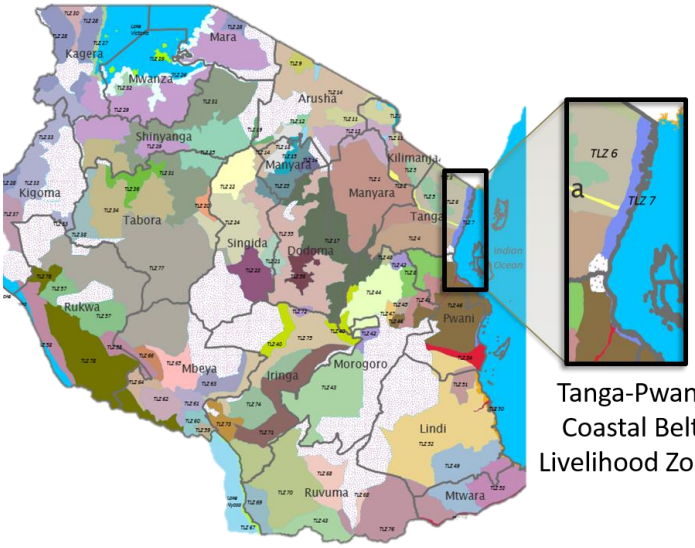
Tanzania Livelihood Baseline Profile

Tanga-Pwani Coastal Belt Livelihood Zone (TLZ 07) April, 2016[1]

Zone Description



Tanga-Pwani Coastal Belt Livelihood Zone

The *Tanga-Pwani Coastal Belt Livelihood Zone* comprises a very narrow strip of land along the coast of the Indian Ocean, including parts of Tanga Municipal, Muheza, Mkinga, Pangani, Rufiji, Bagamoyo and Mkuranga districts[2]. The main ethnic groups residing here include the Zigua, Digo, Bondei, Sambaa, Pemba, Makonde, Tumbatu and Wadoe. The population density is 38 people per square kilometre[3].

Warm, lowland, flat plains characterise this zone. Villages are located within a narrow strip of land along the coast, interspersed with agricultural land and mangrove forests. The Pangani and Zigi rivers flow through on their way to the Indian Ocean, providing a source of fresh water to those who live in close proximity. The Saadani National Park is located at the southern end of the zone. Fish are the main natural resource, and they provide all households living here with significant food and cash income.

Annual rainfall levels vary quite a bit, ranging from 600-1400 mm depending on the year and the location. The average annual precipitation for Pangani, based on a 43-year time series, is 1,176 mm. Rains fall in two seasons, the *vuli* from October to December and the *masika* from March to May. The masika rains are far more reliable and plentiful, and crop production relies heavily on these second rains. Soil fertility is relatively high, and this is a moderately productive zone despite inconsistent and unreliable rains.

The household economy rests on two main pillars: crop production and fishing. Cassava and maize are the main food crops, although paddy is also produced in small quantities, along with cowpeas and green gram. These crops are all harvested only once a year, because the *vuli* rains are not sufficient for planting two cycles. Maize is produced almost entirely for home consumption, whereas cassava is grown both for consumption and sale, as are the other crops. Oranges, coconuts and cashews provide additional income for households who own fruit and nut trees. Ox ploughs and tractors are not used here and all households cultivate by hand. The most labour-intensive activities are land preparation and weeding and for these tasks, households with larger tracts of land hire those with less (both men and women) to work in their fields.

[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 June 2014 and ended in May 2015. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to ten years (i.e. until 2020-2025). All prices referred to in the document are for the reference year.

[2] Only a very narrow strip of coastal land is included in the zone. The coastal parts of the following wards are included in the zone: Moa, Manza, Kwale, Chongoleani, Mzizima, East Chumbageni, East Nguvumali, East Mzingani, Mabawa, Tangasisi, Tongoni, Kirare, Kigombe, Kimang'a, Pangani, Mashariki, Mwera, Mikunguni, East Tungamaa, and Mkwaja. The following wards are not part of the zone: Madanga, Marungu, Maweni, Mwanzange, Mabokweni, and Duga.

[3] District Socio-economic profiles, 2014

People are also hired for planting and harvesting, but the demand is not as high for these tasks. Payment is made in cash, providing an important source of income to poorer households.

In addition to crop production, people from all households are engaged in fishing in one way or another throughout the year. The degree to which fishing contributes to a household's income is related to its ownership of fishing equipment – especially boats – and its ability to hire others to help fish. Poorer households work on the boats of better off households, or absentee urban boat owners, who hire local residents to manage their boats. They are paid in both cash and in fish, some of which is used for household consumption, and some of which is sold. Households with more fishing equipment use nets and bring in much larger quantities of fish, most of which is sold to generate cash income. Fishing is done mostly at night in the Indian Ocean, although some also dive for shell fish during the day. Only men are engaged in fishing.

All households own small numbers of livestock, although the types and numbers owned vary by wealth. Very poor households, for example, only have chickens, whereas better off households own cattle, goats and chickens. Even better off households do not have large herds, however, because the demands of fishing and crop production already take most of a household's time, and adequate grazing areas (and water resources) are not available to sustain large numbers of cattle. Cattle and goats graze (and browse) freely and are also given crop residues after the harvest. Chickens are fed grain and food scraps. Those who own cattle use them for milk, which is consumed at the household level and also sold, and they also sell live animals, especially young bulls, for cash. Goats are also sold for cash, and slaughtered for meat during festivals and other important occasions. Livestock rely on water from small rivers, shallow wells and seasonal pools during the rainy season; in the dry season, water from deep wells is purchased by the bucket for livestock. The expense of keeping livestock watered during the dry season is another reason that people do not keep large herds of cattle. Men are responsible for taking care of cattle and goats, whereas women and children manage the chicken flocks.

