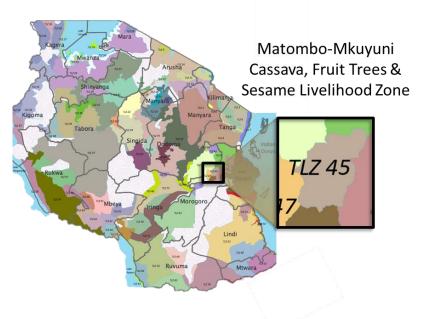
Tanzania Livelihood Baseline Profile

Matombo-Mkuyuni Cassava, Fruit Tree & Sesame Livelihood Zone (TLZ 45)

March, 2015¹

Zone Description

The Matombo-Mkuyuni Cassava, Fruit Tree and Sesame Livelihood Zone is located in the mountainous highland areas of Matombo and Mkuyuni, southeast of Morogoro Town. Most of the zone falls within the Uluguru mountain range. The zone's boundaries include 10 wards: Mtombozi, Kibungo, Juu, Kibogwa, Tefetero, Kinole, Kisemu, Lundi, Tawa, Mkyuni and Kiroka. The original delineation of the livelihood zone by FEWS NET in 2008 characterized the zone as one in which spices were the main cash crop. However, the current field work found that spices are only grown in villages at higher elevations, such as Lugeni and Mtombozi, and these villages make up roughly 30% of the



zone. The findings in this baseline describes the non-spice growing areas (applying to 70% of the zone).

The vegetation found in this zone is largely forested mountainous areas and some marshlands. Large hardwood trees such as the East African mahogany, flowering plants (Uvaria) Albizia, Nala trees, and Wild Kapoks are found here. The major rivers in this zone include the Mfizigo and Mhangazi in Kisemu Ward; the Mtombozi River in Mtombozi Ward; the Bamba River in Kiroka Ward; and the Ruvu River, which surrounds Mkuyuni and Lundi wards. Natural resources include rubies and gold, timber and game. Fertile clay loamy soils and annual precipitation of 1000-3000 mm encourages a wide range of crop production, including fruit trees, such as bananas, coconuts, mangoes and oranges. Temperatures range from 20 – 30° C. The zone is known as a food surplus zone with high potential for crop production. Cassava and maize are the main food crops – with cassava slightly more dominant - while households grow sesame and fruits (bananas, coconuts, oranges, mangoes) primarily for sale. Other crops produced in the zone are rice, sorghum, breadfruit and pigeon peas.

The majority of households in this zone use traditional cultivation methods. Land is prepared using hand hoes and intra-household labour (for poorer wealth groups) and hired labour (for the upper end of the wealth spectrum). Many crops are inter-cropped, and standard spacing methods are not applied in this mountainous terrain. The majority of households do not use fertilizers or pesticides. Men tend to prepare the land, while planting and weeding is done by both men and women. Bird-scaring is mostly done by children.

¹ Fieldwork for the current profile was undertaken in March 2015. The information presented in this profile refers to the reference year, which started June 2013 and ended May 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 years (i.e. until May 2019). All prices referred to in the document are for the reference year.

Agriculture is the main economic activity for the majority of the zone's residents; they supplement crop production with petty trade and transport services. Petty trading consists of selling essential and non-essential goods in kiosks, selling prepared foods as well as fruit, vegetable and grain sales at market centres and village markets on a weekly basis. Both men and women engage in petty trade activities year round. Boda-boda (motorcycle) transporting is an important income-earner for middle and better off households, who own motorcycles and hire drivers to transport people and goods throughout the zone. The owner receives a percentage of the profit and manages the upkeep of the motorcycle.

Services in this zone are relatively basic. Water for human and livestock consumption is obtained from local rivers, springs and water streams. On a daily basis, households, usually women and children, collect water in jerry cans, carrying them from the water source to their homes. Distances to water points vary, but can be as far away as 30 minutes travel by foot. Nearly all households use pit latrines, some of which are highly unsanitary. Ward and district dispensaries are the main health care facilities used by the zone's residents. Not every villages has a dispensary, however, and it can take between 20-45 minutes via *boda-boda* to reach the nearest health facility. Households use a variety of methods for basic lighting including kerosene lamps, battery-charged torches, charcoal and firewood. A few villages have access to electricity. Every village has at least one primary school and there is a secondary school in every ward. Most households have access to credit via Savings and Credit Cooperative Societies (SACCOS) and village community banks (VICOBA).

