

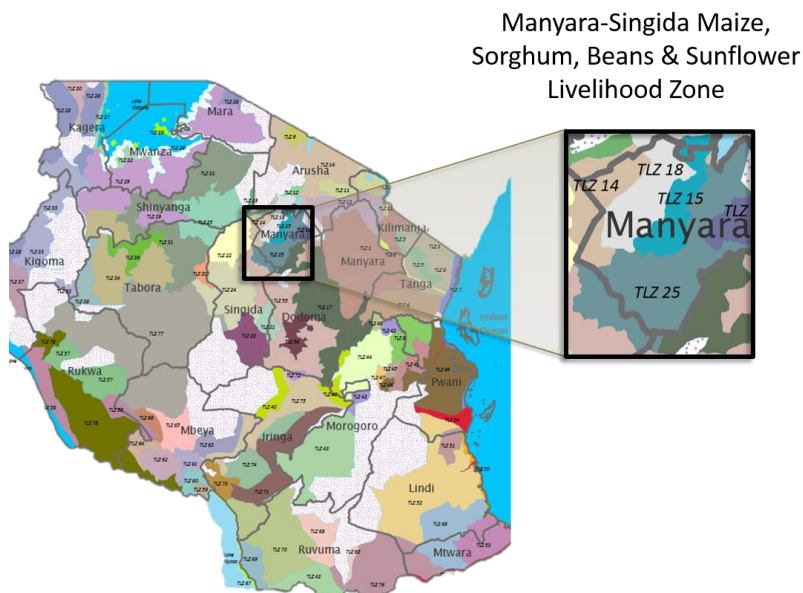
Tanzania Livelihood Baseline Profile

Manyara-Singida Maize, Sorghum, Beans & Sunflower Livelihood Zone (TLZ 25)

April, 2016¹

Zone Description

The *Manyara-Singida Maize, Sorghum, Beans & Sunflower Livelihood Zone*² is found in the central-northern part of Tanzania, and it includes parts of Babati, Hanang and Singida districts. The zone sits at a relatively high altitude, with elevation ranging from 1,000 to 2,000 metres above sea level. Mt. Hanang, which is found here, rises to 3,420 meters above sea level. The topography is made up of rolling plains and valleys, and mountainous terrain around Mt. Hanang. Agricultural fields surround villages, and outside of these areas one finds bush-covered savannahs and some marshlands in the Bubu River catchment. This river, along with a number of seasonal waterways, such as the Bagara, Endasaki and Dirma rivers, provide water for people living nearby. Other open water sources include Kisisi and Matumbo lakes, along with a number of smaller seasonal ponds. Bassotu, Gendabi, and Balandalalu are salt lakes, providing occasional opportunities for salt mining. The zone's road network is fairly extensive, with a tarmac road connecting Babati and Singida, and dirt or marram roads connecting Katesh to Kondoa via Dirma; Katesh to Hydrom via Basutu; and Singida to Meatu via Mudida and Mkalama. The main ethnic groups found here are the Iraqw, Gorowa and Barabaig in Babati and Hanang; and the Nyaturu in Singida. The population density is 28-78 people per square kilometre³, with higher densities found in Manyara Region and lower densities found in Singida.



The rains here fall from mid-November to April, interrupted for one month in February by a dry spell. Annual precipitation ranges from 350-1,200⁴ mm and temperatures average 20-30⁰C in the hot season, and 16-20⁰ C in the cooler months. The soils are fertile red and black loams, and when rains are good, this zone can expect high levels of crop production. In years when the rains are insufficient or poorly distributed, production drops substantially and households have trouble covering their food needs.

The household economy is based on crop production and livestock husbandry. Maize, sorghum, beans, pigeon peas, and sunflower are all grown, with maize and beans the central food crops; and sunflower the

¹ Fieldwork for the current profile was undertaken in February of 2016. The information presented in this profile refers to the reference year, which was the consumption year that started in April 2013 and ended in March 2014. 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.

² The zonal boundaries for TLZ25, as drawn during the 2008 FEWS NET livelihood zoning, need to be revised as follows: Qash, Bonga and Gidas are not in this zone, but in TLZ16; and Nkaiti, Mwada, Magugu and part of Kiru wards should form a separate zone as this area benefits from irrigation and grows maize, cotton, sesame, rice, sugarcane and watermelon, and there are more cattle per household.

³ Based on the 2012 national census.

⁴ Hanang DC gets 350-900 mm; Babati DC gets 500-1200 mm; Singida DC gets 500-850 mm.

main cash crop. However, it is misleading to think of the food crops as being grown just for consumption, since all food crops are also sold, with pulses especially important in terms of cash earnings. All production is rain-fed. Ploughing is done using oxen for the most part, although some households on the upper end of the wealth spectrum use tractors, and those at the bottom end may use hand hoes. Some poorer households work for better off households in exchange for use of their plough oxen. Most households buy improved seeds but they do not buy industrial fertilisers. People either fertilise their fields with manure from their own livestock or they do not use it. The agricultural season involves periods of intense labour; weeding is especially arduous, done using hand hoes, and threshing is also done by hand. Middle and better off households have more land under cultivation than they can manage with just their intra-household labour, so they hire members from poor and very poor households to work for them during these labour-heavy times of the year. This provides important cash for poorer households, who could not survive without this seasonal work. This zone is distinct from neighbouring livelihood zones like TLZ16 and TLZ55 in that these other zones rely on different crops, like bulrush millet, sesame and groundnuts.

Livestock is a secondary, but vital, source of food and cash for all households. Cattle are the most prized of the livestock, and they are owned in the greatest numbers by households at the upper end of the wealth spectrum. Cattle provide milk for consumption and young bulls are sold for substantial amounts of cash when needed. Select bulls also get converted into plough oxen. Goats are also sold for cash income, and slaughtered for meat during festivals or special events. Chickens are eaten and sold whenever cash is needed, especially by poorer households. The larger livestock migrate during the driest months of September, October and November, taken to grazing areas in Singida around a national forest in south-eastern Ngimu, or to the southern parts of Hanang, where better pasture and water sources can be found. Wet season water sources for livestock include seasonal and perennial rivers and seasonal ponds. In the dry season, livestock use water from deep wells. There is payment for tap water for use by livestock in some villages. Men manage the cattle and goats; women are responsible for the chickens.