Poorer households, who have smaller plots, minimal fishing equipment and fewer livestock, earn cash from seasonal labour - clearing land, planting, weeding, harvesting and working on fishing boats. Some find work in local towns on construction projects. During times of low agricultural demand, they also collect and sell firewood or burn and sell charcoal, and produce and sell sea salt. Better off households may own small kiosks or otherwise engage in petty trade, buying and selling household goods like soap, kerosene and tobacco.

Service provision here is on a par with much of rural Tanzania. Each village has tap-water, which households purchase for drinking purposes. Water for washing and laundry comes from open wells at no cost. All households use pit latrines, and some better off households use improved pit latrines. Health dispensaries are found at village level and health centres are located in ward centres. Health facilities are not well-staffed, however, and dispensaries are often poorly stocked. Primary schools are found in the villages as well and secondary schools are at ward level. Most poorer households send their children through primary school but not to secondary school because they cannot afford the extra expenses involved with secondary school, including transportation (and sometimes boarding), uniforms, stationery and books. Middle and better off households, on the other hand, typically send their children to secondary school and even college. Electricity is available in only a few villages; most households depend on battery-operated torches and kerosene lanterns for light; some better off households also have solar lanterns. Almost all households have mobile phones, with better off households having multiple phones. Only better off households have access to credit through SACCOS, and options for savings are not available. There are no NGOs or development agencies working in the area.

Markets

The transportation infrastructure in this zone is not well developed. The zone comprises a narrow strip along the coast with rough dirt roads. The only main towns are Pangani and Tanga. Vehicles can access villages in the dry season, but in the rainy season much of the area is inaccessible.

Fish, cassava, sesame, oranges, coconuts and cashews are the main food items produced and sold in this zone. Cattle, goats and chickens are the main livestock sold. All crops are sold at the farm gate to traders who transport them on to urban markets. Cassava is collected by traders in large bags and taken by truck to Tanga from October to March. Oranges (sold from June to August and then December to January) and coconuts (sold from December to March) are likewise taken to Tanga and then trucked onwards to Dar es Salaam, or to Arusha. Sesame has a longer journey, making its way overseas to terminal markets in India via the Dar es Salaam or Mombasa ports. Sesame sales take place in August, after the harvest.

The local demand for fish comes from inland villages and nearby towns, like Tanga; but there is also a wider network of distribution, and traders come from Dar es Salaam and Arusha town to buy up local supplies. Dried fish is transported by truck, but fresh fish is taken by vehicle or boats installed with special freezers. The peak trade in fish occurs from February through April, when winds are calm and fishing is most productive.

Chickens are sold within villages and to nearby towns like Pangani and Tanga, as are goats. The most common time for these animals to be sold is February through May, at the peak of the lean season. Traders go village to village buying up cattle, which get transported to urban centres for consumption. December and February through May are both peak times for cattle sales.

Local households buy food throughout much of the year, with the demand for staple grains increasing during the lean season from January through May, even in years of good production. Maize is the cheapest local staple, and most of this is sourced from Handeni, Dodoma, or Kilimanjaro. Tanga acts as the main distribution point for maize that comes into the zone. Rice, a more expensive grain, is sourced from Morogoro or Mbeya and distributed via the Tanga market. Beans come from Kilimanjaro, Handeni, and Iringa, making their way to village shops via Tanga. Non-food essentials, like salt, soap, batteries and kerosene, are sold in local kiosks, often by better off households.

The labour market is mostly local, either in the agricultural sector, where seasonal jobs are found, or the fishing sector, where people find work as daily labourers on boats. Middle and better off households hire additional labour to help them complete the more intensive seasonal tasks, such as land clearing and weeding, and people are needed almost year-round on fishing boats. It was estimated that in the reference year, 80% of seasonal labour was found within the zone. An additional 20% of labour demand came from local towns. While men and women both engage in seasonal agricultural labour, only men are involved in fishing labour.

