

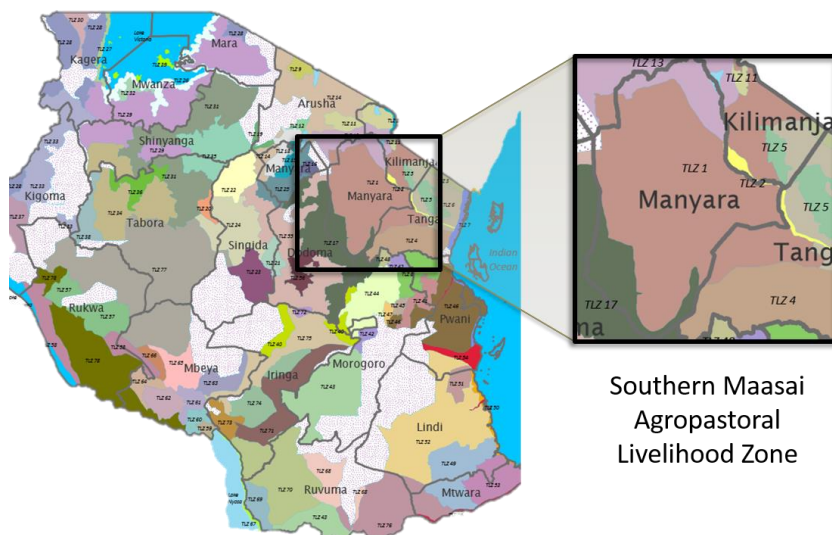
Tanzania Livelihood Baseline Profile

Southern Maasai Agro-Pastoral¹ Livelihood Zone (TLZ 01)

February, 2016²

Zone Description

The *Southern Maasai Agropastoral Livelihood Zone* covers an extensive area in north eastern Tanzania, including much of the traditional Maasai grazing lands. The administrative units that make up this zone include Simanjiro and Kiteto districts in Manyara Region; parts of Same and Mwanga districts in Kilimanjaro Region; and Kilindi District in Tanga Region³. The main ethnic group living here is the Maasai. The population density is only around 7 people per km²; so although this is a large zone geographically, the population that makes up the zone is relatively small compared to the rest of Tanzania.



Southern Maasai
Agropastoral
Livelihood Zone

This livelihood zone consists of lowland plains, found between 400 and 600 meters, and covered with *acacia-commiphora* woodlands, grasslands and thickets. Extensive plains dotted with acacia trees are typical, and the Maasai who live here share their land with large herds of wildlife, concentrated especially in the Tarangire National Park and the Makame Wildlife Management Area. The Pangani River runs through the zone on its way to the Indian Ocean, providing year-round access to water for those who live close by. Tanzanite mines, found to the north of the zone, have been a source of cash income for some within the area over the past several decades; and there is some traditional mining of green tourmaline in isolated parts of Simanjiro District.

This semi-arid expanse has been the home of Maasai pastoralists for centuries. The two rainy seasons – the *vuli* from November to January and the *masika* from March to May - generally bring no more than 500-650 mm of rainfall combined. Droughts are not uncommon, occurring on average once every three years. Crop production is a relatively new phenomenon here, dating back to the late 1970s when pastoralists were encouraged to settle and cultivate as part of the national villagisation programme, which came about as a result of the Ujamaa policies of the Arusha Declaration. Pastoralists began cultivating in earnest in the 1990s when terms of trade between livestock and grain became increasingly unfavourable, and when increasing land pressure related to a period of intense land grabbing by large multinational interests led the Maasai to

¹ The original name of this zone was the *Southern Maasai Pastoral Livelihood Zone*; after the field work completed in this phase the team members have suggested re-naming it the *Southern Maasai Agropastoral Livelihood Zone* to convey the large role agriculture now has.

² Fieldwork for the current profile was undertaken in November and December of 2015. The information presented in this profile refers to the reference year, which was the consumption year that started in April 2014 and ended in March 2015. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to ten years (i.e. until 2020-2025). All prices referred to in the document are for the reference year.

³ The livelihood zone boundaries should be redrawn to exclude some of the southern parts of the zone, in particular Sunya and Dongo wards, which do not share many of the characteristics described in this profile, and are more agricultural than pastoral.

stake their claims by beginning to cultivate large tracts of land. As it became more and more profitable to grow maize and beans on their land, the local population began to see this production as a means of protecting and increasing their herds, since the more of one's own food one produced, the fewer animals needed to be sold to secure food⁴.

Livestock production still forms the foundation of the local economy. Huge herds of cattle, goats and sheep are sustained here, grazing freely, and also benefitting from crop residues after the harvest. Households also grow maize and beans, both entirely rain-fed. The soils are fertile, consisting of sandy loams and clay, and people here do not use fertilizers or even manure. When clearing new fields all wealth groups use hand hoes and fires. Land is prepared by hand amongst the poorer wealth groups and using hired labour or by tractor for better off households. Ox ploughs are generally not used. The most labour intensive activities include land preparation, weeding, harvesting and fence making (with the branches of thorny acacia trees) to protect crops from wild animals. For these tasks middle and better off households hire members of poorer households to work for them in their much larger fields. Some labour (generally men from poor families) also migrates into the zone from Singida and Dodoma. Managing large herds in addition to large tracts of land creates a steady demand for seasonal labour.

