

Turkana Livelihood Baseline Profile

Central Pastoral Livelihood Zone

June 2012¹

Zone Description

This livelihood zone (coded TCP on the map) occupies a central position in the county, between the Border Pastoral Zone (to the north, west and south) and the Lake Turkana Fishing Zone (to the east). Pastoralism is the preferred pattern of livelihood in this exceptionally hot, dry and arid environment and provides the main source of food and cash income for roughly eighty per cent of the population. The remaining twenty per cent of people are heavily dependant upon a combination of self-employment activities (charcoal, mat and basket making, brewing etc.), wild foods and relief food. The number of permanent settlements in the zone has increased in recent years. These provide a base for accessing health and education and – most importantly for the poor households that make up the bulk of the settled population – relief food distributions.

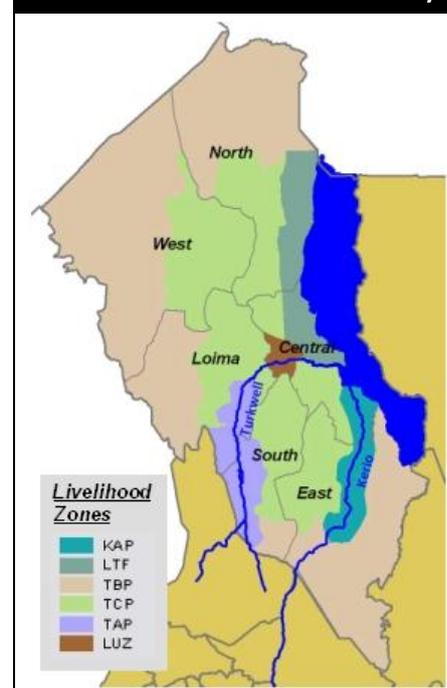
Relief food has been distributed throughout Turkana on a regular basis and for many years. In recent years, increasing efforts have been made to target food to specific groups within the population, either on the basis of wealth (community-based targeting) or to specific vulnerable groups (widows, orphans, the disabled, the elderly etc.)

Geographically the livelihood zone consists of sandy and rocky plains interspersed with hills and dissected by numerous seasonal rivers. The predominant vegetation cover is acacia scrub and grassland, with larger trees growing along the river beds. The permanent settlements are generally sited close to a seasonal river; providing access to water and to shade for both the human and animal populations. The main wild food species also grow alongside the rivers. Of these the Doum palm is the most important. Not only do the fruits and seeds provide a source of food, the leaves also provide the raw material for mat and basket-making.

Overall, the LZ receives very little rain, with considerable variation from one year to the next. Long-term mean rainfall is 246 mm per year (compared to 386 mm in the neighbouring Border Pastoral LZ). Roughly three quarters of the annual total falls during the long rains (Mar-May) and the remainder during the short rains (Oct-Nov).

Camels are the most important type of livestock kept in the LZ (judged in terms of their contribution to total herd size measured in TLU or Tropical Livestock Units), followed by sheep/goats ('shoats') and then by cattle. In many villages cattle are not kept at all, as there is insufficient grassland to support them.

Livelihood Zones of Turkana County



¹Field work for the current profile was undertaken in May-June 2012. The information presented refers to March 2011-February 2012, an average to good year for food security by local standards. 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 2017). All prices referred to in the document are for the reference year.

Compared to the Border Pastoral Zone, the Central Pastoral Zone has less grassland, with the result that fewer cattle and more camel are kept. There is also less livestock disease in the Central Zone (because of the lower livestock population density). The Central Zone is more secure (and suffers less raiding than the Border Zone) and has better access to the County's main markets (and therefore lower staple food prices) and to government services (health centres and schools). Livestock raiding is only an issue in the south of the Central Pastoral Zone, in those areas closest to Pokot County.

Markets

Markets in the livelihood zone are very poorly developed. There are several reasons for this. Lack of outside investment is one. The roads – where they exist - are very poor, there is little market infrastructure and a lack of regular livestock and other markets. Isolation from any large urban centre of demand is another significant factor. Those parts of Uganda, South Sudan and Ethiopia that border Turkana are themselves sparsely populated and poorly integrated into their own national markets and offer little in the way of opportunities for either import or export. Turkana's main urban markets are therefore internal and small or are to be found – at a considerable distance - in the Kenyan highlands to the south. In addition to these markets, the refugee camps at Kakuma generate significant demand for local items such as livestock, firewood and charcoal.