Markets

Market access in this livelihood zone is relatively good. Proximity to the larger regional market of Morogoro and good connections to Dar es Salaam allow for a steady flow of commodities into and out of the zone. The tarmac main highway connecting Morogoro to neighbouring regions is accessible throughout the year. Dirt feeder roads connect villages with Morogoro town, which can make travel during the rainy season challenging. Most households use *boda-bodas* to take them to market centres in Morogoro; these trips cost 5,000-6,000 Tsh each way. Market centres within the livelihood zone costs around 1,500 Tsh per trip.

Most of the crops produced in the livelihood zone are sold at village markets; from there traders transport the crops to Morogoro or Dar es Salaam by trucks. Bananas and coconuts are sold throughout the year, however, the peak months for coconut sales are January, March, June and October. Mangoes are sold at the farm gate to traders from December to January. From the farm traders transport the mangoes to the main market at Morogoro and Dar es Salaam. Traders also purchase sesame (simsim) directly from the farm gate after the harvest in June and July. They then transport it to markets in Morogoro and Dar es Salaam.

Though spices are grown in a minority of the villages in the zone there are a few market centres worth mentioning, specifically Mtombozi, Mtamba, Mkuyuni, Kiloka, Tawa and Kinole. Traders from Morogoro and Dar es Salaam purchase spices (clove, black pepper, cardamom, cinnamon and curry) from farmers in these villages and transport the goods to the larger regional market.

Chickens are the main livestock sold in the zone and most households sell a goat or two a year as well. Traders or other households typically purchase the animals at the farm gate. It is uncommon for households to sell their animals at the smaller market centres in the zone.

Maize and rice are the main food purchased by households in the livelihood zone. Most of the maize intended for local consumption is purchased from January through March at the small markets within the wards, e.g. Mtombozi, Mtamba, Mkuyuni, Kiloka, Tawa and Kinole.

The labour market here is almost entirely local. Agricultural labour opportunities, specifically land preparation, planting, weeding and harvesting, are usually plentiful, with middle and better off households seeking extra help on their larger farms. A minority of the zone's residents seek work opportunities in Morogoro town and in Mvuha Division, where rice harvesting creates a large demand for seasonal labour.

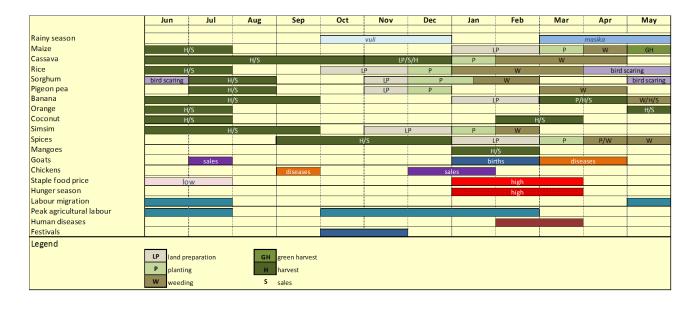
Timeline and Reference Year

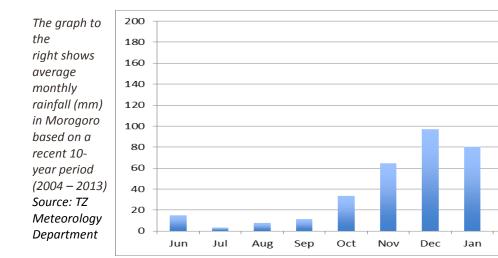
The baseline assessment refers to a very specific time period called the reference year. In the *Matombo-Mkuyuni Cassava, Fruit Tree and Sesame Livelihood Zone* the reference year covered the period from June 2013 to May 2014. During community leader interviews, informants were asked to rank the last 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 that the reference year was ranked as an average. The baseline information presented in this profile provides a view into how households in this livelihood zone make ends meet in a typical year, drawing on a normal range of options.

Year	Rank	Critical Events		
2014	4	Good rains and crop production, fair prices		
2013	3	Average rains, production and prices		
2012	3	Average rains, production and prices		
2011	3	Average rains, production and prices		
2010	3	Average rains, production and 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





The seasonal calendar above documents the timing of different activities throughout the year in this primarily rain-fed economy. This zone has historically been bimodal, with two distinct rainy seasons — one occurring from October through December (the *vuli* rains) and one occurring from March through May (the *masika* rains). In recent years the *vuli* rains have been increasingly unreliable and these days the *masika* rains are the ones that people depend on. Nevertheless, for long-cycle crops like cassava, that require less consistent rains and less cumulative precipitation, the *vuli* rains provide an opportunity to begin planting. This is also the case for sorghum and pigeon peas, which are planted in December, and sesame, which is planted in January. Maize, on the other hand, is planted in March, when the *masika* rains start, since maize has little tolerance for long dry spells.

