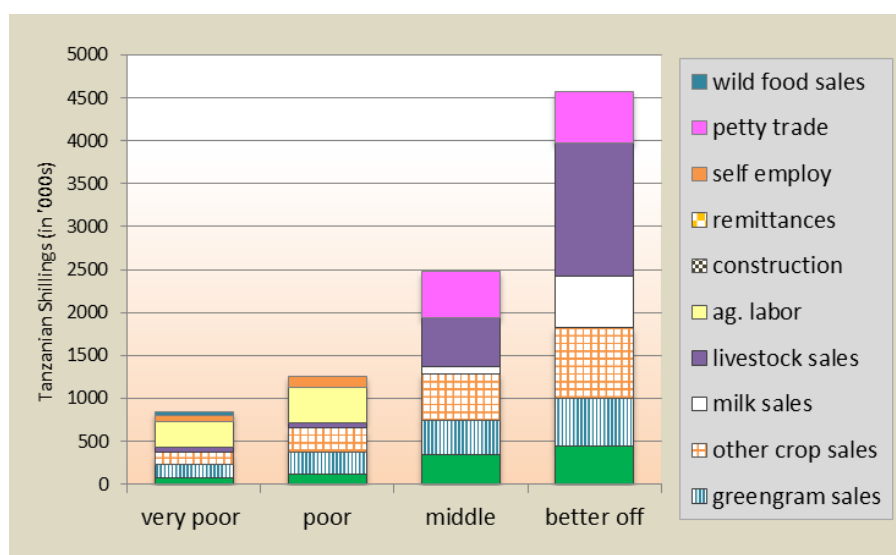
All wealth groups also benefitted from the school feeding program in the reference year, a service provided by the UN World Food Programme. Poorer households tend to have 2 – 3 children attending school and middle and better off households have around 4 children in school. All children attending school received one meal a day during the school term, helping alleviate food stress at home. This was especially important for the bottom two wealth groups, who would not have met their minimum food needs otherwise. It is important to note that this distribution ended as of 2015, which raises the question of how these poorer households will fill this gap.

Sources of Cash Income

Crop production and livestock production are the two main drivers of the local economy, and this is made clear in the graph to the right, which shows that these two income sources combined provided the vast majority of income for middle and better off households in the reference year. For all wealth groups, crop sales accounted for 40% to just over 50% of cash income. Livestock-related income accounted for 40-60% of the annual inflows for the top two groups but made up less than 10% of income for poorer households.

Taking a closer look at crop sales, we see that green gram sales are particularly crucial, comprising 30-40% of the

annual cash earned from crop sales and 10-20% of total annual cash income across the board. This is not because households grow an especially large amount of green gram, but rather because the price for this pulse is so much higher than other crops. For example, groundnuts were sold at 4,000 – 8,000 TZS/bag during the reference year whereas green grams were sold at 22,500 – 35,000 TZS/bag, over four times more. Green grams are particularly beneficial for poorer households because they can earn so much more from even a small sale of these crops than from most of their other limited productive assets. The other crops sold by all wealth groups in the reference year included maize, sorghum, sunflower, and sesame. Of these, sesame – another relatively high value crop - brought in the most money for the three bottom wealth groups and maize brought in the most



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 | 660,000 – 1,000,000 | 1,000,000 – 2,000,000 | 2,000,000 – 3,200,000 | 3,200,000 – 6,000,000 |

² The average exchange rate from March 2014-February 2015 was 1 USD = 1,675 TZS

for better off households who were able to cash in on their larger fields by selling off their large surpluses. Middle and better off households also sell their maize and green grams at a higher price than poorer households are able to. There are a number of reasons for this: they can transport their produce to markets where prices are higher; they have higher quality produce because they time their inputs most effectively; and they are able to store their crops and time their sales to correspond to when prices are highest. It is important to keep in mind that the reference year was a relatively good year, which means that the income from crop sales recorded here shows us the upper end of what we can expect in this livelihood zone. In a bad year these income levels – and certainly the income from maize – will be lower than what is shown here. Thus, although this is an agricultural livelihood zone, even in a relatively good year none of the wealth groups derives more than 55% of its annual cash income from crop sales.