The size of the county, the very low population density and the lack of purchasing power of the population are also significant factors contributing to poorly developed markets in Turkana. The county is very large with a sparse and widely dispersed population. This means that goods have to be moved over long distances with obvious increases in cost. The very low population density and low purchasing power of the population mean that demand for goods and services is low and rarely sufficiently concentrated to support the growth of spontaneous and competitive markets. Recent experience with cash transfers is interesting in relation to this. This has shown that traders will travel to outlying areas to sell non-food items at the time of a cash transfer, i.e. when it is known that large numbers of people will have significant additional purchasing power at one particular time and at one particular place. Presumably, these types of markets do not develop spontaneously because demand is rarely concentrated in any one place at any one time. Because there are few traders operating in rural areas, there is relatively little competition and prices paid to sellers in rural areas (e.g. for livestock or for mats and baskets) are very low.

Insecurity also plays a part in isolating Turkana from potential markets. There are issues of insecurity in all directions. Turkana venturing into neighbouring border areas of Uganda, South Sudan and Ethiopia risk conflict. There are also security issues to the south, with livestock raiding a significant problem. This has the effect of preventing the export of camels from Turkana, since these animals are too large to move economically by road and they cannot be moved on foot because of the risk of theft.

There is very little marketing of milk within the livelihood zone. The sale of this fresh product obviously requires a source of local demand, which barely exists within the zone. Where there are schools and health facilities there is some selling of milk to teachers and health workers, but this is on a very small scale and cannot be considered typical for the zone as a whole. This is unfortunate because milk is generally a high value product and in many other pastoral settings, sale of milk provides a very significant source of cash income.

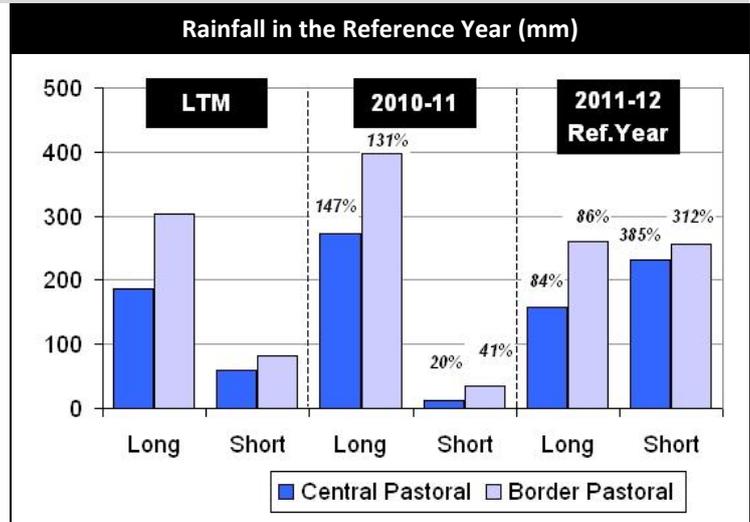
In the past, it was very common for pastoralists in Turkana to barter livestock for staple food and other items (including tobacco), but it appears that transactions for cash are now the norm. Where barter occurs this is in particular circumstances, e.g. the exchange of livestock for grain with agro-pastoral communities.

Maize and beans are the main food crops imported into the LZ. They come from Kitale to Lodwar and then onwards to local markets. The main markets for camels are Kakuma, Lodwar and Lokichar and for cattle Kakuma, Lodwar and Kalemngorok. For shoats the main markets are Lokori, Lokichar, Lodwar, Kakuma, Kerio and Gold. There is no export of camels from Turkana. Cattle and shoats are consumed locally and are exported to Chwele and Dagoreti (Nairobi) and in the case of shoats to Kariobangi as well.

Charcoal is sold to the main population centres within the zone (Lodwar and Kakuma) and is also exported from the county to Kitale and Nairobi.

The Reference Year

The reference year ran from March 2011 to February 2012; it began with the 2011 long rains and included the effects of the 2011 short rains. These two seasons were rated (in terms of food security) as below and above-average respectively by the pastoral communities visited. This is consistent with satellite-based estimates of rainfall (long rains 84% of long-term mean; short rains 385% of long-term mean – see figure to the right). The relatively heavy rains of the 2011 short season resulted in some flash flooding along seasonal river courses. Based upon the rainfall data and community opinions, the reference year can be classified as average-good.