Livestock provide a critical source of food and cash for all households. Cattle are at the centre of the local economy and are critical to Maasai culture, binding families together through marriage and labour relations, and providing the currency by which people's status is measured. Cattle provide milk for consumption and sale and they are a sort of bank account, drawn down on every year to provide cash for a range of basic necessities. Goats and sheep are also kept here, eaten especially during the festival season (from July through September) and when women give birth. They are also sold for cash income when smaller amounts of cash are needed. Chickens are used for eggs, eaten throughout the year, and they are sold whenever cash is needed. Rainy season water sources for livestock include seasonal ponds and rivers as well as shallow wells dug in seasonal river beds. In the dry season, livestock rely on village taps and shallow wells. Middle and better off households pay to keep the pumps going that keep this water flowing; and they also pay to transport water for their livestock. Men are responsible for taking care of cattle, goats and sheep, whereas women and children manage the chicken flocks.

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

This livelihood zone is far from urban centres and service provision here is poor. Water is obtained from open wells and ponds which are almost never clean or safe. Village taps, which require a fee, are used by some. In the dry season middle and better off households pay to pump and transport water from wells. Sanitation facilities consist of uncovered pit latrines; there is no organized garbage collection. There are very few health dispensaries, and even those that exist are not well stocked. People turn to traditional healers (called *wakunga*) in the absence of more modern alternatives. Primary schools are found in the villages, but these are 7-12 kilometres away for many people. Secondary schools are available in the ward centres, which are even more distant. There is no electricity in this zone. Households depend on battery-operated torches and solar lanterns for light. Households in all wealth groups have mobile phones, with better off households having multiple phones, although the cellular network is quite bad. People do not have access to credit here. In some villages, including Makame, Naberere, Emboret and Sukoro a savings scheme is available, providing households with a small return at the end of the year on weekly set-asides. A number of NGOs operate here, including Urban Crust Support, which provides a focus on education, health facilities and water infrastructure; UCTR, helping with land management; and the Heifer Project, supporting livestock production and especially poultry.

⁴ Boudreau, T., Household Food Economy Assessment, Arusha Region, Save the Children, 1999

Markets

The transportation infrastructure in this zone is relatively poor. The zone is far from urban centres and roads are few and far between. The main roads link the zone to Arusha via Simanjiro and Kiteto; further connections are made to Kijungu, Sunya and Songe in Kilindi. Rough dirt roads provide access to vehicles during the dry season, but these are washed away in the wet season, when even main roads become impassable. There are no bridges and rafts are used to cross the Pangani River in spots where people are unable to wade across. Well-worn dirt tracks take people by foot from villages to cultivated fields, pastures and water points. Donkeys are owned by all households, and these are used to carry goods and people. Motorbikes are the other main means of transportation, but these are owned by only better off households.

Maize, beans, cattle, goats and sheep are the commodities sold by households in this zone. Crops are bought up at the farm gate by traders who flock to the area in the post-harvest months, from August to September. These traders arrange for crops to be transported out of the zone on trucks, which can travel on the dirt roads in the dry season. Maize makes its way to Kibaigwa in Dodoma Region and then on to other countries in the region, including Kenya, Uganda, Ethiopia, Rwanda and Sudan. Beans are transported to Arusha or Dodoma first and then on to Dar es Salaam.

Cattle, goats and sheep are sold at small weekly ward- and sub-ward level markets within the zone throughout the year. Traders collect large numbers of animals near the road and then truck them on to their final destination. Dar es Salaam is the terminal market for most of the livestock.

In addition to the market for commodities supplied by households from the zone, there is a market for food brought into the zone for consumption by local households. Poorer households need to buy maize grain to cover their needs for four to nine months of the year, even in good production years. Maize is the cheapest local staple, and most of this is locally sourced, procured from better off households who generally produce a large surplus. Rice, purchased almost exclusively by the upper wealth groups, is sourced from Shinyanga or Mbeya Region (Kyela) or Morogoro Region and distributed via the Dodoma market. Non-food essentials, like salt, soap, batteries and kerosene, are sold in local kiosks, often owned by poor or middle households.

The labour market is almost entirely local. Middle and better off households cultivate large tracts of land, requiring additional labour to help them complete the more intensive seasonal tasks, such as land clearing and weeding. It was estimated that in the reference year, 90% of seasonal labour was found within the zone on local farms. An additional 5% of labour demand came from local towns and the final 5% came from outside the livelihood zone. Both men and women from poorer households take on paid agricultural work. There are three peak periods of labour demand: November through February for land clearing, land preparation and planting; February through April for weeding; and June through August for harvesting. Demand for labour is so high that there is some labour migration into the zone from other areas to help with ploughing and weeding. A small number of people also find work outside the zone, in the Tanzanite mines in Mereran. In bad years, the demand for local agricultural labour especially for weeding and harvesting, contracts. As a result, people try to find additional work in other zones, or in the mining area.

Timeline and Reference Year

The baseline assessment refers to a very specific time period called the reference year. In the *Southern Maasai Agropastoral Livelihood Zone* the reference year covered the **consumption** period from April 2014 to March 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 production year corresponding to the reference year was average, with average

rains, average crop yields and normal food prices. The reference year, however, followed three below average years, and so the baseline information presented in this profile, provides a view into how households in this livelihood zone make ends meet in an average year, but in the process of recovering from a series of below average years.