Timeline and Reference Year

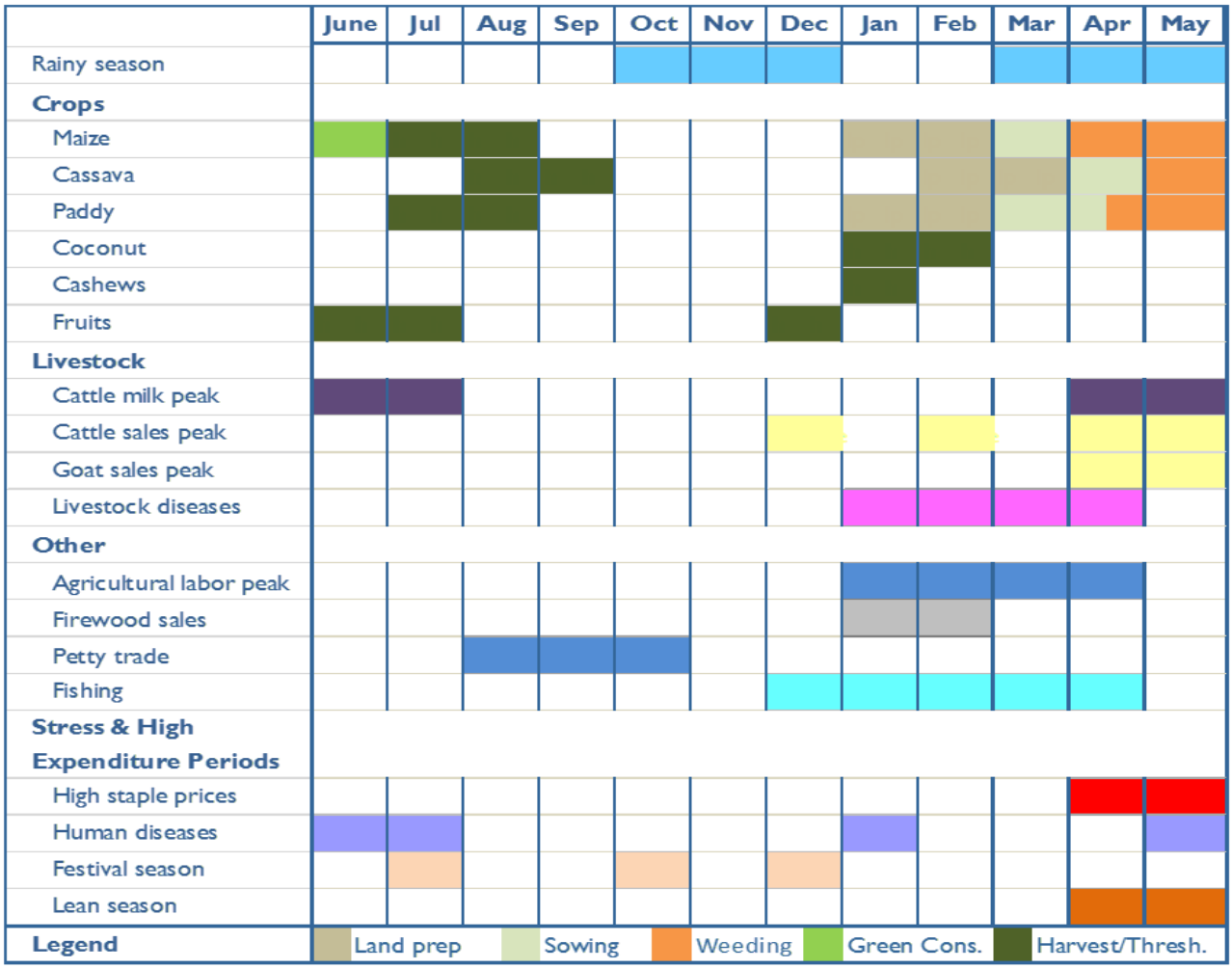
The baseline assessment refers to a very specific time period called the reference year. In the *Tanga-Pwani Coastal Belt Livelihood Zone* the reference year covered the **consumption** period from June 2014 to May 2015. During community leader interviews, informants were asked to rank the last four years (eight seasons) in terms of seasonal performance with '1' indicating a poor season and '5' an excellent season. The table below, which summarizes the response of the community leaders, shows year quality by *production* year (which starts with the *vuli* season planting period in October/November and ends with the *masika* harvest in June-August/September 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, rainfall during the production year corresponding to the reference year was relatively good in the *masika* season and below average during the *vuli* season. Harvests of food and cash crops were relatively good. In the past eight seasons, four were below average, three were average and one was above average.

Production Year	Season	Rank	Critical Events
2014-2015	*Vuli*	**2**	Poor rainfall distribution and poor maize yields; average cassava yields; high food prices
	Masika	**3**	Average annual rainfall distribution, average crop yields, average prices for food crops; lower prices for cash crops

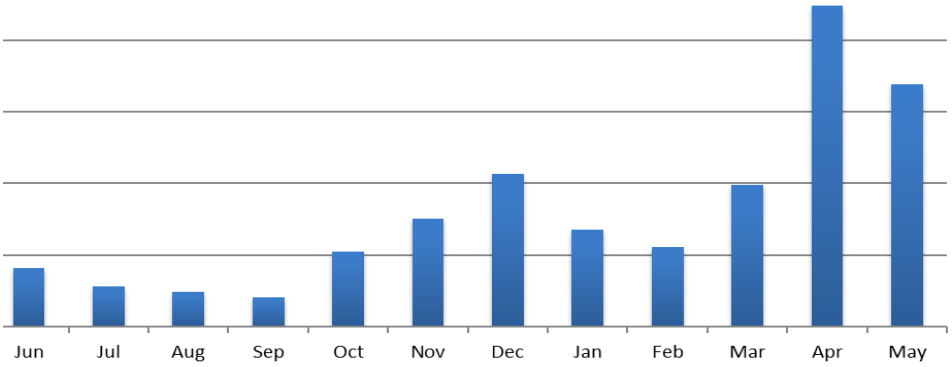
2013-2014	*Vuli*	**2**	Below average rainfall distribution, poor maize yields, average cassava yields, high food crop prices
	Masika	**4**	Good rainfall distribution; good harvest of food and cash crops; lower cash crop prices; good prices for sesame
2012-2013	*Vuli*	**2**	Below average rainfall distribution, poor maize yields, average cassava yields, high food crop prices
	Masika	**3**	Average annual rainfall distribution, average crop yields, average prices for food crops; lower prices for cash crops; striga affected crops in some areas
2011-2012	*Vuli*	**2**	Below average rainfall distribution, poor maize yields, average cassava yields, high food crop prices
	Masika	**3**	Average annual rainfall distribution, average crop yields, average prices for food and cash crops; wild animals destroyed crops in some areas

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

Seasonal Calendar for Reference Year



The graph to the right shows average monthly rainfall (mm) in Bagamoyo District based on a 43 - year period (1968-2010)
Source: TZ Meteorology Department



In this livelihood zone there are two distinct rainy seasons: the first, called the *vuli*, starts in October and lasts until December or January; rains for the second season, called the *masika*, start in March and last through May. The main food crops are only planted and harvested once, in the *masika* season, because the *vuli* rains cannot support a full production cycle. However, fruit and nut tree crops, which do not require the same consistent distribution of rains, are typically harvested twice a year. January through May are busy months in this livelihood zone. Land preparation begins after the *vuli* rains have softened the ground, usually starting in January and continuing through February. Maize and paddy are planted in March as soon as the *masika* rains are well-established. New cassava cuttings are planted as needed a month later, in April. April and May are the weeding months, requiring long days of work in the field. During these first five months of the year, very poor and poor households divide up their intra-household labour pool, with some family members working in their own fields and others hired to work in the fields of middle and better off households. For these households, much of the year's cash is earned during this time, as shown below in the section on 'Sources of Cash Income'. The green harvest begins in June along with the orange and mango harvest. The green harvest is particularly important for poorer households who buy the majority of their food when their own stocks run out, usually starting in February or March. Being able to eat maize green helps them to reduce their expenditure requirements. The main harvest for maize and paddy begins in July. Cassava can be harvested throughout the year, but a concerted harvest and sale takes place in August and September, helping households raise revenues to buy inputs for the next year's agricultural season. December, January and February are months when middle and better off households benefit from the coconut and cashew harvests, along with a second season of mangoes and oranges. This helps them raise the cash they need to hire poorer household members who work for them during the agricultural season.