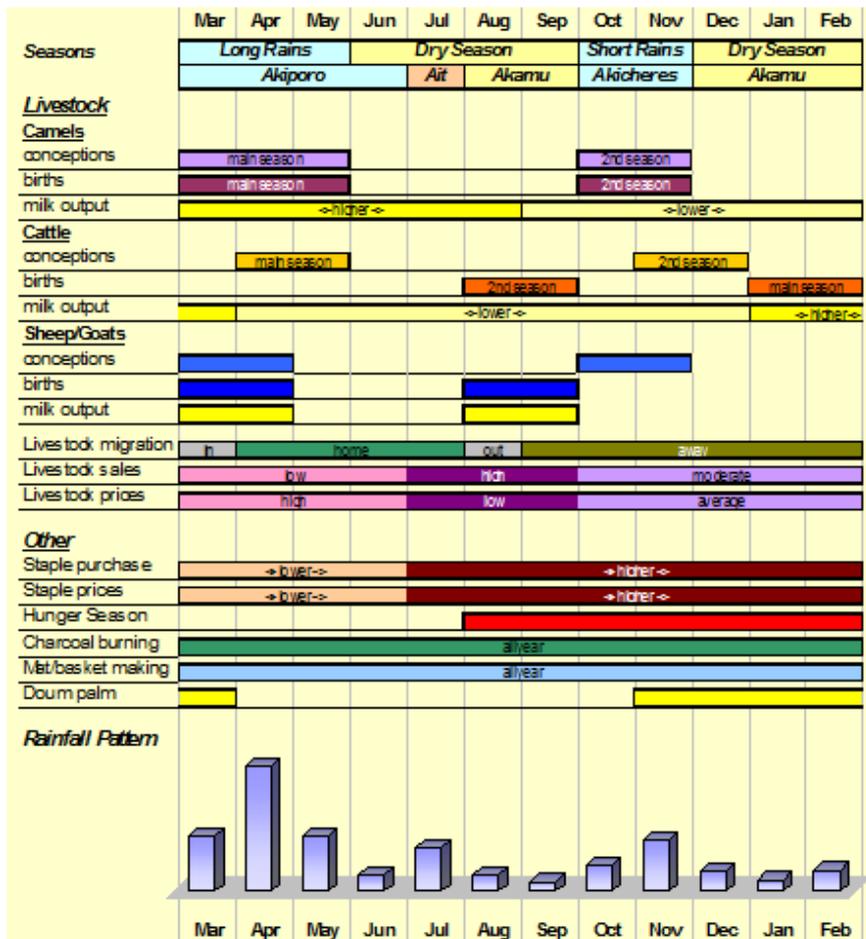


LTM = Long Term Mean; Percentages refer to % of LTM
Source of rainfall data: USGS satellite imagery

In addition to the reference year itself, it is important to consider conditions in the year before as well (because large stock giving birth in the reference year will have conceived in this preceding year). 2010-11 (the year before the reference year) was generally rated below average by pastoral communities. In terms of rainfall, the 2010 short season was much below average with little rainfall in absolute terms (see figure). This was a season during which pastoralists migrated with their animals to 'bad year' grazing areas in the neighbouring Border Pastoral Zone and along the Uganda border (see section on livestock migration below). Despite these poor rains and associated 'bad year' migration there is no evidence from the baseline data that births in the reference year were below average (see section on herd dynamics). There are probably two reasons for this. Firstly: most large stock conceive in the long rains (which were above average in 2010); secondly: migration to 'bad year' grazing areas must have achieved its object of securing access to enough grazing and water to sustain pregnant animals through to term.

The reference year was a year of relative security for the Central Pastoral LZ; there was only major cattle raid which affected the south of the zone; and all the cattle stolen during that raid were recovered and returned.

Seasonal Calendar



The timing of rainfall determines the seasonality of livestock production and livestock movements. In general terms the long rains fall from March-May and the short rains from October-November. The local names for these rainy seasons are *Akiporo* and *Akicheres* respectively. *Akiporo* extends into June (i.e. for as long as pasture is still green) and is followed by *Ait*, which lasts one month (July) and is characterized by the persistence of dry pasture generated by the long rains. Once this is exhausted, the bulk of animals are moved away from the home areas (where they spend the long rains) into dry season grazing areas. If the short rains are good, they may return to the home areas again in October-November, but frequently they stay away until the start of next year's long rains.