If households are unable to find enough work locally, they may also send members to work in towns or to sugar plantations in Moshi or flower plantations in Arusha. A few individuals also find work mining salt or sand and gravel, but this is not typical for all households. A minority of households near the lakes engage in fishing but this is not typical for the zone. In bad years, poorer households also collect and sell firewood to earn extra cash.

The services in this zone are similar to many rural areas in Tanzania. Water for all purposes comes from open wells, charcoal dams, local shallow wells, boreholes and village taps. People usually pay a small fee to use the tap water, but all other sources are free. However, there is no guarantee that these other sources are safe to drink. Sanitation facilities consist of pit latrines, most without covers. Health dispensaries are found in many villages, or at the ward centre, but they are not always well-stocked or staffed with qualified medical professionals. Traditional healers are sought out in many cases. Primary schools are found in the villages and secondary schools are available in the ward centres. It is common for all households to send their children through primary school, but only middle and better off households are able to afford the extra costs of secondary school. There is no electricity, so poorer households depend on kerosene lamps, battery-operated torches and some solar lamps; better off households generally use solar lamps. Households in all wealth groups have mobile phones, with better off households owning multiple phones. Telecommunications services are provided by Airtel and Vodacom networks. Credit facilities do not exist for the most part. Households can take part in VICOBA savings schemes, which provide a rotating mechanism that allows each member to contribute cash on a regular basis throughout the year and receive annual disbursements. No NGOs of note are working in this zone.

Markets

The transportation infrastructure is relatively good. A main inter-regional tarmac road, from Babati to Singida, passes through the zone and there are other decent dirt roads connecting Katesh to Kondoa, and Kateshi to Highdom. Access to more remote, interior villages is not ensured during the rainy season, when

roads become muddy and impassable; but in the dry season, vehicles are able to get around with relative ease. People travel by foot from villages to cultivated fields, pastures and water points, and walking is the most common means of transportation for most. Babati, Katesh and Singida are the main intermediate markets, along with Arusha. Dar es Salaam, Mwanza and Nairobi are all terminal markets. Market information is conveyed through relatively good mobile phone networks, and there are emerging small business centres at the village and ward levels.

Locally-grown maize, beans, pigeon peas, and sunflower are sold by all households, providing the most important source of cash for many. Livestock, cattle, goats and chickens, provide a secondary source of income. Sheep and pigs are not commonly kept here. Transactions around crops occur at the farm gate; traders circulate from village to village and buy up crops and then transport them to either Babati, Katesh or Singida. The traders arrange for crops to be bundled and transported to larger market hubs during the post-harvest dry season months, when trucks can still travel on the dirt roads. Maize typically remains in these terminal markets for regional consumption, whereas beans, pigeon peas and sunflowers continue onwards. These crops are taken either to Arusha or Singida and then to Dar es Salaam or Nairobi (from Arusha) or Mwanza (from Singida). Maize is traded from July to September; sunflower is traded from May to August; and beans are traded from August to October.

Livestock are sold at small mobile ward- and sub-ward level markets within the zone throughout the year. From the livestock markets, traders collect and transport livestock to one of the intermediate markets (Babati, Katesh or Singida) and then on to Arusha or Dar es Salaam. Cattle are sold most frequently from July to August; this is a time when livestock body condition is good, with animals fattened on recent crop residues, and roads are still accessible before the heavier rains in March and April. Middle and better off households need money at this time to cover school fees, uniforms and stationery for the second term. They also are putting cash together to pay for the many cash needs associated with the agricultural season. Also, traditional festivals, marriages and religious ceremonies occur in this period. Peak months for selling goats are July, December and March, the first two of which are associated with school fees, festival or holidays seasons and the last of which is associated with peak staple food expenditures, weeding payment and livestock drugs.

Poorer households need to buy maize grain, the cheapest staple, to cover their needs for five to seven months of the year, especially from December to March, even in relatively good production years. Most maize is locally sourced, procured from better off households who generally produce a large surplus. In bad years, maize comes into the zone from Arusha. Rice is purchased as well, most commonly by the upper wealth groups, and this is sourced from Igunga, Magugu and Shinyanga and comes into the zone via Babati, Katesh and Singida and distributed via local markets. Non-food essentials, like salt, soap, batteries and kerosene, are sold at local markets.

The labour market is mostly local and consists of seasonal agricultural labour. There is also a sizeable demand from local towns and some work is found outside the livelihood zone. It was estimated that in the reference year, 70% of seasonal labour was found within the zone on local farms. An additional 20% of labour demand came from local towns, especially Singida town, and the other 10% came from outside the livelihood zone, mainly from sugar plantations in Moshi or flower plantations in Arusha. The balance shifts in bad years, with more people traveling to local towns or to areas outside the zone to find work. A certain amount of casual labour is also found in the salt mining areas of Gendabi, Balangidalalu, and Basutu, or from sand and gravel mining, but this is not typical for most households.

Timeline and Reference Year

The baseline assessment refers to a very specific time period called the reference year. In the *Manyara-Singida Maize, Sorghum, Beans & Sunflower Livelihood Zone* the reference year covered the **consumption** period from April 2013 to March 2014. This followed on the production year of 2012-2013. The production year starts with the planting season in November/December and ends with the harvest in June through

August/September of the following calendar year. 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 responses of the community leaders, shows year quality by production year. The reason that the consumption year of 2014-2015 (following the 2013-2014 production year) could not be used as a reference year is because it was an excellent year, which would not have been representative of livelihoods in this zone. Thus, the production year of 2012-2013, which corresponds to the consumption year of 2013-2014 was used, as this was an average year. In the past five years most have been average, with one excellent year and one below average year. This most recent production year (2014-2015) is the worst of the past five 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 year.