The post-harvest period (August, September, October) is when the majority of petty trade takes place, which benefits middle and better off households who earn money from trading crops and processed foods, or who sell household goods to other households who have newly-earned income from their crop sales. October is also a time when festivals occur, as it is a relative down-period before the peak fishing season starts, and it coincides with a time when people have more cash on hand. Other festival months are July, as harvests are brought in from the fields, and December.

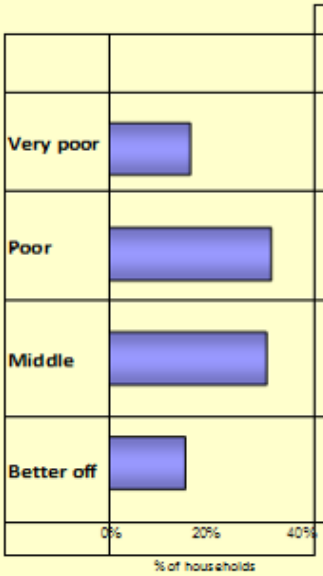
The main fishing season is from January through April, when winds are minimal and seas are relatively calm. This coincides with much of the agricultural season, which means that families divide their labour, sending some men to work on fishing boats while women and older children work the fields, or working some evenings on fishing boats and others in their fields. Either way, it is a very busy time and people are fully engaged with productive tasks.

Milk production is highest from April through July. This is when fresh pastures and water sources, fed by the *masika* rains, provide animals with the nutrients they need for birth and lactation. At this time the consumption of milk is highest within the household, and cash income from the sale of milk peaks. Livestock diseases may occur any time throughout the year, but the rainy season is when some of the most damaging ones, such as East Coast Fever, Contagious Caprine Pleuropneumonia (CCPP), and Black quarter, are likely to occur. Cattle sales peak in December, February and April and May. December sales help fund the end of year festival season as well as school fees, which are due in January. Money is also needed for agricultural inputs in February and labour hire

in April and May. April and May is also when staple food prices tend to be highest, generating another requirement for extra cash.

Human diseases have a seasonal pattern as well, with respiratory infections peaking during the dry seasons, and malaria highest in the wet seasons. Having a sick household member creates hardships on a number of levels, especially for poorer households who need as much labour on hand as possible to manage the competing demands of their own farms, seasonal agricultural labour, fishing labour and income generating activities like firewood sales, salt processing and sales, and charcoal sales.

Wealth Breakdown



	Wealth Groups Characteristics					
	HH size	Land owned (acres)	Land cultivated (acres)	Livestock	Poultry	Other
Very poor	4-6	1-2	0.5-1.5	0-5 goats;	5 - 15 chickens	1 bicycle; 1 cell phone
Poor	5-7	2-4	2-3.5	0-3 cattle; 3-8 goats	10-15 chickens	1 bicycle; 1 cell phone
Middle	5-7	3-7	3-5	2-6 cattle; 10-15 goats	10 - 20 chickens	1 bicycle; 2 cell phones; 1 boat; 2-7 nets
Better off	5-7	5-10	4-8	5-10 cattle; 10-30 goats	15-30 chickens	1-2 bicycles; 2 cell phones; 1-2 boats; 5-15 nets

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

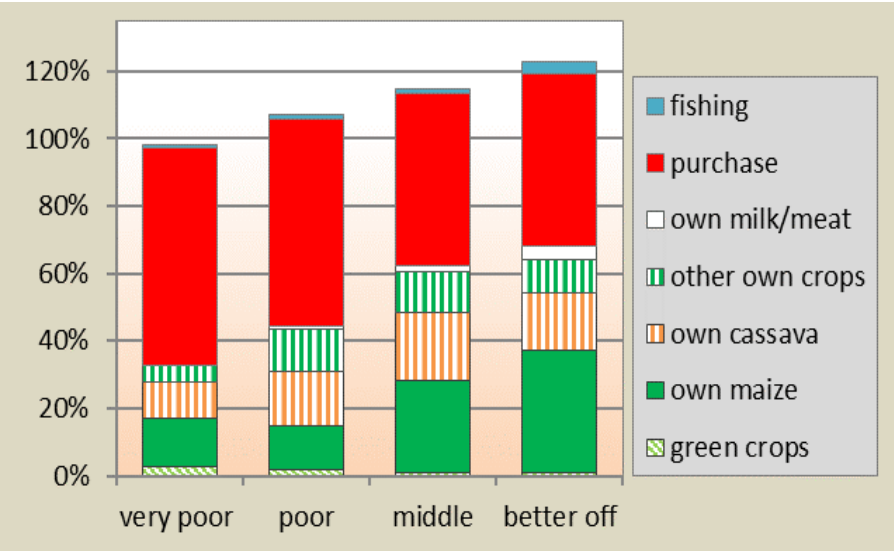
In this coastal zone, differences in wealth are determined in part by the area of land cultivated by a household and in part by its ownership of fishing equipment. Livestock numbers are a third differentiating factor. Those at the top of the wealth breakdown cultivate between 4 and 8 acres of land, own 1-2 boats as well as nets and other fishing equipment, and own 5-10 cattle, along with other smaller livestock. Those at the bottom cultivate 0.5 to 1.5 acres, own no cattle, and only a small number of goats (if any) and chickens.