Feb

Mar

Apr

Mav

What strikes one when looking at the seasonal calendar is the sheer number of different crops and activities that people in this livelihood zone must tend to. Banana plants, orange trees and coconut trees alongside mangoes and – in some areas – spices, all require specific care at different times of the year; and in addition a wide range of very different food crops require attention. Maize, cassava, rice, sorghum, sesame and pigeon peas are all planted, weeded and harvested throughout the year, not all at the same time, and each requiring a slightly different set of skills. Birds must be scared away from the sorghum and rice from April through June, which is the same time that maize, cassava and pigeon peas need to be weeded and – in areas where spices are grown – when the spices need to be planted and weeded. Maize, cassava, sorghum, pigeon peas, rice, bananas, oranges, coconuts, and sesame are all being harvested in July, a time when demand for labour on all farms is high, and especially challenging for poor and very poor households, who must harvest what they can from their own fields while at the same time working for middle and better off households to earn cash income. Another period of peak agricultural labour is with land preparation activities, starting in October for rice and extending through February for maize; in between this time various crops are being planted and weeding activities begin. Very poor and poor household members are hired throughout this period to help out on the farms of their better off neighbours.

The hardest time of year, for poorer households especially, is January through March. This is known as the hunger season – a period when many people's own stocks have run out and before the new harvest is ready. Staple food prices are highest at this time of year due to the increased demand and the dwindling supplies. This is also a time when human disease tend to occur most frequently, and – in March – animal diseases as well; the need to buy animal and human drugs places increased demands on already strained resources.

			Wealth Groups Characteristics			
		HH size	Land area cultivated food crops (acres)	Fruit trees (oranges & mangoes)	coconut trees	Goats/chickens
Very poor		7-9	1-2	6 - 8	5 - 7	8 - 10 chickens
Poor		6 - 8	2 - 3	19 - 21	19 - 21	1 - 3 goats; 12 - 16 chickens
Middle		5 - 7	3 - 4	30 - 34	30 -34	5 - 7 goats; 20 - 24 chickens
Better off		5 - 7	5 - 6	33 - 37	35 - 41	9 - 11 goats; 26 - 30 chickens
	% 20% 40% % of households					

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

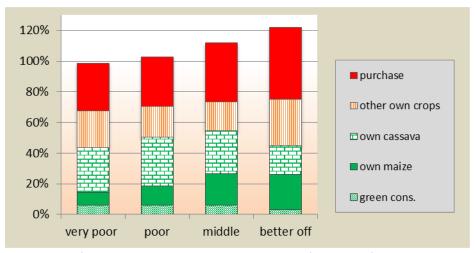
Wealth in this zone is determined by the number of acres cultivated and the number of fruit trees and coconut trees maintained. How much land a household cultivates depends, in turn, on the amount of intrahousehold labour it has, as well as its capacity to hire outside labour. All cultivation is by hand; tractors and plough oxen are not used in this zone because the hilly and mountainous terrain does not allow for them. Very poor households typically have around 2 able-bodied people available to work, whereas the other groups have around 3. Middle and better off households have enough cash available to hire help on their bigger farms. This ability to hire others is the main characteristic that distinguishes them from the poorer groups. Other factors that determine wealth include owning a kiosk or a motorcycle, which is used to transport people and goods for a fee (boda-boda). All households own at least one mobile phone, but better off households usually have more than one; and all but the very poor also own a bicycle. Livestock is not an important determinant of wealth in this zone. The mountainous geography is not conducive to free-range grazing, especially for cattle, and people in this area are not traditionally livestock keepers.

Very poor households cultivate 1-2 acres and own 6-8 fruit trees and 5 – 7 coconut trees. These households are busy year-round, both on their own farms and working as labourers on the farms of better off households. They depend mainly on selling part of their harvest and on working for others to earn cash; they also occasionally sell a chicken for a small return if they need extra income. Poor households are similar to very poor households in that they also work for other households to earn cash income. But they usually have a bit of extra labour in their households which can be deployed to cultivate larger areas of land and to take care of more fruit trees. They tend to own goats in addition to chickens, which can bring in significantly more money when sold. Very poor and poor households together make up 45 – 55% of households in the zone.