Production Year	Season	Rank	Critical Events
2014-2015	<i>Masika</i>	2	Poorly distributed rains leading to low crop yields; high staple food prices with low livestock prices. As a result, the top three wealth groups sold more livestock; there was increased attempt to find work among very poor and poor households, with migration to other areas
2013-2014	<i>Masika</i>	5	Excellent amount and distribution of rainfall leading to bumper harvest and low staple prices
2012-2013	<i>Masika</i>	3	Average rains in terms of amounts and distributions; average harvest; normal food prices
2011-2012	<i>Masika</i>	3	Average rains in terms of amounts and distributions; average harvest; normal food prices
2010-2011	<i>Masika</i>	3	Average rains in terms of amounts and distributions; average harvest; normal food prices

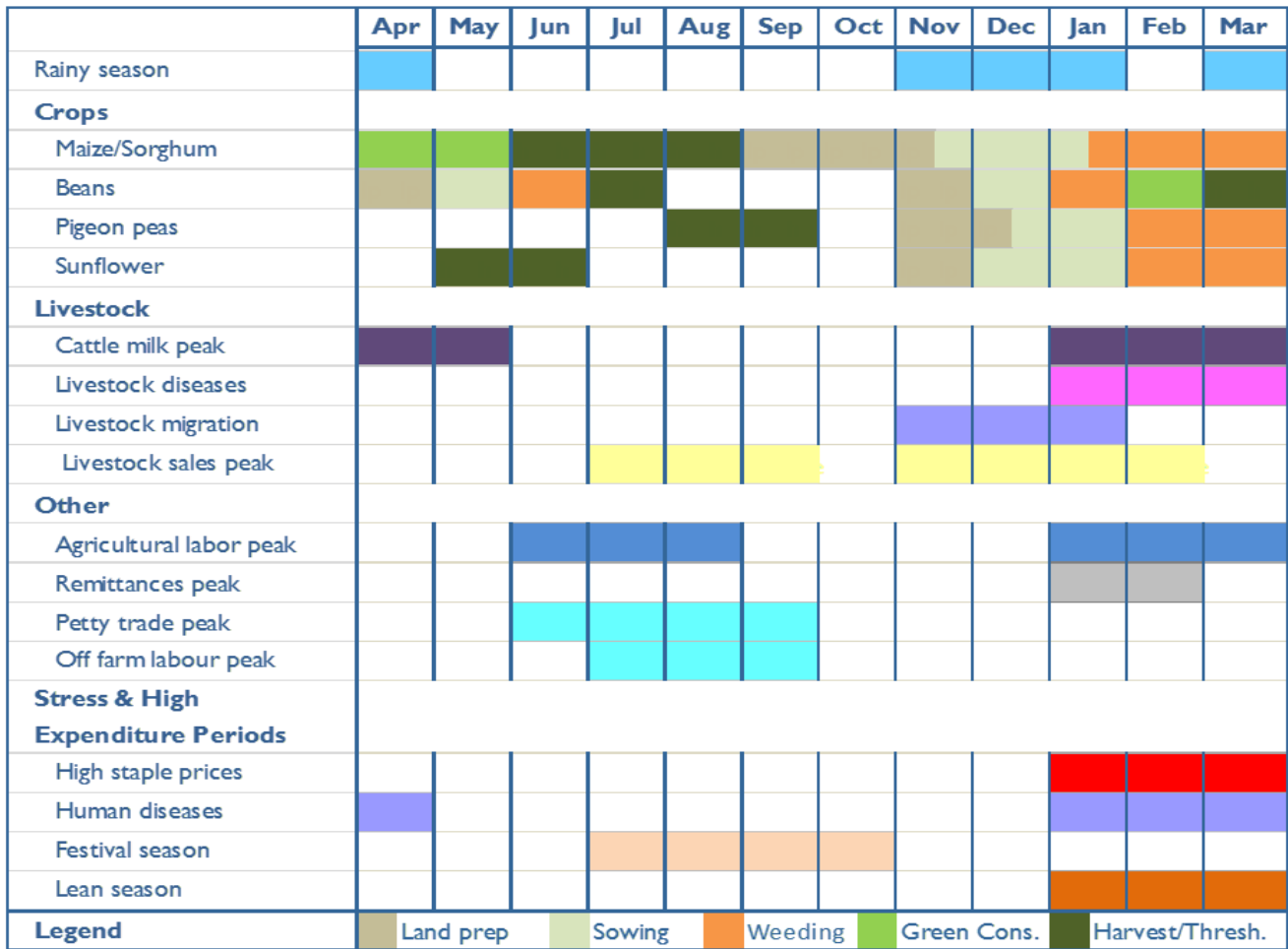
5 = an excellent season for household food security (e.g. due to good rains, good prices, good crop yields, etc.)
4 = a good season or above average season for household food security
3 = an average season in terms of household food security
2 = a below average season for household food security
1 =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

Seasonal Calendar for Reference Year

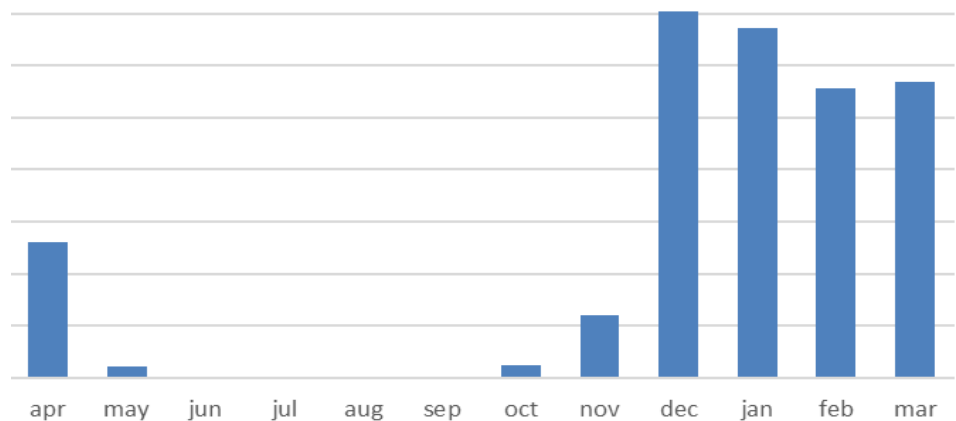
There is one long rainy season which begins in November and lasts through April. A dry spell occurs most years in February, and the rains that follow, in March and April, are usually heavier than those from November through January. The rains determine the timing of all the productive activities, signalling the start and stop of a range of crop-related and livestock management tasks. People begin to prepare their fields just after all of the crops from the previous year have been harvested, starting in September, and continuing through November. The November rains help to soften the ground enough to allow for planting of maize to begin part way through November. Pulses and sunflower are planted in December. Maize is often inter-cropped with the other crops, with combinations of maize and beans, maize and pigeon peas and maize and sunflower found throughout the zone. The green harvest of maize starts at the end of March or the beginning of April, although beans can be harvested green as early as February. June marks the start of the main maize harvest for maize and sorghum, which lasts through August. Beans can be planted and harvested twice, with March and July the main harvesting months for this crop. The sunflower harvest occurs from May through June. Pigeon peas, a long cycle crop, are harvested as late as August and September. A period of threshing and sales follows the harvest of each crop.