The difference in access to food and cash income for households at these two ends of the spectrum is quite large, with better off households able to generate all their required food and cash from their own fields, boats and livestock; whereas those at the bottom need to supplement their own production with various off-farm activities. All households have cell phones and bicycles, although those at the upper end have more than one of each. Bicycles act as a key means of transporting people and goods. Cell phones have become an essential means of staying connected to people and information, and there are both productive as well as social reasons for having them.

The distribution of wealth in this zone is fairly even. Very poor (17%) and poor (34%) households together comprise just over half of the households in the zone. Middle (33%) and better off (16%) households combined represent just under half the population. Amongst these groups there is a fair amount of re-distribution and intra-community links are strong; better off and middle households hire poorer household members to work in their fields and on their boats. Without the labour of the lower groups, the production that better off groups generate would not be possible. Likewise, without the cash income supplied from agricultural labour, poorer households would not be able to survive.

Sources of Food

The graph to the right presents the sources of food for households in different wealth groups in the livelihood zone for the period June 2014 to May 2015. June represents the start of the consumption year because it is when people begin to consume green crops 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.

Households in this zone obtain their food in four ways: they grow it themselves, they buy it, they get it from fishing, and they derive it from their livestock (in the form of milk and meat). The differences in relative reliance on these four sources shown in the graph reflect the differences in wealth discussed above in the 'Wealth Breakdown' section. Better off households cultivate more land, and therefore have a higher reliance on own crops; they also have more livestock, which gives them access to milk and meat; and they have fishing equipment, which means they consume more of their own catch. Poorer households, on the other hand, with less land, less livestock and less fishing equipment, must buy more of their food to make up for gaps in their capacity to produce it.

A range of different crops are grown for consumption, including maize and cassava, the main staples, along with small amounts of paddy, cowpeas, green grams, sesame and coconut. Maize is grown in the *masika* season, and cassava can be harvested throughout the year as needed. In the reference year a typical poor household produced around 260 kg of maize, a typical middle household produced around 480 kg of maize, and a typical better off household produced around 670 kg. Between 20% and 40% of the maize produced was sold, with poorer households selling a higher proportion than better off households. Thus home-grown maize contributed 15-35% of the minimum calories needed by households. Cassava is produced in higher quantities than maize, and in the reference year very poor and better off households harvested around 480 kg and 2,300 kg of cassava, respectively. Because of its lower calorie per kg contribution, however, cassava accounted for only 10-20% of the minimum calories needed by households, after sales. The other crops provided an additional 5-10% of annual calories, along with maize eaten green, which provided less than 5% of minimum calories.

Most of the calories that people did not grow in their own fields, they purchased instead, and the purchase category as a whole accounted for 50-65% of minimum food requirements in the reference year, decreasing in value as you move up the wealth spectrum. Within this category, purchased maize, the cheapest staple, was most important for very poor and poor households (making up 25-35% of minimum calorie needs) and less important for middle and better off households (contributing only 10-15% of minimum calories). Middle and better off households bought wheat flour and rice (more expensive grains) along with fresh fish, beans, sugar, meat, oil and potatoes. The poorer two wealth groups also bought these more expensive non-staple items, but usually in smaller quantities. The 'purchase' bar on the graphs above, therefore, represents a different set of priorities, depending on wealth group: poorer households bought food because they had to fill a real food gap; middle and better off households, on the other hand, bought food in order to diversify their food basket. This is further supported by the fact that if better off households had consumed all of their own maize, cassava and bean production rather than selling much of it, they would have been able to cover over 133% of their minimum food needs. Very poor

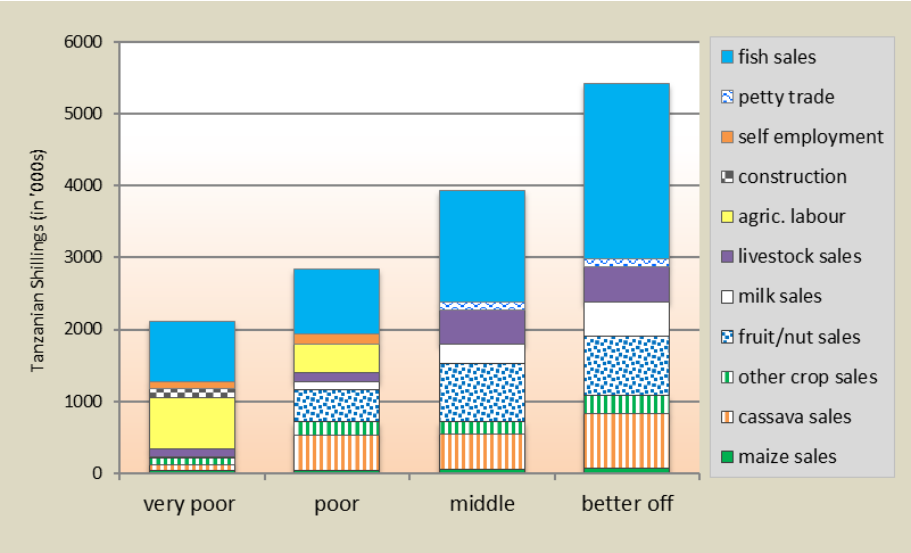
households, on the other hand, given the same assumptions, would have only been able to obtain 50% of minimum calorie requirements from their own production; and poor households also produced less than the amount needed. (Middle households, if they consumed everything they grew in the reference year could have covered 105-110% of minimum calorie needs.) Crops are grown not just for food, but also to generate cash, however, so all households needed to sell some of their production. The poorer the household, the bigger the post-crop-sale gap for the market to address.