In general terms, animals come into heat and conceive during the rains. The timing of births is then determined by the length of pregnancy (camels give birth after 12 months, cattle after 9 months and sheep/goats after 5 months). Rates of conception among large stock are generally higher in the long than the short rains and so most camel births take place in Mar-May and most cattle births in Jan-Feb.

Levels of milk production peak during the long rains; this is the time of year when less staple food is purchased (and staple prices are therefore lower) and few livestock are sold (and livestock prices are higher). It appears that staple food prices respond more to local patterns of demand than to the timing of harvests in the areas of production (since the main harvest occurs in July-August in the agro-pastoral LZs of Turkana and in August-September in Kitale, the source of grain from the highlands). The peak period for livestock sales is from July to September, which coincides with the exhaustion of long rains pasture and the movement of animals to dry season grazing. The 'hunger' season lasts from August until the following February – this is the period when animals are away from the home area, access to milk is reduced and reliance on staple food purchased from the market is at its highest.

Charcoal burning and mat/basket making (the main self-employment activities) are undertaken throughout the year. Wild food collection is seasonal, with a number of wild fruits and seeds available for only 1-2 months in the year. The most important wild food – the Doum palm – is generally collected between November and March.

Livestock Migration

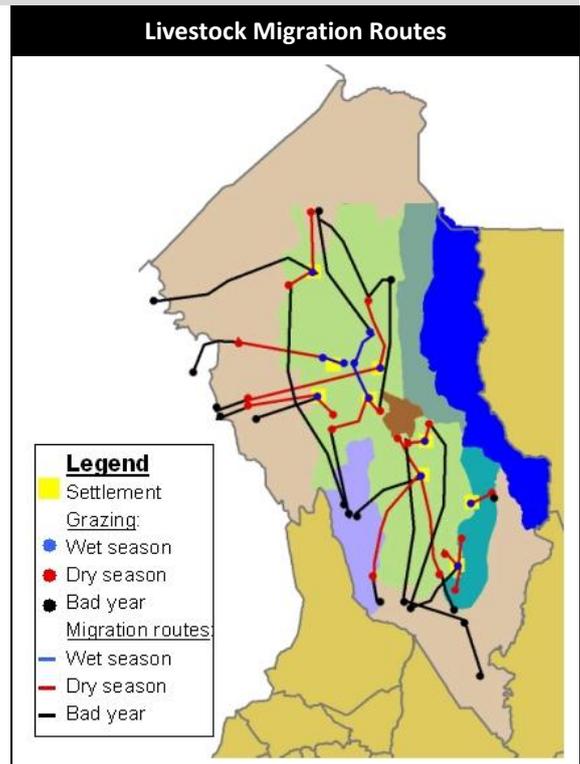
The figure (right) shows the pattern of livestock migration between wet and dry season grazing in the reference year (for the 9 settlements visited in the course of the current field work). It also shows the routes followed to more distant dry season grazing in a 'bad year' (2010-11).

In general, the herds return to the home (settlement) areas during the rains and move away during the dry season. Some milking animals are left behind to provide milk for the women and children, but most of the animals are taken to dry season grazing by the adult and young men, together with some of the younger women. Dry season grazing areas are typically located in the hills and close to seasonal river beds where water can be accessed via hand-dug wells, either within the Central Pastoral LZ itself or in the neighbouring Border Pastoral LZ.

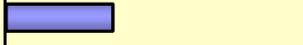
In a bad year, all except the weakest animals (generally from among the sheep/goats) will migrate to more distant 'bad year' grazing areas. These tend to be closer to (or across) the border with Uganda to the west, and closer to (but not across) the border with the Pokot to the south.

These movements into border areas carry with them the risk of conflict and loss of livestock to raiding.

Although the Turkana are divided into different clans, each of which has its 'home' area, there is no conflict between the clans and all are free to move wherever they like within Turkana county.