Livestock activities occur in tandem with many agricultural tasks. Milk production begins to peak in January, just as households are in the midst of planting and weeding. Milk yields increase as a result of fresh pastures and renewed sources of water that come with the rains. Milk is consumed almost exclusively by the upper wealth groups, although some poor households may also benefit from this boost in nutrition. On the downside, the rains

also bring livestock diseases, such as Contagious Bovine Pleura-pneumonia (CBPP) and Contagious Caprine Pleura-pneumonia (CCPP) and Black Quarter, which occur with higher frequency during wet season. Thus, as people are busy in their fields, they also must contend with more work related to milking and caring for sick livestock. Livestock sales peak from October through February. In October, better off households are putting together the cash they need for the coming agricultural season; and later in the year, especially in January and February, households need cash both for school fees and for staple food expenditures, which peak during the lean season from January through March.



The graph to the right shows average monthly rainfall (mm) in Dodoma District based on a 35-year period (1980-2014)
Source: TZ Meteorology Department



The peak agricultural labour periods are from January through March and then June through August. The first period is associated with planting and weeding; the second is when harvesting occurs. Land preparation is not as arduous here as in many areas because ploughing is done with ox ploughs, not hand hoes. Poorer households who do not own oxen themselves obtain access to oxen and ploughs by exchanging their labour for it. This reduces the effort involved in land preparation and ploughing, but some poorer households are still paid to help with land clearing and ploughing. Weeding, however, is done entirely by hand, and this is when poorer

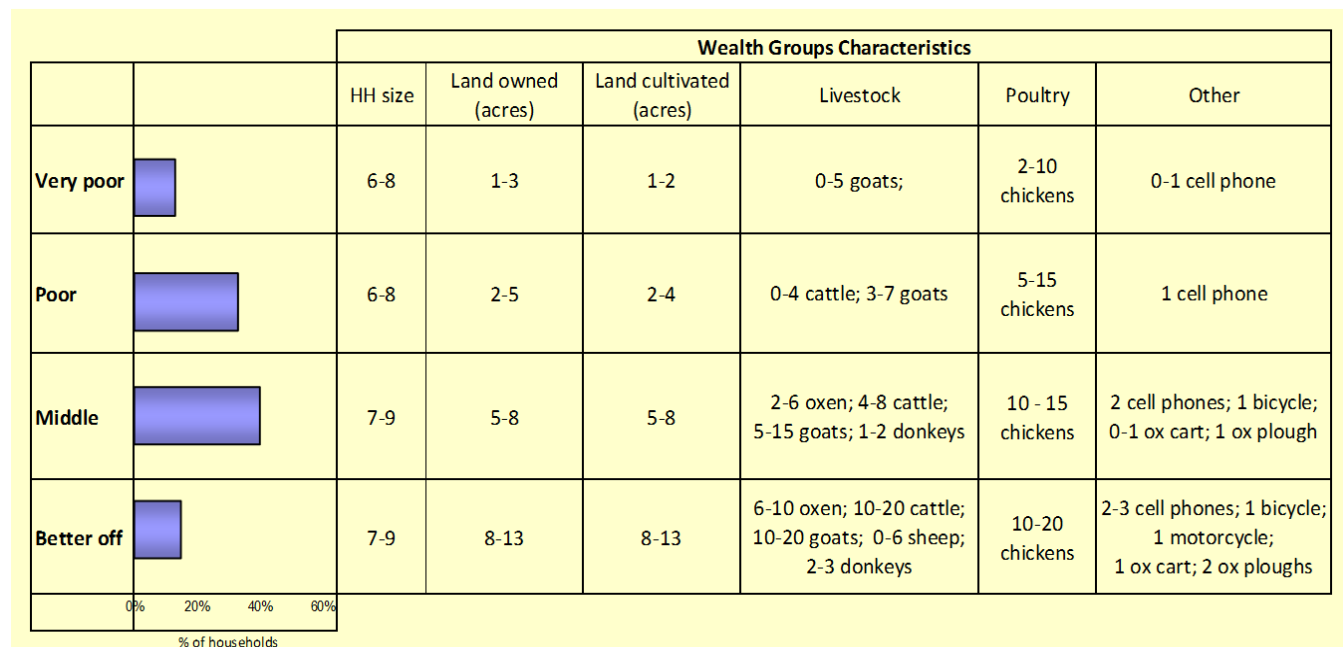
households are hired in the highest numbers and for the most money. The weeding period lasts 2-3 months, and during this time members of poor and very poor households work on the larger farms of middle and better off households, while, at the same time, tending to their own fields. The ultimate result is that poorer households have lower yields due to less-intensive management on their own fields during critical periods. They often also miss the best times for ploughing and planting because they must wait for plough oxen to finish cultivating the farms of the oxen’s owners before being deployed to their farms.

The weeding period coincides with the lean season, which is when poorer households have run out of their stocks from the previous year’s harvest. Some, in fact, run out as early as October or November, but by January none of the poorer households have any of their own food stocks left at home. They need to purchase all of their staple grains just when the price of staple foods is highest (from December through March). Thus, the paid work offered up by middle and better off households helps provide needed cash to poorer households, allowing them to bridge the gap until April, when the green harvest of maize is available.

The rainy season is also when most human illnesses occur. Malaria is brought about by an influx of mosquitoes that come with the wet season. Upper respiratory illnesses also occur at this time. This increases the expenditure requirements for medical treatment at a time of year when other outlays (on staple food and education – in January) are already high. It is also worth keeping in mind that the most important livelihood capital that poorer households have is their own labour; when an active labourer is sick in a poor household, the income for this household rapidly drops. Protecting the health and well-being of poorer households goes hand in hand with protecting their income. Remittances from relatives living outside the zone are most commonly sent in January and February to help cover school fees and also to help cover the costs of staple foods.