Milk and meat contributed a small amount to the diet of middle and better off households, covering 2-5% of minimum calorie needs in the reference year. A typical middle household had 1 cow milking, and better off households had, on average, 2 cows milking. Cows here produce approximately 2.5 litres of milk a day during the first rainy season (lasting around four months) and 1.5 litres of milk a day in the second season (which lasts around three months). When added together, the milk from both seasons amounted to around 435 litres for middle households and 870 litres for better off households during the reference year. Over two-thirds of this was sold, providing some cash income (shown in the section below) for these wealth groups, leaving them with enough to cover 2-4% of their calorie needs. Meat from goats slaughtered throughout the year provides better off households with an additional 1% of minimum calories. Poor households may or may not benefit from milk, depending on their livestock profile. Very poor households, who generally do not own cattle, did not have access to this source of food or cash. It is worth noting that the milk from just one cow could have helped very poor households to close the calorie gap (of around 1% of minimum needs) they had in the reference year.

Fish caught by the household provide an additional source of calories. All households fish here, some using lines, hooks and baskets, others using boats and nets. Very poor households brought in around 270 kg of fish in the reference year, whereas better off households got around 840 kg. Much of this was sold, but the part retained for home consumption covered 1-4% of annual calorie needs. Although this is quite minor in terms of calories, the protein contribution is nevertheless important, especially for poorer households who do not have access to milking cows.

Sources of Cash Income

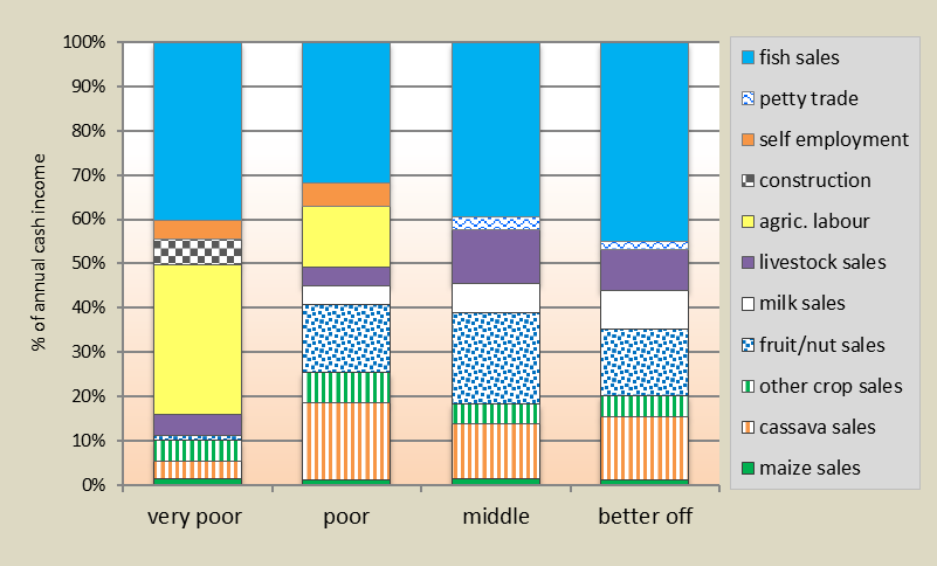
The graphs to the right highlight the unique importance of fishing in the local economy. Households here take advantage of their coastal location to make the most of this plentiful natural resource. In addition, a range of other income sources are drawn on, including crop sales (both food and perennial tree crops), milk sales, livestock sales, petty trade, self employment and local seasonal labour.



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

A fundamental difference in wealth is demonstrated in

these graphs: those in the top two groups were able to generate sufficient cash amounts in the reference year from their on-farm and fishing activities alone; but. those in the bottom two groups needed to supplement their on-farm and fishing sources with casual labour sales (in seasonal construction and agriculture) and self-employment activities. This relates back to the differences in productive assets owned and utilized by the different wealth groups. Poorer households are not able to cultivate enough land, do not own enough livestock, and do not have the means to exploit fishing to the extent that enables them to be 'self-sufficient' in terms of their production.



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 [4]	1,800,000 – 2,200,000	2,200,000 – 3,000,000	3,000,000 – 4,000,000	4,000,000 – 6,700,000

As shown in the graphs, 30-45% of the annual cash income for households in this livelihood zone is generated through fishing. In absolute terms, better off households earn 2.5 to 3 times more from fishing than poor and very poor households. Fishing takes place in the Indian Ocean, mostly at night, using fishing nets, hooks and lines, and on dhows, canoes, and bigger fishing boats. People from very poor and poor households may act as labourers on fishing boats owned by better off households, or on the bigger fishing vessels owned by urban dwellers. They are paid in cash, but also sometimes with a share of the fish they catch. Part of this is used for home consumption, and part is sold. They also devote some time to catching fish on their own using lines and hooks, or baskets. Those on the upper end of the wealth scale own their own boats, or manage larger boats owned by urban elite from Dar es Salaam, Zanzibar or Tanga. The cash generated from these activities is included in the graphs above under 'fish sales', and it helps provide households here with access to a source of cash almost all year round that is not available in neighbouring inland zones.

Crop sales are equally important as a source of cash for the top three wealth groups, accounting for 35-40% of annual cash income, but they comprise just over 10% of cash income for very poor households, a much smaller share. Middle and better off households cultivate 4 to 6 times more than poor and very poor households, which allows them to sell more of their production while still meeting a large portion of their food needs. Maize is sold in all quantities by all wealth groups, but this is not the main income earner. Cassava, sold in much larger quantities, provides the bulk of the food crop income. Better off households sold over 1,500 kg of cassava (on average) in the reference year, generating as much as 770,000 TZS. Cassava is more valuable per kilo than maize (450 TZS/kg compared to 350-390 TZS/kg for maize) and it is easier for households to grow larger quantities of this drought-resistant perennial than it is to grow maize, which is more sensitive to rainfall irregularities. Very poor households also depend most heavily on cassava, supplementing this with small amounts of cash from pulses, like cowpeas and green grams. However, their total income from crop sales is quite low most years, even in a relatively good year like the reference year. Another reason for their low cash income in this category is that, unlike the top three wealth groups, very poor households do not own any fruit trees or cashew trees. They gather and sell small

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

amounts of coconuts, but other households sell large quantities of oranges, mangoes and cashew nuts, which helps them to almost double the income derived from food crops alone.