Wealth Breakdown

		Wealth Group Information			
		No. Wives	HH Size (total)	Livestock holding	Schooling
Very Poor		1	6-8	0-1 camel, 0 cattle, 15-30 sheep/goats	day school: 1-2 children
Poor		1-2	8-12	6-12 camels, 0-10 cattle 30-80 sheep/goats	day school: 1-3 children
Middle		2-3	12-18	20-35 camels, 0-15 cattle 80-150 sheep/goats	day school: 2-3 children boarding: 0-1 child
Better-off		3-4	18-28	40-60 camels, 0-45 cattle 150-250 sheep/goats	day school: 1-3 children boarding: 0-2 children
0% 10% 20% 30% 40% % of households					

Livestock ownership is the main factor determining wealth in the Central Pastoral LZ. With increasing livestock holding comes the ability to maintain more wives and a larger household size, so that the better-off have an average 3-4 wives (compared to 1 for the poor) and a household size of 18-28 (compared to 6-8 for the poor). The total livestock holdings of the different wealth groups are compared in the table below, with total livestock holdings expressed in TLU or Tropical Livestock Units (a common method for comparing holdings of different types of livestock). This shows that total holding (and total holding per person) both increase with increasing wealth. Two things are of note, however. Firstly how small are the holdings of the very poor (0.4 TLU per person compared to 1.8 for the poor and 3.9 for the better-off). Secondly, the

differences per person between the other wealth groups are not all that large (the holding per person is only 2.2 times higher for the better-off compared to the poor). The practice of marrying more wives and increasing household size as livestock are accumulated has the effect of reducing the holding *per capita* among the better-off groups.

Such large differences in household size between the wealth groups means that there are also large differences in the percentage breakdown of households and population by wealth group (see table below). Although the very poor make up 35% of households they only constitute 20% of the population (small household size) while the better-off make up 15% of households and 29% of population (large household size).

	Total Livestock Holding		Wealth Breakdown	
	TLU	TLU/person	% of HHs	% of pop ⁿ
Very Poor	2.8	0.4	35%	20%
Poor	18	1.8	30%	25%
Middle	44	2.9	20%	26%
Better Off	86	3.9	15%	29%

All wealth groups send children to school, with education highly valued as providing a possible route to a better life. Relative to household size, however, the better-off send fewer children to school than do other groups – this is because a higher proportion of children is required to tend the livestock in this wealth group.

Note: Results are the mid-point of a range.
TLU (Tropical Livestock Unit); camel=1; cattle=0.7; shoat=0.1.

Herd Dynamics in the Reference Year (2011-2012)

The herd dynamics analysis looks at what happened, on average, to livestock herds during the reference year; how many animals were born, how many died, how many were left at the end of the year, etc.. The results are presented as an average across all wealth groups (weighted for the percentage of households in each wealth group).

Herd Dynamics Estimates for the Reference Year			
	Camels	Cattle	Shoats
total owned at start of year	100	100	100
adult females	54	56	55
no. born during year	27	27	42
no. sold/bartered	10	10	11
no. slaughtered	4	5	5
no. died	6	1	9
no. bought	0	0	1
no. at end of reference year	108	111	116

Overall, livestock herd sizes grew in the reference year, by between 8% (camels) and 16% (shoats). This is to be expected in an average-good year.

The number of births was similar to the results obtained in HEA studies for other pastoral groups in eastern Africa. This is despite the poor performance of the 2010 short rains, which might have led to low rates of conception and therefore low rates of birth in 2011. The explanation appears to be that herders migrated with their animals during the 2010 short rains to 'bad year' grazing areas where they were able to find adequate pasture and water (see livestock migration section).

Overall rates of offtake (sale + barter + slaughter) were also similar to the results obtained in HEA studies for other pastoral groups in eastern Africa. There was one difference however; for camels and cattle a much higher proportion of animals was slaughtered rather than sold/bartered compared to elsewhere (4-5% of the herd slaughtered compared to less than 1% elsewhere). This may reflect either the limited market for animals in Turkana (i.e. animals are slaughtered rather than sold because there is no market for the additional animals) or a cultural preference for meat consumption among the Turkana.

Sources of Food for the Reference Year (2011-12)