Petty trade and other off-farm activities peak from June through September. This is also a time of relative plenty, when people are able to take a break before the next agricultural season. Most festivals and weddings occur at this time, making the most of new harvests to supply the grain for brewing activities and the cash to fund large gathering.

Wealth Breakdown



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

There are two factors that determine wealth in this livelihood zone: first, the amount of land a household cultivates, and second, the number of livestock it owns. How much land a household cultivates is, in turn, governed by the amount of land it owns and/or is able to rent in; the amount of labour it has available within the household alongside its capacity to hire additional labour; and the number of plough oxen and ploughs it has. A

relatively large pool of intra-household labour is also essential for managing larger livestock herds, as is having access to sufficient grazing, and the financial resources to buy veterinary medicines and, occasionally, water.

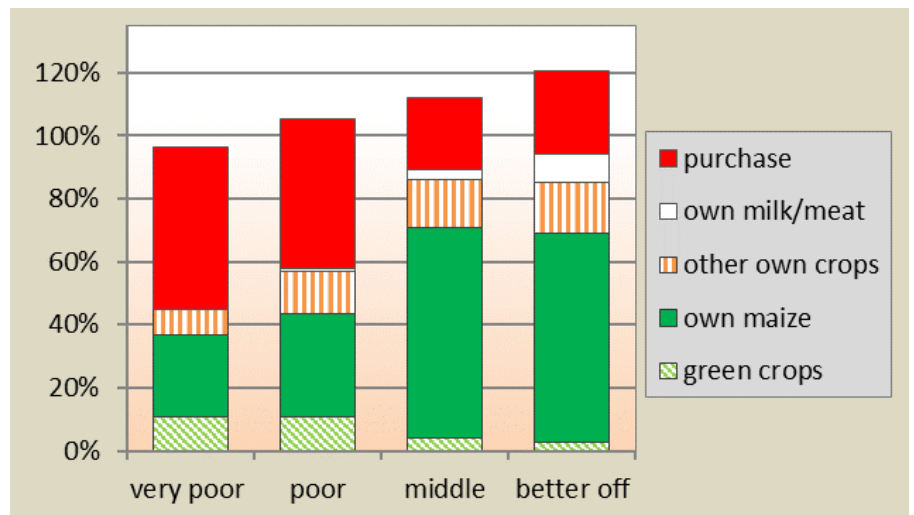
Typical better off households own around 8-13 acres of land and cultivate all of it, using hired labour as well as intra-household labour. They have 6-10 oxen and 2 ox ploughs, which they use to prepare their land for planting. They harvest a sizeable surplus of crops which get used for both home consumption and sale. Alongside their crop production, they own 10-20 cattle, 10-20 goats, a few sheep; 2-3 donkeys and 10-20 chickens. Their household sizes are usually a little bigger than poor and very poor households, with around 7-9 members. These households also own other assets, like an ox cart for transporting crops, a bicycle and a motorcycle for transporting people, and several cell phones.

Typical very poor households, on the other hand, own only 1-3 acres of land and cultivate only around 1-2 acres. They do not produce enough in any year to cover all of their food and cash needs. They have no oxen or ploughs of their own and, in order to get their fields ploughed, work in the fields of better off households. These households have no cattle, and only a small number of goats, if any (0-5), as well as some chickens (2-10), sheep (0-2) and pigs (0-2). Very poor households tend to be slightly smaller in size, with 6-8 members. They face many competing labour requirements during the cropping season, because they need to work in both their own fields and in the fields of better off households, where they earn cash that is critical to their survival. These households do not have any additional assets other than, possibly, a cell phone.

The distribution of wealth in this zone is weighted slightly towards the top. Very poor (10-15%) and poor (25-40%) households together make up around 40-50% of households in the zone. Middle (35-45%) and better off (10-20%) households combined represent around 55% of the households. In addition, since middle and better off households are slightly larger, 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 even larger than this.

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 April 2013 to March 2014. April 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. This was considered an average year, with average rains, crop yields and prices.



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.

There are three sources of food in this livelihood zone: own crops, milk and meat from the household's own livestock, and purchased food. The contribution of own crops increases with wealth; inversely, the reliance on purchased food increases as you become poorer.

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Maize, sorghum, beans, and sunflower are the main food crops grown; collectively, these accounted for 45-85% of the minimum calorie requirements for households in the reference year. Very poor and poor households covered 45-57% of their food needs with their own crops, which means that even in an average year, very poor households cannot even meet half of their annual food needs from crop production. Middle and better off households, on the

other hand, derived around 85% of their required calories from their fields. The majority of the own crop contribution is from maize; the importance of green maize is especially notable for poorer households. It is also important to recognize that what households consume is only a portion of the total they grow, since a large proportion of crops are sold in a year like the reference year. In fact, if households did not sell any of the crops they produced, consuming them instead, all except for the very poor would exceed their minimum calorie requirements. The reference year production of maize for typical very poor, poor, middle and better off households was around 700 kg, 1,120 kg, 4,000 kg, and 6,900 kg, respectively. For beans and pigeon peas combined it was 175 kg, 520 kg, 1,500 kg, and 2,500 kg, respectively. Sorghum added 100-200 kilos across the board. Hypothetically, if households kept all of their production for consumption, the total production of maize, sorghum and beans would have covered 75%, 125%, 320% and 535% of minimum calorie requirements for very poor, poor, middle and better off households, respectively. This is not to suggest that households should not have sold their production, but rather to highlight the large difference in the choices that better off households have, compared to very poor households: very poor households have no choice but to purchase food in order to fill a production gap, whereas better off households could have easily covered all of their food needs with their own crop production alone if they decided that was more beneficial to them.

The top two wealth groups also consumed milk from their own livestock, and to a much lesser degree meat. Very poor households do not own cattle or substantial numbers of goats, and do not benefit from this source of food. A typical middle household had 1-2 cows milking throughout part of the reference year and better off households had 3-4 cows milking. Milk yields are relatively low here, but the 1 litres per cow per day during the rainy season, and .05 litres a day in the dry season accumulated over the year to total around 270 litres for middle households and 630 litres for better off households. All of this is consumed within the households, contributing 3-7% of annual calorie needs. There was also a small contribution (only around 1-2% of calorie needs) from meat for better off households.