The largest of the four groups is the middle category. These households make up around 30 - 35% of the zone's households; they typically cultivate around 3 - 4 acres, own 30 - 34 fruit trees and the same number of coconut trees, and often earn extra cash through *boda boda*. Middle households have just enough land to warrant hiring extra help, and these households typically pay for extra labour during cultivation and harvest times. Better off households have a similar pattern to middle households, but cultivate more land, own more trees and hire a good deal more labour to help on their farms. They also tend to have more chickens and goats, which they can cash in when necessary to pay for festivals or various other seasonal expenses. In addition, instead of just one motorcycle, better off households tend to have two, doubling the cash income they can earn from *boda boda*.

Sources of Food

The graph to the right presents the sources of food for households in different wealth groups in the livelihood zone for the period June 2013 to May 2014. June 2013 represents the start of the consumption year because it is when people begin to consume green crops and marks the end of the hunger period. Food is presented as a percentage of 2100 kcal per person per day for the 12month period.



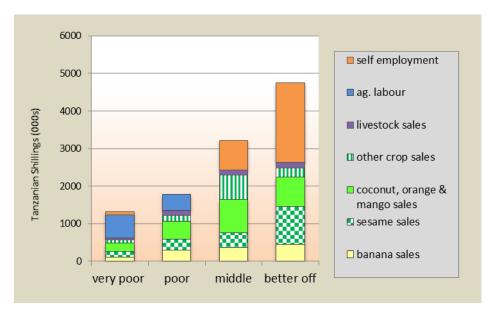
In the graph, food access is expressed as a percentage of minimum food requirements, taken as an average food energy intake of 2100 kcals per person per day.

There are only two sources of food in this livelihood zone: own crop production and purchases. Household produce between 68% and 75% of their minimum calorie requirements, buying the rest from the market. Quite a diverse range of food crops contribute to household consumption: maize (a small proportion of it eaten green, to break the hunger season), cassava, rice, sorghum, pigeon peas, bananas, breadfruit and coconut are all part of the home-produced diet. Of these, cassava (in the form of dried flour) makes up the biggest portion for very poor, poor and middle households (22 – 25% of minimum calorie needs for these three groups compared to 15% for better off households). This drought-resistant crop is a reliable staple that contributes a meaningful base in average years and can be drawn on as a reserve stock in bad years when other crops do less well. Maize is relatively more important for better off households as is rice. These two crops make up almost 40% of minimum food needs for better off households, compared to only around 17% for very poor households. This reflects better off households' access to more productive land and their ability to invest adequate labour and inputs into these more intensive, and higher value crops. Other crops, such as pigeon peas, sorghum, bananas, breadfruit and coconut cover between 7% and 15% of annual food needs for local households, providing supplemental calories and a variety of nutritional benefits.

Households purchase the balance of food they need. It is important to understand that better off households would be able to cover around 150% of their minimum calorie requirements if they did not sell any of their staple food, whereas very poor households, even if they retained all of their production would still be left with a gap of around 15%. In other words, very poor households buy food to cover a real food gap most years, whereas better off households buy food to diversify their diets, and also to maximize the value of their crop sales. Very poor households concentrate their purchases on staple grains, mainly maize grain (the cheapest of the staple grains) and maize meal, also buying small amounts of rice, beans, sugar, oil and dried fish. Middle and better off households do not buy maize grain, purchasing maize meal and rice (the most expensive of the staples) instead, along with more beans, sugar, meat, oil and dried fish. They use purchased food to increase their protein and fat intake rather than as a means of just covering staple grain requirements.

Sources of Cash Income

There are four main sources of cash income in the Matombo-Mkuyuni Cassava, Fruit Tree and Sesame Livelihood Zone. Households sell their own crops at different times of the year for cash; they work on others' farms for cash; they sell livestock; and they engage in a number of different selfemployment activities. As shown in the graph to the right, crop sales are the most important source of cash for poor, middle and better off households. Agricultural labour is the most important source for very poor households. The upper two wealth groups supplement their crop sales with livestock



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

INCOME SUMMARY TABLE (in Tanzanian Shillings)								
Wealth group	Very poor	Poor	Middle	Better off				
Annual income per household ²	1,045,000 – 1,600,000	1,190,000 – 2,280,000	2,450,000 – 3,800,000	3,480,000 – 4,700,000				

sales and self-employment; poor households supplement their crop sales with livestock sales and labour sales; very poor households also generate a small amount of cash from self-employment in addition to minimal income from livestock sales.