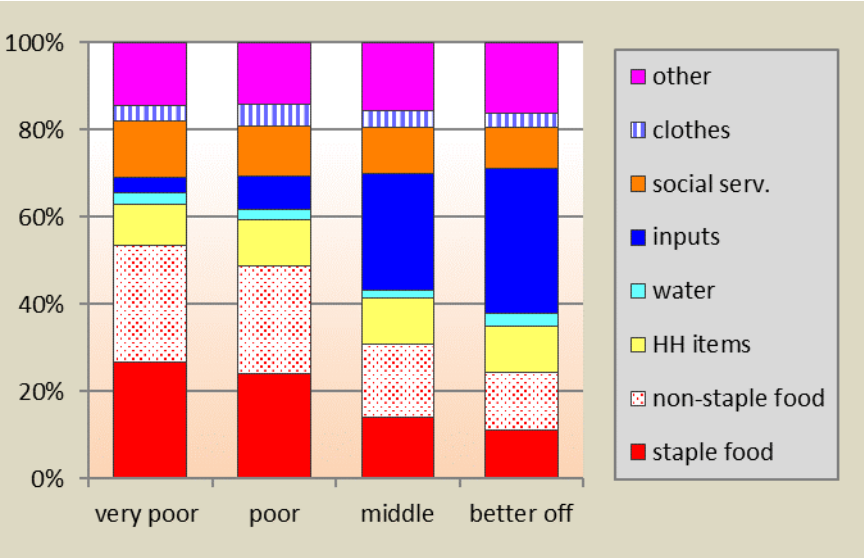
In addition to fishing and crop sales, the top two wealth groups depended on livestock sales and milk sales to make up almost all their remaining cash income in the reference year, and combined, these two sources accounted for almost 20% of their cash income. These sources comprised only 5-10% of cash income for poor and very poor households. In absolute terms, middle and better off households earned from livestock sales over 3 ½ times more than poor and very poor households. Middle and better off households typically sell a cow (at around 500,000 TZS) once every two years and they sell 3-4 goats (at 55,000 TZS each) every year. Very poor and poor households sell no cattle, and sell only around 1 goat a year. Chickens, which were worth around 10,000 TZS per hen in the reference year, were also sold by all wealth groups, averaging 5-7 hens sold per household. Chickens provided very poor households with almost half of their livestock-based cash income, small as that income may be. Having cattle affords the upper two wealth groups access to milk as well, much of which gets sold. As noted above, households with milking cows sold over two-thirds of the milk they generated in the reference year. This resulted in almost as much cash for better off households as live animal sales.

Very poor and poor households, because they have much less crop-based and livestock-based cash income, and because they earn less from fishing, turn instead to manual labour. Land preparation is a particularly difficult task as it is all done by hand; at least two members from poorer households work for middle and better off households during the months before the rains start getting fields ready to plant. They stay on to help with planting and weeding activities as needed, and some are even employed during the harvest months. Seasonal agricultural labour is the most important source of cash for very poor households outside of fishing, and it provided them with around a quarter of their cash income in the reference year. During the off season, when demand for agricultural labour dries up, poorer households seek daily employment in local towns, helping with house construction. Another source of cash, under 'self-employment' comes from 'harvesting' salt from the sea. None of these alternative sources of cash comes easy; they all require a large investment of time away from one's own fields and/or fishing, and they are not a guaranteed stream of income, dependent on the vagaries of the weather as well as their neighbours' demand.

Finally, middle and better off households also run small businesses and engage in petty trade, such as owning kiosks, selling prepared foods, and some with motorcycles pursue *boda boda* (motorcycle hire/transport).

Expenditure Patterns

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



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

As in other areas of Tanzania, households need to spend money throughout the year on a range of goods and services. These include: staple and non-staple food, household items, productive inputs, social services like schooling and health as well as clothing and other

miscellaneous items. There are three main points that emerge when delving into the data that supports the graph above.

First, relative expenditure on food, both staple and non-staple, decreases as we move up the wealth spectrum. In other words, poorer households have to spend a larger portion of their annual cash just to meet basic food needs. Even in a normal year like the reference year, very poor households devoted over a quarter of their income to staple foods, which consisted almost entirely of maize grain, the cheapest staple, along with small amounts of rice, beans, oil and dried fish. They spent the same amount on non-staple foods, which included wheat, sugar, fresh fish, meat, and potatoes. The three upper wealth groups spent more on non-staple foods than they did on staple foods, in part because they grew (or caught) more of their own staple foods, and in part because the non-staple foods were preferred commodities, so with more income available, spending on these increased.

Second, investments in productive inputs increase substantially as you move up the wealth spectrum. This category includes spending on livestock drugs, seeds and tools, labour, phone credit and fishing equipment. Very poor households generally devoted only 4-8% of their annual budget to productive inputs, either unable or unwilling to spend more. Middle and better off households spent 25-30% of their cash on their various productive pursuits. In absolute terms, better off households spent almost 24 times more on inputs than very poor households. In the reference year, two categories of spending were particularly high for middle and better off households: fishing equipment and labour hire. Middle households devoted around 50% of their inputs budget to hiring seasonal agricultural labour, and 25% to fishing equipment, similar to better off households. The amount that better off households spent on just hiring labour was equivalent to around ten times the amount very poor households spent on all of their inputs combined. Poorer households spent money on livestock drugs, seeds and tools and fishing equipment. Much of their inputs budget was devoted to phone credit. Only better off households invested in buying livestock.