Direct sales of livestock generated 5-35% of the annual cash income in the reference year. Better off households obtained the most cash from livestock-related income sources, much of this from milk sales. In fact, milk sales alone accounted for 10-15% of the annual cash income for households in this top wealth group. Milk sales for all other wealth groups were insignificant. A typical better off household had around 11 cows milking for four and half months in the reference year (from April to August), and produced a total of 2,230 litres of milk, just under half of which was sold. At 500 TZS/litre, this generated a significant amount of cash income. In addition to milk, middle and better off households sold cattle and goats, with cattle sales alone bringing in almost a third of the annual cash income for better off households and around 15% of annual cash income for middle households. A small number of goats were also sold, but because each goat is worth only around 1/10th of the value of a cow, the income from this source is more limited. The higher reliance on livestock sales amongst the top wealth groups is due in part to an in-migration of Sukuma people into this zone from Shinyanga and Simiyu regions. They brought with them large herds of cattle which, now that they have settled, help them to earn higher incomes than many of the previous residents. Many of these new immigrants are found in the middle and better off wealth groups.

To supplement the cash income from crop sales and livestock sales, middle and better off households engage in petty trade. Better off households may buy up local harvests and re-sell at a higher price; or they own small kiosks, where they sell a range of household items, such as batteries, stationery, salt, and sugar. Cash earned from petty trade accounted for almost 30% of the annual cash income of better off households and 20% of the annual income of middle households.

The poorer two wealth groups do not sell milk, nor do they sell goats or cattle; the only livestock income they have comes from selling chickens. In the reference year these households sold around 7 chickens, bringing in approximately 49,000 TZS, 30 times less than better off households earned from livestock sales and around 11 times less than middle households. Agricultural labour and self-employment help make up for a paucity of livestock for poorer households, and also for their inability to effectively engage in petty trade, which requires a means of transporting goods in bulk and extra cash. In the reference year poorer households typically had one to two people engaged in working in the fields of middle or better off households during the agricultural season. Both wealth groups provide labour for land clearing, weeding and harvesting; very poor households also send people to help with land preparation and planting. Pre-harvest labour contributed around 217,000 TZS for the typical very poor household and 290,500 TZS for the typical poor household in the reference year. Harvest labour provided an additional 90,000 and 120,000 TZS, respectively. When the demand for agricultural labour slows, poorer households find ways to earn cash on their own, through 'self-employment' activities. For very poor households this may mean selling firewood and charcoal, brewing beer and small-scale petty trade, such as collecting and re-selling water and making and selling prepared foods. Poor households do all of these things as well as selling building poles and bricks. Manyoni Town is the main source of demand for charcoal and building supplies. Because poorer households are so dependent on the income earned from their own labour, it is especially important for them to stay healthy and productive. A sick member of the family can quickly turn into an income deficit. It also means that changes in wage rates have a large impact on the welfare of these households.

Very poor households also derived a very small amount of cash in the reference year from selling wild foods, especially baobab fruits, which are plentiful in this zone from June to September.

Expenditure Patterns

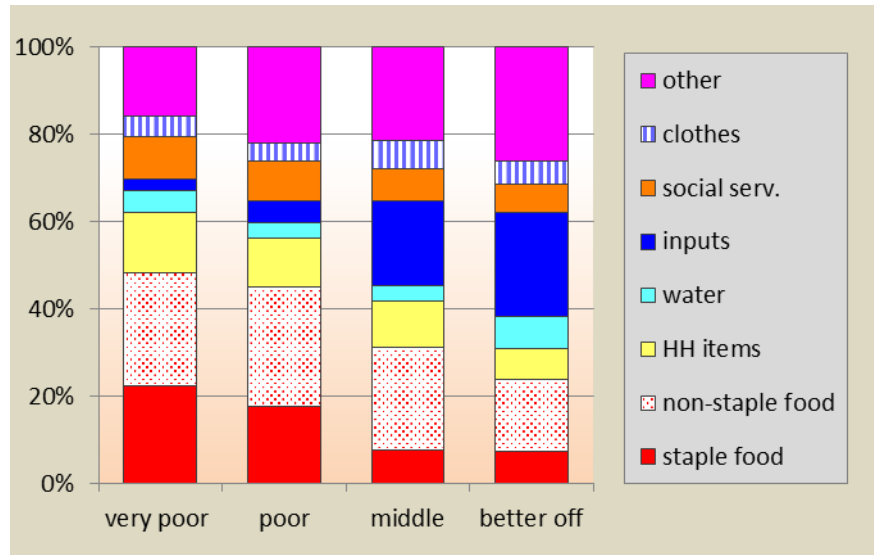
The graph presents expenditure patterns for the reference year March 2014 to February 2015. While absolute expenditure increases with wealth in line with total cash income, the expenditure breakdown by percent in this graph shows the relative amount of income spent on different categories.