The main cash-earning crops in this zone are sesame, bananas, coconut, oranges and mangoes. Small amounts of other crops, such as maize, pigeon peas, sorghum, rice, and cassava are also sold. Sesame is grown only for sale and not for household consumption. This is a particularly profitable crop for better off households, who can generate over a million shillings a year from sesame, accounting for around 40% of their crop sale income. All fruit sales (including bananas, coconuts, oranges and mangoes) bring in around 50% of crop income for these same households. The remaining 10% of crop income is covered by sales of rice, sorghum and maize. The relative contribution of different crops to total crop income is similar for the other wealth groups, although absolute amounts of cash income gained are, of course, lower for the bottom two groups.

What is notable is that middle households generate almost as much absolute cash income from crop sales as better off households. The difference in their cash income profile is in self-employment income. Better off households make significantly more from self-employment activities than any other group, covering around 45% of their annual cash income from this source alone. For better off households the self-employment category includes sales of prepared foods, petty trade and *boda boda*, with *boda boda* being the most important of these. Because they often own two motorcycles, better off households can make the equivalent

² The average exchange rate from June 2013-May 2014 was 1 USD = 1,585 TZS

of half their combined crop sales from this activity alone. Middle households also earn cash from *boda boda*, but typically do not engage in petty trade or prepared food sales.

Very poor households, on the other hand, porter bananas to make extra cash (categorized as self-employment in the graphic above), earning a small amount of extra income this way. But their main cash income-generating activity is working on the farms of middle and better off households during land preparation, planting, weeding and harvesting times. Typically two people from very poor households will work for around 13 days a month for two months during each of these periods. Pre-harvest cash income in payment for this work totals around 464,400 Tanzanian Shillings. An additional 154,800 TSh is earned from harvesting labour. In total, agricultural labour income covers over half of very poor households' total cash income for the year. Poor households do less agricultural labour for payment because they concentrate as much as they can on their own fields, making more from crop sales to offset the need for labour income.

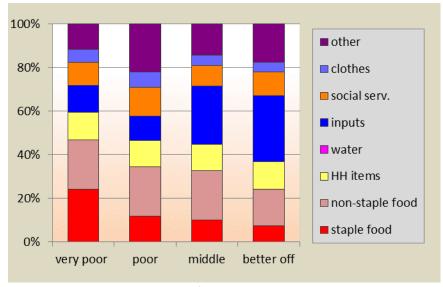
Livestock sales provide a small amount of supplemental cash for all households. Poor, middle and better off households sell around one goat per year, making 40,000 – 50,000 TSh from this source; they also sell around 10 chickens, each for 10,000 TSh. Very poor households own only chickens, and they do not tend to own very many, so they can only sell around 5 chickens a year, bringing in only around 50,000 Tsh a year from livestock sales, or less than 5% of their annual cash income.

Expenditure Patterns

The graph presents expenditure patterns for the reference year June 2013 to May 2014. While total expenditure increases with wealth, the expenditure breakdown by percentage in this graph shows the relative amount of income spent on different categories.

Two general points can be made about the patterns highlighted in the graph to the right.

First, poorer households spend a greater proportion of their annual cash income on staple food and non-staple food than



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

do middle and better off households. Staple food – in this case maize grain, maize meal, wheat and rice – comprises around a quarter of very poor household expenditure and less than 10% of better off household expenditure. Very poor and poor households are the only ones to buy maize grain, which costs under half as much as the processed maize meal. Very poor households buy around 360 kg of maize grain and maize meal combined a year, whereas better off households buy no maize grain, buying maize meal, wheat flour, and rice (the most expensive staple) instead. In total, better off households buy around 310 kg of staple grains each year and spend even more on this category than very poor households, but as a proportion of their total cash income it is less than poorer households. Similarly, better off households outspend (in absolute terms) all the other households on non-staple foods, but in relation to their other expenditure the relative spending on non-staple foods is less than other groups. Non-staple foods include beans, sugar, oil, and dried fish, as well as vegetables, meat and cassava for some of the upper wealth groups (but not the very poor).