The market accounted for all of the remaining food needs for all wealth groups. For very poor and poor households, food purchases met 48-52% of calorie requirements; for middle and better off households, purchased food comprised 23-27% of minimum food needs. As explained above, poorer households produced less of their own food in the reference year and needed to buy food to make up for the gap, as demonstrated by what they purchased: most of what poorer households purchased was in the form of maize grain, the cheapest staple. While very poor households bought 43% of their calories in the form of maize grain and poor households purchased 37% of their calories as maize grain, middle households bought only 10% of their calories in the form of maize grain, and better off households purchased no maize grain at all. The 'purchase' component for better off households was comprised of high-value, preferred foods, such as rice, beans, sugar, meat, oil, and dried fish. Thus, these households used the market to diversify their diets and add nutrients and protein they otherwise could not produce themselves. Poorer households, on the other hand, purchased only around 10% of their minimum calories in the form of these more nutritious items.

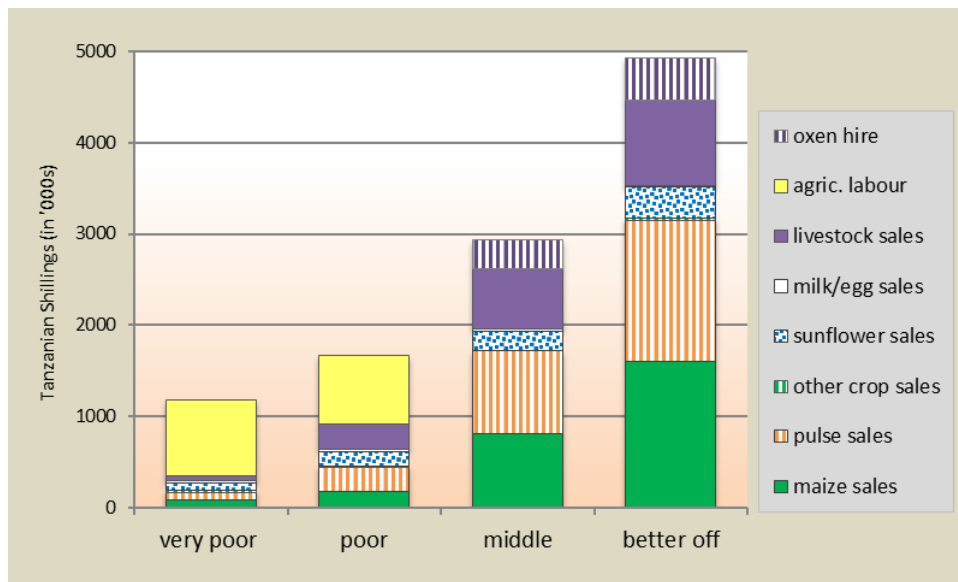
Sources of Cash Income

The graphs below present an accounting of cash income sources for all four wealth groups in the reference year, first in terms of absolute values, and next as a proportion of annual cash income. They convey a number of points about the local household economy. As a general statement, there are three core sources of cash in this zone: crop sales, livestock sales and seasonal agricultural labour. Better off households also earn cash renting out their oxen, and all wealth groups earn an insignificant amount of money selling eggs.

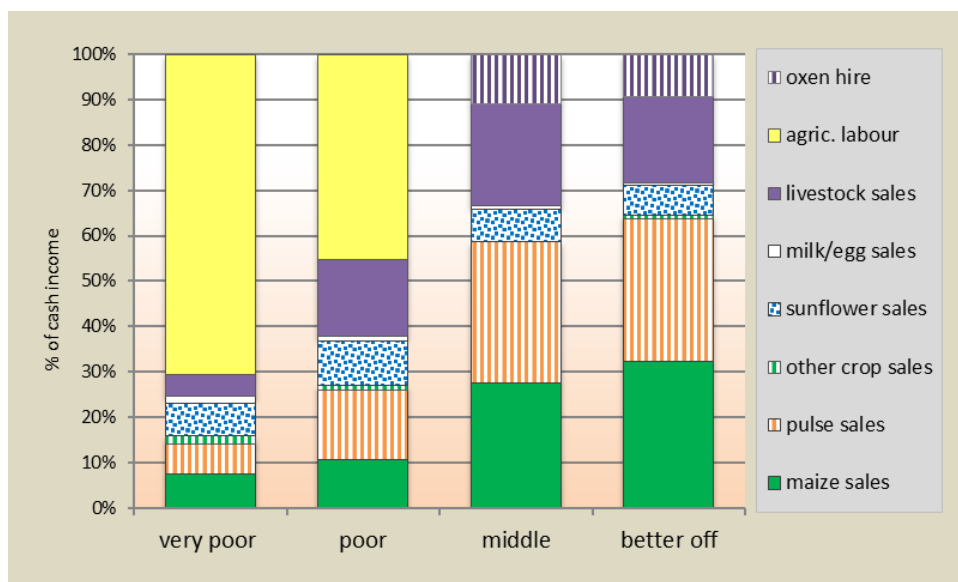
Crop sales provided the most important source of revenue for the upper two wealth groups. Maize, beans, pigeon peas, and sunflower are all sold, along with small amounts of sorghum. The pulses, and especially pigeon peas, are a particularly important cash source. In the reference year, typical middle and better off households sold around 2,800 kg and 5,500 kg of maize; and 1,300 kg and 2,200 kg of pulses, respectively. At 700 TZS/kg, pulses are worth almost 2 ½ times more than maize, so although much larger quantities of maize were sold, pulses brought in almost as much, and sometimes more, cash. Sunflower, the other cash crop, provided around 5-10% of the cash income of local households. Overall, crop sales accounted for 25-40% of the annual cash income of very poor and poor

households; and 65-70% of the cash income of middle and better off households. In absolute terms, better off households generated around 13 times more from their crop sales than very poor households, which is proportionally more than the difference in land they cultivate. Better off households cultivate, on average, 5.25 times more land than very poor households, but are able to derive substantially more value per acre from their efforts. They invest more in terms of labour and inputs, and are able to better time their ploughing, labour and inputs applications, enabling them to produce more in absolute terms; but their emphasis on growing more of the high value crops also means that what they produce is more valuable in cash terms.