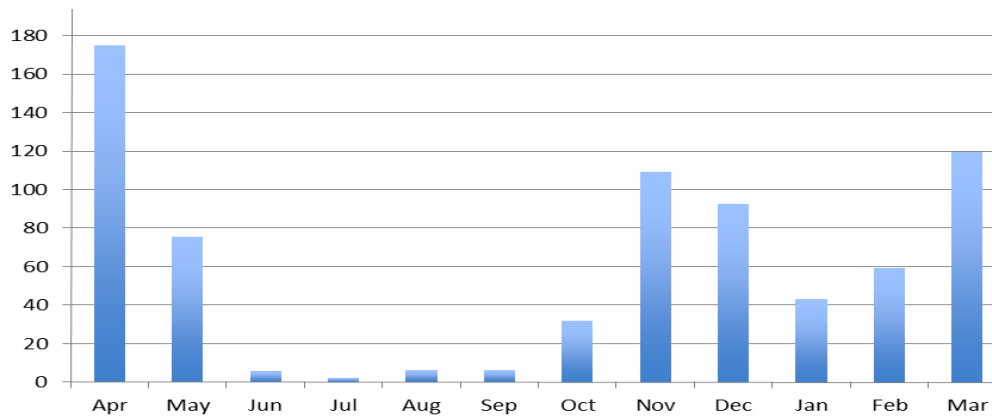
Production Year	Rank	Critical Events
2014-2015	2	Below average crop and livestock production; high staple food prices and low livestock prices. Increased reliance on livestock sales, casual labour and labour migration.
2013-2014	3	Average rains, average crop yields, average food prices
2012-2013	3	Average rains, average crop yields, average food prices
2011-2012	2	Poor crop and livestock production, high staple food prices, low livestock prices. Increased livestock sales, increased reliance on casual labour and labour migration.
2010-2011	2	Poor crop and livestock production, high staple food prices, low livestock prices. Increased livestock sales, increased reliance on casual labour and labour migration.
2009 - 2010	1	Drought, high staple food prices, no crop harvest. Livestock diseases were rampant; livestock body condition was poor. Abnormal migrations took place, along with high livestock sales, reduced meals, and increased labour migration.

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

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Rainy season	Blue	Blue						Blue	Blue	Blue		Blue
Crops												
Maize - rainfed	Green	Green	Dark Green	Dark Green	Dark Green			Brown	Brown	Light Green	Orange	Orange
Beans	Orange		Light Green	Dark Green	Dark Green			Brown	Brown		Light Green	Light Green
Livestock												
Cattle milk peak	Dark Purple	Dark Purple	Dark Purple	Dark Purple							Dark Purple	Dark Purple
Goats milk peak										Dark Purple	Dark Purple	Dark Purple
Peak livestock sales									Yellow	Yellow	Yellow	
Peak livestock purchases	Cyan											Cyan
Livestock diseases	Pink	Pink	Pink									
Other												
Agricultural labor peak										Blue	Blue	Blue
Petty trade peak				Blue	Blue							
Stress & High Expenditure Periods												
High staple prices								Red	Red	Red	Red	
Festival season			Orange	Orange	Orange	Orange						
Lean season										Orange	Orange	Orange
Legend		Land prep	Sowing	Weeding	Green Cons.	Harvest/Thresh.						

The graph to the right shows average monthly rainfall (mm) in Arusha 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 through May, although a short dry spell in February often interrupts the rains. Milk production is highest in the wet season, when cattle and goats give birth, and when fresh pastures and water sources provide animals with the nutrients they need for lactation. At this time the consumption of milk is highest within the household, and cash income from the sale of milk peaks.

Land preparation (clearing and ploughing), with poorer households cultivating by hand, using hand hoes, axes and machetes, and the upper wealth groups often using tractors, starts in November for maize and beans and lasts two months. Maize is planted in January, once the rains have been fully established and beans are planted in February and March. The weeding period begins in February for maize and as late as April for beans. January through March are especially labour-intensive times of the year and all poorer households have at least one member working on the larger farms of middle and better off households. The weeding period coincides with a time 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 and by January none of the poorer households have their own food stocks left at home. These households need to purchase all of their staple foods just when the price of staple foods is highest (from November through February). This is one reason that livestock sales peak from December through February. Another reason is that households need to pay school fees in these months, and better off households need money to pay for labour and other productive inputs. Thus, demand for labourers from 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 comes in. The main harvest period starts in June for maize and June/July for beans. Crop sales are highest in the post-harvest months.