Third, in the graph above, the 'hh items' category includes basic household necessities, such as tea, salt, soap, kerosene, grinding services, firewood and utensils. Within this category, the two poorer wealth groups spent the most money on soap and kerosene. Soap alone comprised 20-30% of this budget, and kerosene took up an additional 24% in the reference year. Better off households spent the most on kerosene. On an annual basis, spending on basic household goods, which occurred in weekly or daily incremental outlays, accounted for around 10% of total expenditure for all wealth groups.

Another point to note is that unlike in many rural zones of Tanzania, all wealth groups spent money on water for human consumption, with very poor households spending around 4,500 TZS a month on water and better off households spending around 12,500 TZS a month on water.

Households also spent money on education and medical services, which are shown on the graph as 'social services'. Schooling expenses included school fees, uniforms, stationery and transportation, where relevant. On a per capita basis, holding household size constant, absolute spending on school during the reference year increased as you moved up the wealth spectrum. Better off households spent around 1.5 times as much as very poor households although the difference between middle and better off households was not significant. Very poor households are generally only able to afford to send their children to primary school, whereas those at the upper ends of the wealth scale are likely to send them through at least secondary school, and sometimes on to college. With respect to health costs, better off households again spent around 1.5-2 times as much as very poor households on a per capita basis; it is likely that these households sought treatment, when necessary, at facilities other than the village dispensary.

Spending on clothes and other miscellaneous items are the last two categories included here. The 'other' category includes things like beer, tobacco, cigarettes, cosmetics, hair braiding, bicycle service, savings, transportation and festivals. This is discretionary spending that can be reduced or redirected in bad years to buy more essential items if necessary. In absolute 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. But in relative terms this category is fairly constant across all wealth groups.

Hazards

There are a number of hazards that affect this zone on a regular basis. The first is **wild animals**, which damage crops and reduce production. **Crop pests and diseases**, such as stalk borers and *striga* (or witch weed), which affect maize, and fruit flies, which damage oranges and mangoes, reduce yields on a regular basis, affecting access to both food and cash income. **New Castle Disease**, which can wipe out an entire flock of chickens, is also a regular concern, especially for very poor households who have no other livestock of note. Finally, **conflict** between livestock keepers and farmers is a fairly common occurrence in this zone. Pastoralists from other districts come to the coast to find grazing and water resources in the December to March period. Large herds of cattle destroy standing crops and conflict can erupt.

The main, and most devastating, periodic hazard is **unreliable or inconsistent rainfall**, occurring once every three years, and leading to serious declines in crop production. **Heavy winds and storms** are a problem for fishermen who find their fishing income decline in these circumstances. Less a hazard than a constraint, **unfavourable market conditions** for local farmers mean they are often forced to accept unfair prices for their commodities and this lowers the income for local residents every year.

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, or eliminating clothing purchases.

- Poorer households try to increase their **labour income** from fishing, working more hours on fishing boats and more days, if possible. This strategy is limited by the demand for fishing labour, which can be quickly saturated given the finite number of fishing boats.

- All households also try to increase their **livestock sales**. Poorer households have less protection, because they only have chickens and a few goats. Livestock herds are not large for any wealth group in this area, however, and it should be kept in mind that the value of livestock tends to drop in bad years, both because supplies increase as more people try to earn cash in the same way, and because their body condition deteriorates as grazing and water resources decline.

- Very poor and poor households try to increase cash income through **increasing self-employment**, especially making more charcoal and collecting and selling more firewood. They also try to process and sell more salt. This option is limited because as the year worsens, the number of people attempting to increasing their income in this way rises, increasing supplies on the market and pushing down prices. The amount of wood available locally is also limited.

- Better off households try to **increase their fishing income** by spending more hours at sea.

- Better off households also may **reduce their spending on agricultural labour**, which has knock-on effects for poorer households.

- Better off households with relatives outside the zone might increase their request for **remittances**, relying on this external source of funds to get them through the year.

Key Parameters for Monitoring

The key parameters listed in the table below are food and income sources that make a substantial contribution to the household economy in the *Tanga-Pwani Coastal Belt 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 – masika – amount produced • Paddy – amount produced • Cassava – amount produced • Sesame – amount produced • Coconut– amount produced • Oranges– amount produced	• Cassava – producer price • Sesame – producer price • Coconut – producer price • Oranges – producer price
Livestock production	• Cow milk – yields • Cattle – herd size • Goats – herd size	• Cow milk – price • Cattle – producer price • Goats – producer price
Other food and cash income	• Fishing - yields • Agricultural labour (land clearing and preparation, planting, weeding) – number of jobs • Agricultural labour (harvesting) – number of jobs • Construction – number of jobs • Firewood/charcoal – amount collected • Self-employment – level of activity • Petty trade – level of activity	• Fishing – producer prices • Agricultural wage rates (land clearing and preparation, planting, weeding) • Agricultural labour rates (harvesting) • Construction – labour rates • Firewood/charcoal - prices • Self-employment – return on activities • Petty trade – return on activities
Expenditure		• Maize grain – consumer price • Fish – consumer price • Rice – consumer price • Beans – consumer price • Sugar – consumer price • Oil – consumer price

Programme Implications

The longer-term programme implications suggested below, prioritized by wealth group, 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.

Very poor	Poor	Middle	Better off
Improve access to and availability of safe and reliable water supplies	Provide affordable and timely access to agricultural inputs	Provide affordable access to modern fishing equipment	Improve access to and availability of safe and reliable water supplies

Increase access to land for crop production	Provide affordable access to modern fishing equipment	Improve market infrastructure to ensure fair producer prices for both crop and fish produce	Provide electric services throughout the zone.
Provide affordable access to modern fishing equipment	Improve market infrastructure to ensure fair producer prices	Improve market infrastructure to ensure fair producer prices	Provide affordable and timely access to agricultural inputs
			Improve road infrastructure