Livestock-related income made up the remainder of cash income for the top two wealth groups in the reference year. Sales of live animals (cattle, goats, chickens, and pigs) and eggs covered around 6% of very poor household annual cash income, and 18-23% of poor, middle and better off cash income. Middle and better off households sold, on average, 1-2 cattle at 525,000-700,000 TZS per head in the reference year; along with 2-4 goats (at 35,000-40,000 TZS each). Poor households sold around 2 goats, and might also sell a cow once every two years. Better off households were able to get a better price per head than middle and poor households because their animals were in better condition and they chose the best times of year and the best markets in which to sell. For example, a typical better off household sold its goats for 40,000 per head, whereas poor households only brought in 30,000 per head. Very poor households had neither cattle nor goats to sell. All households also sold chickens, averaging around 11-12 hen sales per year at 5,000-5,200 each. In addition, regular egg sales contributed a small amount of cash for all four



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



The graph provides a breakdown of total annual cash income as a percent of annual cash income.

INCOME SUMMARY TABLE (in Tanzanian Shillings)				
Wealth group	Very poor	Poor	Middle	Better off
Annual income per household ⁵	855,000 – 1,600,000	1,600,000 – 2,000,000	2,000,000 – 3,200,000	3,200,000 – 6,500,000

⁵ The average exchange rate from April 2013-March 2014 was 1 USD = 1,600 TZS

wealth groups. Middle and better off households also took advantage of their oxen ownership to generate cash from renting them out to poorer households for ploughing at the beginning of the agricultural season.

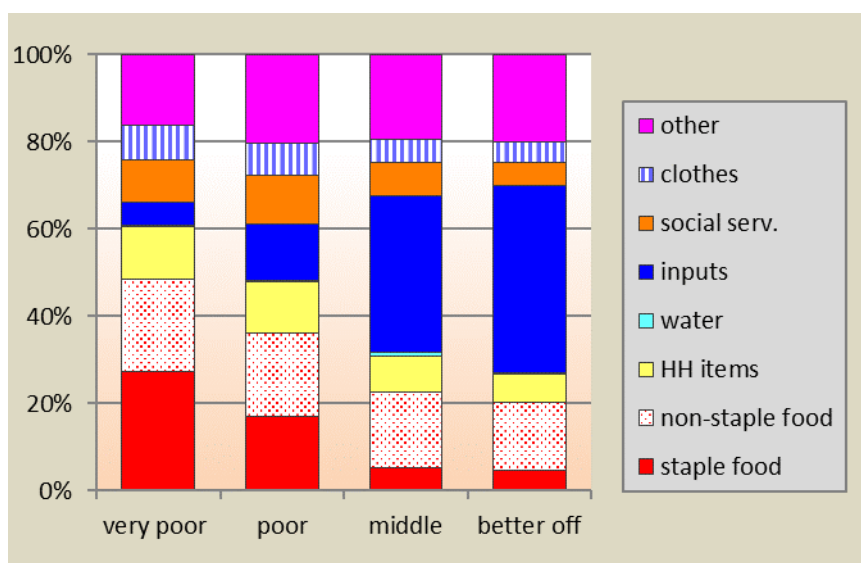
While middle and better off households obtained all of their cash income from on-farm sources, poorer households needed to supplement their farm-based income by pursuing activities that took them away from their own fields. Seasonal agricultural labour provides a critical source of cash for both of the bottom two wealth groups. Seasonal agricultural labour provided very poor households with around 70% of their cash income in the reference year, and it provided poor households with around 45% of their cash income. Because this source of cash is so critical to poorer households, it is important to monitor this casual labour market (including changes in demand and the availability of jobs, and changes in the daily wage rate) in order to understand changes in the well-being of these households.

Expenditure Patterns

The graph presents expenditure patterns for the reference year April 2013 to March 2014. 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.

As in all parts of rural Tanzania, households here need to spend cash on a number of essential goods and services, including: staple and non-staple food, household items, productive inputs, social services, like schooling and health, as well as clothing and other miscellaneous

items. The graph illustrates a general trend in rural Tanzania: poorer households spend a larger proportion of their available cash on food, and those in the top two wealth groups spend a larger portion of their money on productive inputs. These trends, as well as number of other points, are discussed in more detail below.



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

Even in an average year, like the reference year, all wealth groups buy staple foods, however the composition of the staple food basket is not the same for all wealth groups. In this zone, the items included in staple food expenditure were maize grain and rice. Very poor and poor households devoted almost all of their expenditure on staple foods to maize grain, the cheapest staple, spending only a small amount on rice. For example, a typical very poor household spent around 277,200 TZS on maize grain in the reference year, and 44,800 TZS on rice, which was four times more expensive. The three bottom wealth groups bought around 400-440 kg of maize grain in the reference year, but no more than 55 kg of rice. Better off households, on the other hand, bought no maize grain at all and devoted their entire staple food expenditure to rice, with a typical better off household spending around 230,400 TZS for around 145 kg of rice. Without the purchase of staple foods, the two bottom wealth groups would have been facing a food deficit, but the same cannot be said for the two upper wealth groups. In the reference year, the proportion of cash income spent on staple foods for very poor, poor, middle and better off households was around 27%, 17%, 5%, and 5%, respectively.

While, in both absolute and relative terms, poorer households spent more on staple foods than any other wealth group, better off households spent the most in absolute terms on non-staple foods, expending three time more than very poor households. The non-staple food category included beans, sugar, meat, oil, fried fish, vegetables and fruit. The lower two wealth groups did not buy fruits, but their spending on all the other non-staple foods was

relatively even. Middle and better off households spent substantially more on meat, along with sugar and oil. These three food items together comprised 70-75% of their non-staple expenditure. In the reference year, the proportion of cash income spent on non-staple foods for very poor, poor, middle and better off households was around 21%, 19%, 17%, and 16%, respectively. The calories purchase for this expenditure (in relation to minimum calories required for the year) were 7%, 9%, 10% and 18%, respectively. Thus, better off households are able to buy a much more nutritious and diverse diet than the other wealth groups, even though in relative terms they spend less.

Moving up the graph, the 'hh items' category (in yellow) includes basic household necessities, such as tea, salt, soap, lighting (such as batteries, solar lamps solar panels, etc.), grinding services and utensils. These are items that households usually pay for in incremental amounts on a week-by-week basis. Within this category, very poor and poor households spent the most money on payment for grinding, and soap, which took around 60-70% of their inputs budget in the reference year. Middle and better off households spent the most on soap followed by grinding and utensils. On an annual basis, spending on basic household goods comprised 6-12% of total expenditure, decreasing as a proportion of annual expenditure as wealth increases (although increasing in absolute terms).