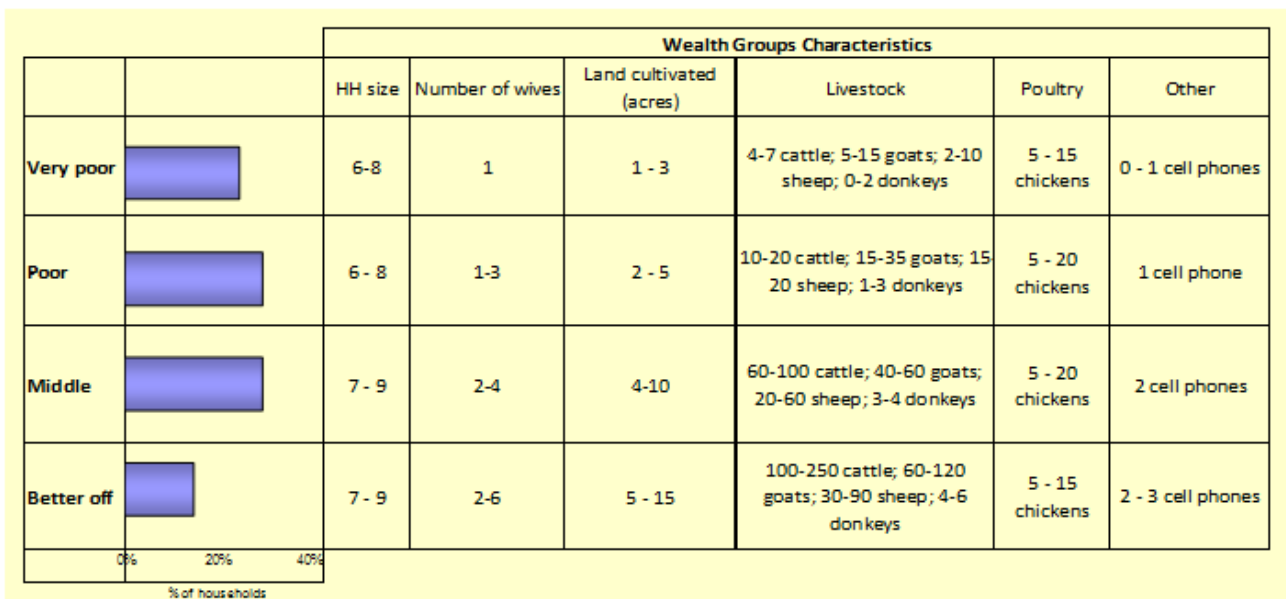
June through October is the dry season. Early in the dry season is when the festival season occurs, since cash from crop sales and full granaries provide a sense of relative plenty. Poorer households take advantage of the post-harvest dry season, when they are no longer engaged in agricultural labour, to increase petty trade activities and the collection and sale of building poles. They also find odd jobs locally, helping repair huts or provide construction labour. People need to set aside money at this time to prepare for the costs associated with the coming agricultural season and to pay back any loans accrued in the past year.

Wealth Breakdown

In Maasai communities, cattle ownership and family size are the major determinants of wealth. The more cattle a man owns, the more wives he is likely to marry, the more children he tends to have and the bigger his boma.⁵ The Maasai term which applies to a rich boma, *Orkasis*, combines material wealth with status, and effectively means that you have a lot of cattle and a lot of children. *Ortajiri* is a term used for those who have a lot of cattle but a small family, in which case, although food secure, the boma is not really 'rich' in local terms,

⁵The boma is the fundamental economic unit in Maasai society. A boma is a physical settlement comprised of a man, his wives, their children and their associated livestock.

and is not viewed as prestigious by the community⁶. Not just status, but significant economy advantages can accrue with having a large family. Children provide an important pool of labour for the many tasks associated with both crop production and managing large herds of livestock. In addition, when girls marry, their parents are paid in cattle; and older sons may earn money through mining or other means that gets channelled back into the boma. Thus a better off boma may be comprised of up to six wives, each of whom has 7-9 members in her hut; whereas a very poor boma would have just one wife with 6-8 family members.



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

The man owns the boma’s cattle and he distributes them among his wives, for her use. The livestock numbers in the chart above refer to the average number of livestock per wife. Thus, it is not surprising for a better off household to be in possession of over a thousand cattle if he has five wives, each with 200 cattle. Very poor households, on the other hand, have almost no livestock by Maasai standards, and are just barely scraping by.

A secondary factor in determining wealth here is the total amount of land cultivated by the household. This is related largely to the amount of labour the household can draw on, both from within the household and by hiring. Only middle and better off households hire labour, and they are also in a position to rent or own tractors, which significantly increases the area under cultivation. Poorer households cultivate by hand and do not have the cash to hire extra labourers during the critical crunch periods, such as planting and weeding. As a result, poor households generally only cultivate around 1 -3 acres, whereas better off households cultivate 5 – 15 acres.

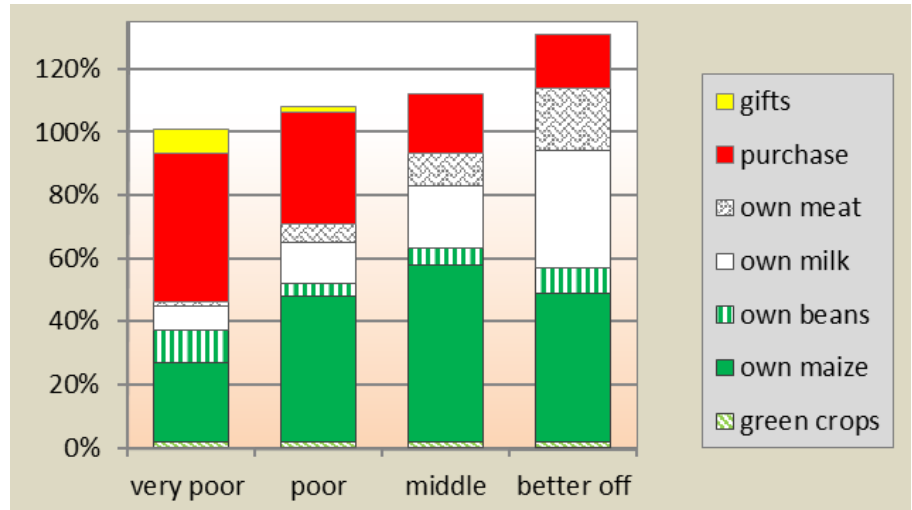
The distribution of wealth in this zone is fairly even. Very poor (25%) and poor (30%) households together comprise just over half of the households in the zone. Middle (30%) and better off (15%) households combined represent just under half the population. However, as middle and better off households are larger, with multiple wives and more members per wife, 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 much larger.