Households in this livelihood zone need to spend money on a range of essential items and services throughout the year. These include food (both staple and non-staple), household items, agricultural inputs, social

services, like schooling and health, along with clothing and other miscellaneous items. What the graph above shows is that, with the limited cash resources that very poor and poor households have, they must devote a larger proportion of their annual cash to meeting immediate food needs; whereas middle and better off households invest more of their annual cash towards inputs that allow them to generate as much cash as they can from their productive assets – land and livestock.

In the reference year, the poorer two wealth groups bought over a third of their minimum calories in the form of staple food, in particular maize grain, which is the cheapest local staple. Without this purchased grain, they would have been left with a significant deficit, even though the reference year had relatively good production conditions. Middle and better off households also purchased staple food, but they did so to diversify their food profile, not to fill a real gap, buying rice and wheat to supplement their home-grown maize. Middle and better off households spend a good deal more money on non-staple foods, purchasing significant quantities of beans, sugar, meat, oil, vegetables and dried fish. Poorer households buy some of these expensive non-staple foods as well, but not in quantities that make a meaningful contribution to their diets. Overall, very poor households spent around 25% of their total cash income on non-staple foods but derived only 7% of their annual calories from them. Better off households, on the other hand, spent more money on non-staple food, but because their absolute level of cash income is so much higher, the relative proportion of cash spent on this category is equivalent to only around 15% of annual income; nevertheless, even though they spent less in relative terms than poor households, they derived more value, meeting 15% of their required annual calories with non-staple foods. In effect, this means that people on the upper end of the wealth spectrum use their money to acquire a more diverse and nutritious diet.

Spending on inputs also tells us something about the priorities of better off households and the constraints faced by poorer households. Better off households devote almost a quarter of their annual income to investments in agriculture and livestock production, whereas very poor households devote only 3% of their cash to this category. 'Inputs' includes spending on animal drugs, water for animals, ploughing, seeds, tools, phone credit and labour hire. Poorer households spend money on seeds, tools and phone credit and ploughing, although many very poor households do not pay for ploughing. With no livestock to invest in and much smaller plots, these households are able to minimize their inputs; this also means they minimize their returns. Spending on phone credit takes up the largest proportion of the inputs budget for the two poorer wealth groups. Better off households spend most of their inputs budget on hiring poorer household members to work on their farms. A typical very poor household earns around 307,000 TZS a year from agricultural labour; better off households spend around 750,000 TZS a year on labour, which means that every better off households supports at least



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

two very poor households. Better off households also spent a large amount on water for their animals in the reference year, devoting 20% of their inputs budget to this expense. Manyoni's chronic water shortage results in an annual requirement for these households to purchase water from boreholes in the dry season, when the few seasonal rivers and surface water sources dry up. Some boreholes are as far as 20 kilometres away from villages.

Basic household goods, such as tea, salt, soap, utensils, batteries, kerosene, and grinding services are included in the 'hh items' category. Poorer households spent the most money (within this category) on payment for grinding. Better off households spent the most on soap. Taken as a whole, spending on basic household goods comprised 8-11% of households' annual expenditure. In this zone, it was also common for households to pay for water for home use during 6-7 months of the year, taking up another 3-7% of annual cash income.

The 'social services' category includes what households spent on education and medical services. School fees, uniforms, stationery and transportation to secondary schools all place a burden on local households. Poorer households typically have 2-3 children in school; middle and better off households have around 4 children in school. Poorer households do not tend to send their children past primary school, whereas those at the upper ends of the wealth scale are likely to send them through secondary school and even on to tertiary levels. The costs of secondary school are prohibitive for poorer households, including things like boarding and more expensive uniforms and supplies.