Second, middle and better off households spend substantially more than the lower two wealth groups on agricultural inputs, including animal drugs, land rental (for the better off), ploughing, seeds, tools, and labour. Very poor households spend money only on seeds and tools, and their smaller plot sizes means that their spending on this line item is quite low. Poor households, in addition to spending on seeds and tools also buy some animal drugs. But the real costs come for middle and better off households, who spend around 452,000 Tsh and 684,000 Tsh a year, respectively, on just hiring labour. Better off expenditure on inputs, at around 1,434,000 Tsh a year is over 8 times higher than very poor expenditure in this category.

There are a few other things to note about expenditure: all households spend a significant amount every year on household items, including tea, salt, soap, kerosene, utensils and grinding. These weekly or monthly outlays, while seemingly small at the time, accumulate over the year, and account for 12-13% of total cash income spent by all households. Spending on social services, which includes education and health, is highest for better off households and lowest for very poor households. Better off households spend over three times more on education than very poor households, sending their children beyond primary school to secondary and sometimes even higher levels. They also spend more on health – not necessarily because they get sick more, but because they can afford to buy drugs when they do. In very poor households, illness often goes untreated; even if the local dispensary carries the necessary drugs, which is not always the case, very poor households may not be able or willing to cover the costs.

Hazards

The *Matombo-Mkuyuni Cassava, Fruit Tree and Sesame Livelihood Zone* is subject to a number of hazards, some of which undermine food security every year while others threaten food security periodically. The main hazards affecting the zone, in order of severity, are:

Crop pests and diseases, such as Orange Dog and flea beetle, Cassava brown streak, and Cassava mosaic cause a threat every year. Army worm infestations occur less regularly, about one in every three years.

Livestock diseases, Newcastle disease (chickens) and CCPP (goats) occur regularly as well – typically during the rainy season.

Wild animals, especially monkeys but also wild pigs, can cause substantial damage to crops, especially if the fields are not regularly monitored during the growing phase.

Response Strategies

Households engage in various strategies in an attempt to cope with hazards. These include:

Bird/Animal Scaring: To reduce crop losses from bird and animals eating the growing grain or fruit, farmers in the zone use family or hired labour to scare off birds and animals.

Increase agricultural labour: To increase cash earnings very poor and poor households add an additional household member to work on the fields of the middle or better off. Already-employed agricultural labourers, typically the head of the household, will increase the number of working days.

Chicken sales: If possible, households will sell more chickens to purchase staple foods. For very poor households, with limited chicken numbers, this is clearly a limited strategy.

Increase petty trade and *boda boda operation*: If there is demand, middle and better off households will increase petty trade activities and the number of days they operate their *boda boda business*.

Purchase of crop pesticides: Households with sufficient cash, purchase pesticides to reduce crop losses from

pests.

Reduce purchase of non-essential items: All households spend less on non-essential items, switching their expenditure to critical food or non-food items. These non-essential items include batteries, cosmetics, clothing, transport, grinding and utensils, festival costs, beer and cigarettes.

Switch expenditures from high cost food to low cost food: In addition, households can reduce consumption of non-staple foods such as cooking oil, sugar, rice and beans in order to buy more of the cheaper staple, maize grain.

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 *Matombo-Mkuyuni Cassava, Fruit Tree and Sesame 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	Maize, season 2 – amount produced	Maize, season 2 – producer price
	Rice – amount produced	Rice – producer price
	Bananas – amount produced	Bananas – producer price
	Cassava – amount produced	Dried cassava – producer price
	Sesame – amount produced	Sesame – producer price
	 Oranges – amount produced 	Oranges – producer price
	 Mangoes – amount produced 	Mangoes – producer price
	Coconut – amount produced	Coconut – producer price
Livestock production	Goats – herd size	Goats – producer price
	Chicken – herd size	Chicken – producer price
Other food and cash	Agricultural labour (land preparation,	Agricultural wage rates (land)
income	weeding) – number of jobs	preparation, weeding)
	 Agricultural labour (harvesting) – 	Agricultural labour rates
	number of jobs	(harvesting)
	 Demand for boda-boda 	Boda-boda prices
Expenditure		Maize meal – consumer price
		School fees
		Soap prices
		Cooking oil 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.

All wealth groups suggested the following priorities:

- Improvement in provision of health services/facilities (availability of medicines)
- Provision of reliable safe and clean water services/ facilities
- Subsidization of agricultural inputs (fertilizer and improved seeds)
- Improvement in telecomunication and road infrastrure
- Improvement in provision of agricultural extension services.
- Facilitation of reliable and fair market for crops

Poor, middle and better off households also suggested the following:

- Support access to loans/credits at low interest interest rates
- Introduction of livestock projects such as dairy farming.