Intra-community redistribution and support is an important aspect of Maasai culture. The redistribution that takes place via the local agricultural market is one way this support is channelled. Poorer households are also provided with gifts of food in the form of milk, meat and grain, even in good years. In bad years, this support can be life-saving.

⁶ Boudreau, T., Household Food Economy Assessment, Arusha Region, Save the Children, 1999

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 2014 to March 2015. 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.



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.

Livestock, which are the basis

of the household economy, are also fundamental to the household diet in this zone. Milk and meat from households' own livestock bring in a substantial portion of required calories over the year. Own crop production, purchased food and gifts (for those on the lower end of the wealth spectrum) provide the remaining calories.

The traditional Maasai pastoral diet used to be comprised of milk, purchased grain, meat and (occasionally) blood. Over the past thirty years, the diet itself has not changed much, but the balance in how people source their food in years with relatively good rainfall has shifted away from purchased grains and towards their own production. In the reference year - which was deemed by community leaders to be an average year - the calories supplied by households' own crops accounted for 35-65% of minimum food energy requirements. Most of this was from maize, planted during the *masika* season; and the rest was from beans. A typical very poor household, cultivating around two acres of land was able to produce around 870 kg of maize and 210 kg of beans. On the upper end, better off households, cultivating around 10 acres of land, generated around 3,180 kg of maize and 1,000 kg of beans. Households sold between 40% and 60% of the maize they produced, generating an important source of cash income. All three of the upper wealth groups also sold a good portion of their beans (50-70%), with this proportion increasing with wealth; it was more common for very poor households to consume rather than sell their beans.

Whereas maize and beans provide a large proportion of the calories for households in this zone, milk is still a critical part of the diet, both in nutritional and in cultural terms. Milk provides a primary source of food for young children and all members of the household continue to drink large amounts of it (both fresh and curdled), especially in the wet season, when yields are high. The contribution of milk to the household food basket increases with wealth, since wealthier households are, by definition, those with larger herds. Food is managed at the household level, with each wife allocated a particular number of cattle which provides milk for her children and other household members. Very poor households rely on the milk from around 2 cows and 6-7 goats; poor households have around twice that number of cows; middle and better off households have between 12 and 18 cows milking, and 16 to 18 goats milking. On average, cows here (which are the Zebu variety) produce 2 litres of milk a day during the first rainy season (lasting around four months) and 1 litre of milk a day in the second season (which lasts around two months). Goats yield only around ¼ of a litre a day and lactate for a period of around 2 months. When added together, these sources of milk generated around 700 litres of milk for very poor households and as much as 5,640 litres of milk for better off households during the reference year. Some of this milk was sold by households in the top three wealth groups, but the milk that was consumed accounted for around 10-40% of the calories required by households. Meat (from animals that were either

slaughtered or died naturally throughout the year) contributed an additional source of food, especially for middle and better off households, for whom it covered 10-20% of their minimum food needs.