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, transportation and festivals. This is discretionary spending that can be reduced or redirected in bad years to buy more essential items if necessary.

Hazards

There are two chronic hazards for all wealth groups in this zone: **crop pests and diseases** and **livestock diseases**. **Crop pests**, such as *quelea quelea* birds and Stalk Borer cause significant destruction on a regular basis. Maize streak regularly reduces the maize harvest. East Coast Fever, *Anaplasmosis* and *Babesiosis* plague cattle and New Castle Disease can wipe out an entire flock of chickens. Livestock diseases cause significant income losses in a zone where livestock income is critically important.

One of the most devastating, periodic hazards is **drought**, which leads to severe crop failures, degradation of pastures, drying up of local water sources and spikes in food prices. These can occur as frequently as once every three years. **Floods** are another natural hazard that also occur once every three years. Floods damage crops, homes and infrastructure, causing prices to rise and blocking people from accessing markets. There can be positive after-effects from flooding, however, if residual moisture in low-lying areas offers people the opportunity to re-plant; and pastures can be renewed in areas where flood waters recede.

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 and beer.
- Poorer households increase their **collection/production and sale of firewood and charcoal**, although there are limits on the effectiveness of this strategy; with more supplies of firewood and charcoal on the market,

prices drop, so the increased effort is not rewarded with a proportional pay out. There are also serious environmental concerns related to this strategy.

- Very poor and poor households try to increase cash income through **finding more local agricultural work**. The expandability of this option is also limited in bad years because of the increase in labour supply as more and more people look for work, which puts a downward pressure on wages. So 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.
- The lower two wealth groups also increase their collection and sale of wild food, especially baobab fruit.
- The upper two wealth groups try to increase their cash income through **selling more livestock**. However, 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.
- Middle and better off households also try to **increase their income from petty trade**. Better off households with kiosks may have some luck with this strategy since they tend to operate in arenas where the prices of the goods they are selling increase in bad years, however the capacity of households to pay for these goods also decreases, which means that effective demand is limited, and the volume of purchases declines.

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 *Manyoni Maize, Green gram, Sunflower & Livestock 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"> • Green maize – amount produced • Maize – amount produced • Sorghum – amount produced • Green grams – amount produced • Groundnuts – amount produced • Sunflower – amount produced • Sesame – amount produced • | <ul style="list-style-type: none"> • Beans – producer price • Maize – producer price • Green grams – producer price • Groundnuts – producer price • Sunflower – producer price • Sesame – producer price |
| Livestock production | <ul style="list-style-type: none"> • Cow milk – yields • Cattle – herd size • Goats – herd size • Chickens – herd size | <ul style="list-style-type: none"> • Cow milk – price • Cattle – producer price • Goats – producer price • Chickens – 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 • Demand for charcoal, firewood, bricks, beer, building poles | <ul style="list-style-type: none"> • Agricultural wage rates (land clearing and preparation, planting, weeding) • Agricultural labour rates (harvesting) • Prices of charcoal, firewood, bricks, beer, building poles |
| Expenditure | | <ul style="list-style-type: none"> • Maize grain – consumer price • Rice – consumer price |

| | | |
|--|--|--------------------------|
| | | • Sugar – 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.

The various wealth groups prioritised their development recommendations in different order (see the table below). However, there were some common themes, and the priorities mentioned by at least two wealth groups are listed below:

- 1) Improve access to and availability of water
- 2) Implement irrigation projects to increase agricultural production
- 3) Improve education services, building more schools and training teachers
- 4) Improve access to health services and improve the quality of health services
- 5) Provide extension services to train farmers
- 6) Demarcate areas for grazing to reduce likelihood of conflict
- 7) Improve market opportunities for crops
- 8) Provide electricity

| Very poor | Poor | Middle | Better off |
|----------------------|----------------------|---|---|
| Water service | Water service | Water service | Water service |
| Agric inputs credits | Agric inputs credits | Market for crops | Market for crops |
| Health service | Health service | Communication networks | Demarcating grazing areas (to avoid conflict) |
| Irrigation projects | Irrigation projects | Demarcating grazing areas (to avoid conflict) | Agricultural equipment loans |
| Education services | Education services | Electricity service | Electricity service |
| Extension services | Extension services | Irrigation projects | Irrigation projects |