The graph makes it clear that middle and better off households spend heavily on productive inputs, as represented by the dark blue bar. Included in this category are the following: livestock drugs, water for animals, seeds and tools, pesticides, labour hire, livestock purchase, and phone credit. Very poor households spent most of their money on seeds/tools (75% of their inputs budget), and phone credit (25% of their inputs budget). Poor households also spent some cash on livestock drugs and livestock purchase. Middle and better off households spent money on all items within the category; the majority of their inputs budget was spent on labour hire (45-55% of their inputs budget), livestock purchases (13-16% of their inputs budget) and seeds and tools (12-17% of their inputs budget). In absolute terms, the amount spent by better off households on inputs was more than 35 times the amount spent by very poor households, around 10 times the amount spent by poor households, and double the amount spent by middle households. Better off households had to invest large amounts of cash into hiring labour (which took over half of their inputs budget in the reference year). A typical better off household spent around 1,200,000 TZS on hiring labour in the reference year. Very poor and poor households could not survive without this income; and better off households could not generate their surplus production without this labour.

Next on the graph, 'social services' includes schooling and health costs. Households spent 5-10% of their annual cash on these costs. Schooling expenses included school fees, uniforms, stationery and transportation, where relevant. On a per capita basis, holding household size constant, middle and better off households spent around the same amount on education, and these two wealth groups spent around 2 times more than very poor households, although not much more than poor households. Very poor households usually are not able to send their children beyond primary school, whereas those in the upper wealth groups may send them at least as far as secondary school, and sometimes on to college. Secondary schools are found only at ward level, and this means paying for things like transportation, boarding, higher fees and more expensive uniforms and supplies. In addition, better off households spent three times more on health care than very poor households on a per capita basis, indicating that these households may have had access to better clinics and private hospitals. Very poor households seek medical care at village dispensaries and ward-level health centres, which – although free or very reasonably priced - are often understocked and understaffed. Better off households spent around 15-25% more than middle and poor households on health.

Spending on clothes and other miscellaneous items are the last two categories included here. Clothes accounted for 5-8% of the annual budget for all households. The 'other' category includes things like beer, tobacco, cigarettes, transportation and festivals, and in the reference year households devoted 15-20% of their cash to these items. This budget can be reduced or redirected in bad years to buy more essential items if necessary. In both absolute and relative terms, those in the upper three wealth groups had the most available in this discretionary budget (better off households had 5 times more in this category than very poor households); and because the reference year was an average year, even the very poor wealth group had more in this budget than it would in a bad year.

Hazards

There are a number of hazards that affect this zone on a regular basis. The first is **intermittent or poorly distributed rains**. If crops do not receive the moisture they need at the right time of year, this reduces crop yields, which has knock on effects throughout the local economy. The second is **crop pests and diseases**. Elegant grasshoppers, which affect both maize and sorghum; leaf hoppers and stem rot, which affect beans; and *quelea quelea* birds, which affect sorghum, cause problems throughout the zone almost every year. The third is **livestock disease**, such as Foot and Mouth Disease (FMD), as well as contagious bovine pleuropneumonia (CBPP) and contagious caprine pleuropneumonia (CCPP) for cattle and goats, respectively. New Castle Disease can wipe out an entire flock of chickens. Livestock diseases can cause significant herd losses, translating into large declines in income. **Human diseases** are also endemic, especially malaria and upper respiratory diseases. Because household labour is so critical to income generation, especially for poorer households, losing this labour at a critical time of year can translate into significant drops in income.

The main periodic hazard is **flooding**, which can cause damage to crops in lowland areas every other year, or three years out of six. Floods also create transportation difficulties, and market access problems.

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.
- Middle and better off households try to increase their **livestock sales**. Poorer households are not as able to turn to this option because they can afford to sell only a few animals and still maintain viable herds. Also, 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 **finding more casual work**, either locally or migrating outside the zone. In particular, people may go to Singida town, sugar plantations in Moshi, and flower plantations in Arusha. 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 *Manyara-Singida Maize, Sorghum, Beans & Sunflower 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
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Crops	<ul style="list-style-type: none"> • Green maize – amount produced • Maize – amount produced • Sorghum – amount produced • Beans – amount produced • Pigeon peas – amount produced • Sunflower – amount produced 	<ul style="list-style-type: none"> • Maize– producer price • Beans – producer price • Pigeon peas – producer price • Sunflower – producer price
Livestock production	<ul style="list-style-type: none"> • Cattle – herd size • Goats – herd size • Chickens – flock size 	<ul style="list-style-type: none"> • Cattle – producer price • Goats – producer price • Chickens – producer price
Other food and cash income	<ul style="list-style-type: none"> • Agricultural labour (land preparation, weeding) – number of jobs • Agricultural labour (harvesting) – number of jobs • Firewood/charcoal – bundles collected 	<ul style="list-style-type: none"> • Agricultural wage rates (land preparation, weeding) • Agricultural labour rates (harvesting) • Firewood/charcoal – price per bundle
Expenditure		<ul style="list-style-type: none"> • Maize grain – 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. Other than pasture improvement, all of the options were proposed for all wealth groups. All of these suggestions require further detailed feasibility studies.

- Improved maintenance of existing road networks and increased construction of new roads
- Provision of electricity at village level
- Access to affordable and safe sources of water for humans and animals
- Timely and affordable provision of crop and livestock inputs or subsidies, especially seeds
- Provision of health services at village level, including building dispensaries and providing qualified health professionals and sufficient and affordable supplies of medicines
- Improved security at village level
- Improved markets for crops and livestock, including market infrastructure, market information, and standardisation of weights and measures
- Improved livestock health infrastructure, including dip tanks
- Construction of dams for irrigation and flood dikes and terraces to protect fields
- Construction of warehouses for storage
- Provision of land right titles
- Access to credit facilities and affordable loans
- Improvement of educational services, including construction of teachers' houses, primary schools, and curriculum development
- Resolution of land conflicts with national reserves
- Development of phone networks
- Sunflower oil extraction facilities
- Provision of agricultural and livestock extension work
- Access to affordable construction materials, especially iron sheets
- Improvement of pasture lands