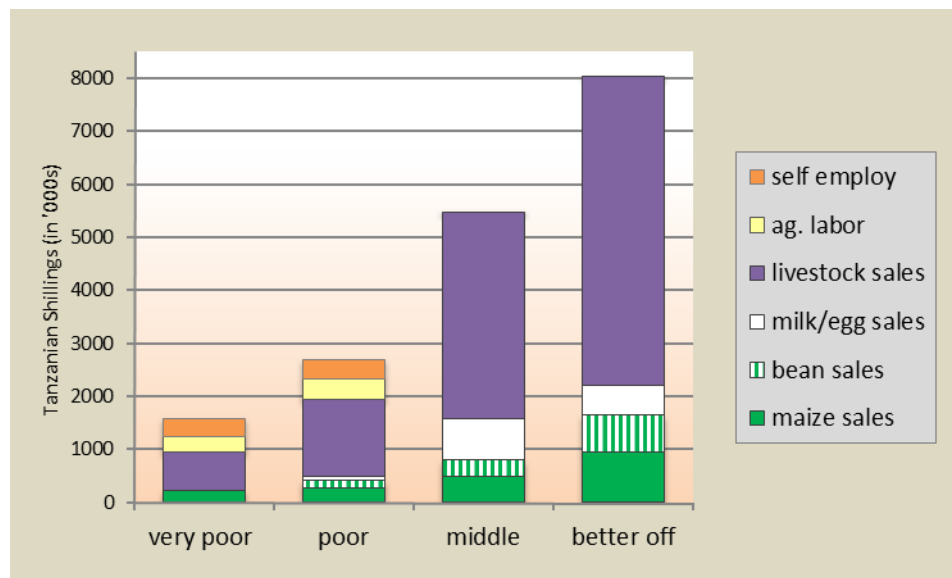
The market accounted for almost all the remaining calorie needs of households, comprising around 17-47% of the reference year’s food basket. Those in the upper two wealth groups bought less (17-19% of minimum calories) than those in the bottom two wealth groups (34-47% of minimum calories). This is, in part, because the poorest wealth group did not produce enough of its own food – either in the form of crops or milk and meat, to cover all of its calorie needs, even though it was a relatively good year. Poor, middle and better off households, on the other hand, could have feasibly met all their calorie needs with their own crop production if they had not sold any of their harvests or milk. If very poor households had not sold any of their crops, (they generally do not sell milk) they would have been left with a deficit of over 20% of minimum calorie requirements (assuming no gifts). On the other hand, poor households in the same scenario would have had a surplus of over 20% of minimum food needs; and a typical middle household produced 135-140% of minimum calorie requirements in the form of food, with an additional 45% of minimum calorie requirements produced in the form of milk. Finally, a typical better off household produced 208% of minimum calorie requirements in the reference year in maize and beans and 68% of minimum calorie requirements in milk. Nevertheless, all households sell part of their harvests in average years in order to meet their cash needs, which means that those in the two bottom wealth groups, have a real food deficit (after sales) that needs to be met with purchased food. This is supported by the observation that these two wealth groups bought 18-35% of their calorie needs in the form of maize grain. Middle and better off households did not buy any maize at all, rather buying food to add variety to their diet, including rice, beans, sugar, and oil.

Finally, providing assistance to poorer relatives is part of a long tradition of community assistance that forms a vital part of Maasai culture. Gifts of food (mainly milk and meat) made up 2-8% of minimum calorie needs for poor and very poor households during the reference year.

Sources of Cash Income

As shown in the graph to the right, there are two main sources of cash income in this livelihood zone: crop sales and livestock sales; and because poorer households do not have enough crops or livestock to meet all of their cash requirements, they supplement these by working on local farms and by engaging in various other self-employment activities.

The income profiles for the better off and middle households are similar in terms of the relative importance of each source of cash. What differs is the absolute cash income, with the average better off



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 ⁷	1,360,000 – 1,900,000	1,900,000 – 4,000,000	4,000,000 – 7,000,000	5,500,000 – 13,930,000

⁷ The average exchange rate from April 2014-March 2015 was 1 USD = 1,800 TZS

household's annual income in the reference year around 50% higher than the average middle household's. This is due mainly to a difference in livestock sales; better off households sold, on average, around 14 cattle during the reference year, whereas middle households sold around 9. Because it was an average (and not a bad) year, cattle were sold by the upper wealth groups primarily to maintain a desirable herd composition. A typical Maasai herd is composed of more than 50% adult females in order to maximize milk production and livestock reproduction rates. The majority of steers are sold off each year, along with old bulls and unproductive females. Thus, the larger the herd, the more cattle that need to be sold to maintain a balance in favour of productive females. This helps explain the high cash incomes seen in this livelihood zone, and it explains why better off households bring in much higher cash incomes than their poorer neighbours. In bad years, when more cash is needed, additional livestock may be sold to generate cash to balance out a loss in crops or to destock in the face of pasture loss. In addition to cattle, all households sell goats, sheep and chickens. The income from chickens is quite marginal, bringing in less than 5% of annual income from livestock for most households. But sheep and goats combined accounted for 17-35% of livestock income in the reference year. In relative terms, sheep and goats are more important for the poorer two wealth groups (making up 30-35% of livestock-based cash income) than for the upper two wealth groups (making up 17-19% of livestock-based cash income). Sales of goats and sheep allow poorer households to generate cash income without selling cattle, allowing these poorer households to focus on building their herds while still helping them meet basic needs.

Owning cattle also provides households with the opportunity to generate cash income from milk sales. Milk sales alone accounted for around 14% of the annual cash income for middle households. Poor households benefitted far less from milk sales and better off households simply did not need to go to the trouble given their other income sources. Very poor households did not produce milk for sale, but they did sell eggs. The income from egg sales, however, was negligible, barely showing up on the graph above.

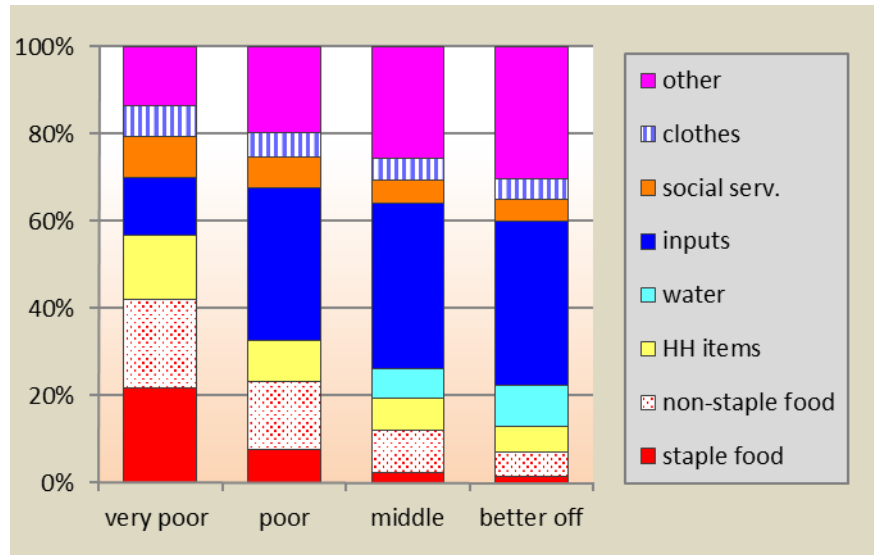
All households also sold maize and most sold beans in the reference year. Crop sales combined accounted for 15%, 16%, 15% and 21% of annual cash income for very poor, poor, middle and better off households, respectively. Maize was the more important of the two crops sold, generating 55-100% of crop-based cash income. Very poor households sold no beans at all, consuming what they grew instead. Beans are more valuable on a per kilogram basis than maize, so this balance between maize and bean sales is something that is likely to shift in bad years, with a greater emphasis on sales of beans (a high value crop) in order to fund the purchase of maize when the maize crop fails.

Very poor and poor households do not have enough livestock, nor do they generate enough of their own crop production to cover all of their cash needs during the year, so they fall back on seasonal agricultural labour and self-employment or petty trade to help them fill the remaining gap. Seasonal agricultural labour and self-employment combined accounted for around 40% of the annual cash earned by very poor households in the reference year; and agricultural labour and petty trade covered just under 30% of the cash earned by poor households in the reference year. Planting and weeding periods are quite labour intensive, and better off households, who have 5-15 acres under cultivation typically hire poorer household members to help them with these tasks. Poorer households typically had at least one, and sometimes two, members working in the fields of middle or better off households during three months of the cultivation and weeding months. They provided labour again during harvesting times. In addition, very poor households sold building poles, helped build huts and fences and found other ways to earn cash during the dry season. At the same time, poor households were more likely to be engaged in petty trading activities, buying and reselling commodities such as tobacco, soda or household goods, generating a small margin of profit in the process.

Expenditure Patterns

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

As indicated in the graph, households here need to spend money on a range of essential items and services throughout the year, including: food (both staple and non-staple), household items, productive inputs, social services, like schooling and health, as well as clothing and other miscellaneous items. The patterns shown in the graph above highlight a number of points.



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

First, even in a normal year like the reference year, very poor households must devote a relatively large proportion of their annual cash to meeting immediate food needs, with the proportion of annual cash spent on staple foods highest for very poor households. In the reference year, households in the very poor wealth group bought around 35% of their minimum calories in the form of maize grain, the cheapest staple. The amount of maize grain purchased by poor households covered around 18% of their minimum calories; middle and better off households did not purchase any maize grain at all. What shows up on the graph as 'staple food' for these wealth groups is actually rice and some oil. Without this purchased maize grain, the two poorer wealth groups would have been facing a food deficit. All households also spent money on non-staple foods, such as sugar and rice. Sugar is used in relatively high amounts here, with around 1-2 kg of sugar purchased by all households every week.

Second, in the graph above, the 'hh items' category includes basic household necessities, such as tea, salt, soap, kerosene, grinding services and utensils. Households tend to pay for these items week by week in incremental amounts. Within this category, poorer households spent the most money on payment for grinding, followed by soap. These two items alone comprised 50-55% of the inputs budget for poorer households in the reference year. Better off households spent the most on soap followed by grinding. On an annual basis, spending on basic household goods comprised 6-15% of total expenditure, generally decreasing as a proportion of annual expenditure as wealth increases.

Third, poor middle and better off households, invest a large proportion of their annual cash in productive inputs. This investment is shown as 'inputs' on the expenditure graph above, and includes the following: livestock drugs, water for animals, ploughing, seeds and tools, labour, livestock purchase, and phone credit. Of these items, the poorer two wealth groups spent the majority of their money on livestock drugs, followed by livestock purchases. Poor households were distinct from very poor households in their heavy investment in ploughing (spending sixteen times more than very poor households on this item and 25% of their inputs budget), which highlights a determination to use their resources to maximum effect with the aim of moving up the wealth spectrum. More crop production ultimately translates into bigger herd sizes, since having more of one's own-produced food reduces the need to sell cattle to buy food; and more crop sales can also fund livestock purchases. Again, this divide between very poor and poor households is highlighted with the difference made in livestock purchases, with poor households spending around four times more than very poor households on

buying new livestock in the reference year. Middle households spent the most on livestock purchases – even more than better off households. In relatively good years, like the reference year, the herds of better off households are big enough to ensure a rapid rate of increase through natural reproduction, so their livestock purchases are not as high; middle households, on the other hand, need to augment the rate of increase afforded by natural reproduction with purchases if they want to build herds quickly. Better off households had to invest large amounts of cash into livestock drugs (which took a full third of their inputs budget in the reference year), labour for their fields (which took a fifth of their inputs budget), and water for their livestock (accounting for an additional fifth of this budget). Having larger herds and more land generates a high income, but it also requires enormous investments.

Fourth, spending on water for human consumption for middle and better off households is notable. These households in the upper two wealth groups incur costs associated with pumping from dams and shallow wells and paying others to transport water to their bomas by cart. The poorer two wealth groups fetch water themselves, and they generally do not incur costs for pumping because they get their water for free from better off and middle households.

Households also spent money on education and medical services, which are shown on the graph as ‘social services’. Schooling expenses included school fees, uniforms, stationery and transportation, where relevant. On a per capita basis, holding household size constant, poor households spent around the same on education as very poor households, whereas middle households spent around 1.5 times more than very poor households, and better off households spent almost 2 times more than the poorer two wealth groups. This additional expenditure reflects the fact that poorer households are usually not able to afford to send their children beyond primary school, whereas those at the upper ends of the wealth scale are likely to send them through at least secondary school. Secondary schools are found only at ward level, which creates costs that are prohibitive for poorer households, including things like transportation, boarding, higher fees and more expensive uniforms and supplies. On health care, better off households spent more than three times as much as very poor households on a per capita basis, indicating that these households may have had access to better clinics.

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

Hazards

There are a number of hazards that affect this zone on a regular basis. The first is **crop pests and diseases**. Stalk borers, which affect maize; and American bollworm, pollen beetles and yellow blight, which affect beans, cause problems throughout the zone almost every year. The second chronic hazard is **livestock disease**, such as East Coast fever, anaplasmosis, babesiosis, ornillo and trypanosomosis, affecting cattle, sheep and goats, as well as contagious bovine pleuropneumonia (CBPP) and contagious caprine pleuropneumonia (CCPP) for cattle and goats, respectively⁸. Helminthiasis (worms) is also a common problem, along with New Castle Disease, which can wipe out an entire flock of chickens. Livestock diseases can cause significant herd losses, translating into large declines in income. **Wild animals** and **human diseases** are additional challenges faced every year in this zone.

The main, and most devastating, periodic hazard is **drought**, which leads to severe crop failures, degradation of pastures, drying up of local water sources and spikes in food prices. Although pastoralists in this area have been coping with cyclical droughts throughout centuries, and build up herds in good years as a means of insurance

⁸ <http://www.lrrd.org/lrrd26/8/swai26138.htm>

during bad years, the loss of mobility and access to grazing areas over the past half century puts limits on the capacity of people here to manage droughts as effectively as they once did.

Response Strategies

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

- All households try to **reduce expenditure** on non-essential or more expensive items first, buying less sugar and rice, for instance, and using that money to buy the cheaper staple – maize – instead, or cutting down on festivals, tobacco and beer.
- All households also try to increase their **livestock sales**. One of the reasons the Maasai maintain large herds is so they have a buffer in bad years. Poorer households have less protection, because they can afford to sell only a few animals and still maintain viable herds. Better off households tend to be in a fairly comfortable position in this regard, with large numbers of excess livestock to draw down on. However, it should be kept in mind that the value of livestock tends to drop in bad years, both because supplies increase as more people try to earn cash in the same way, and because their body condition deteriorates as grazing and water resources decline.
- Very poor and poor households try to increase cash income through **finding more casual work**, either locally (working in many cases in direct exchange for food) or migrating outside the zone. In particular, people may go to the Tanzanite mines to find more work in a bad year. 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.
- Poorer households also turn to better off relatives and neighbours for help. **Community assistance** is a vital part of Maasai culture and internal re-distribution mechanisms provide an important means for poorer households to make it through bad years.

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 *Southern Maasai Agropastoral Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through on-going monitoring systems or through periodic assessments.

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

Item	Key Parameter - Quantity	Key Parameter – Price
Crops	<ul style="list-style-type: none"> • Maize – amount produced • Beans – amount produced 	<ul style="list-style-type: none"> • Maize – producer price • Beans – producer price
Livestock production	<ul style="list-style-type: none"> • Cow milk – yields • Own meat – amount produced • Cattle – herd size • Goats – herd size • Sheep – herd size • Chickens – numbers 	<ul style="list-style-type: none"> • Cow milk – price • Cattle – producer price • Goats – producer price • Sheep – 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 building poles • Petty trade – volume of trade 	<ul style="list-style-type: none"> • Agricultural wage rates (land clearing and preparation, planting, weeding) • Agricultural labour rates (harvesting) • Prices of building poles • Petty trade - margins
Expenditure		<ul style="list-style-type: none"> • Maize grain – consumer price • Vegetable oil – 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.

- 1) Improve access to and availability of safe and reliable water supplies for humans and animals
- 2) Improve access to more reliable supplies of drugs and improve health services
- 3) Improve education services, deploying sufficient numbers of primary and secondary school teachers and adequate school facilities
- 4) Offer subsidies to poorer households on agricultural and livestock inputs to enable them to invest more easily in their production.
- 5) Develop and implement land use policies that can help protect communal grazing and agricultural lands.
- 6) Develop and support the infrastructure to enable the proliferation of reliable and fair markets for crops and livestock
- 7) Improve road infrastructure and invest in maintenance of existing roads
- 8) Provide electric service throughout the zone
- 9) Facilitate access to agricultural loans with affordable interest rates for appropriate beneficiaries
- 10) Improve communication networks/infrastructure
- 11) Provide means for building cattle dip tank
- 12) Experiment with alternative income projects, such as bee hives, for poorer households
- 13) Improve security with establishment of a police post