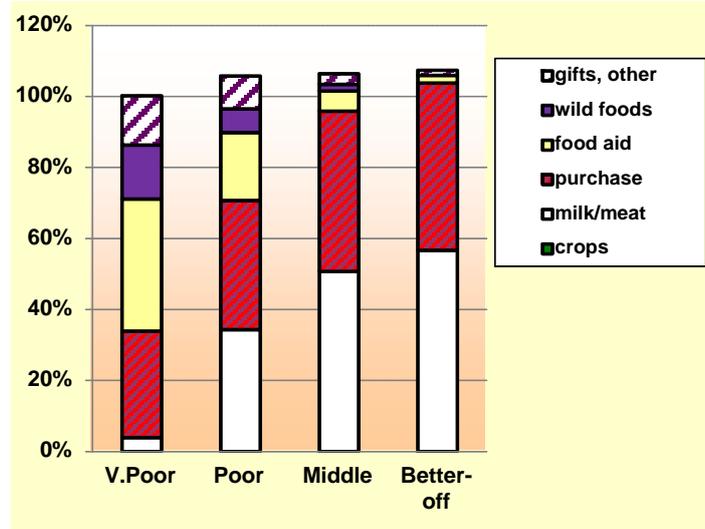
Milk and meat accounted for roughly half of total food consumed by the middle and better-off and about a third in the case of the poor. Purchase was the other main source of food for middle and better-off households. These results are similar to those obtained from HEA baseline work with pastoralists elsewhere in eastern Africa.

As well as slaughtering live animals, the Turkana also consume the meat of animals that have died (unless they have died of certain specific diseases). They also occasionally slaughter and consume their donkeys. Both these practices mean that their consumption of meat is relatively high compared to other pastoral groups.

For the very poor, the single most important source of food in the reference year was food aid, followed by purchase. They also obtained the equivalent of roughly two months consumption in the form of wild foods, of which the most important was the Doum palm. The very poor consumed very little milk from their own herds; they have no milking camels or cattle and only a relatively small number of sheep/goats. On the other hand, they were able to supplement their own production with gifts of milk and meat from better-off relatives and friends (included in the gifts/other category in the graph).

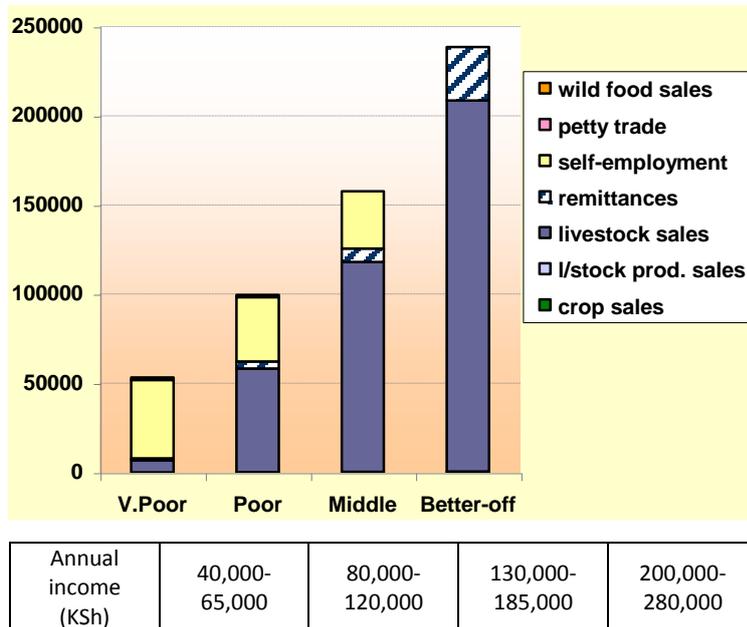
From the graphs it can be seen that food aid was relatively well targeted in the reference year, with food aid receipts declining sharply as wealth increased. It was striking that in a number of villages no middle or better-off households received any food aid at all. There was also targeting within the poor wealth group, with about half of households from this group receiving assistance. Following distribution, a proportion (generally small) of the aid received was redistributed to households that were not targeted. This is included in 'gifts' in the graphic and explains the gifts received by the middle and better off.

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.



Sources of Cash for the Reference Year (2011-12)

The graph provides a breakdown of total cash income according to income source. Note that where barter occurs, the transaction has been converted into cash terms for the purposes of calculating income for this analysis.



The middle and better-off derive most of their cash income from the sale of livestock, with very little diversification into other income sources. This differs from the situation in many other pastoral settings where it is common for the middle and better-off to engage in petty trade and business activities. There is some remittance income (i.e. gifts of cash from relatives and friends living in urban areas), especially for the better-off.

For the very poor, self-employment provided the main source of cash income. Among the activities pursued were charcoal burning and sale, mat and basket making, brewing and the collection

and sale of building materials (e.g. building poles). All these are primarily activities undertaken by women. These same activities are undertaken by the poor and middle, to supplement their income from livestock sales.

Total income increases with wealth, but so does total household size, with the result that there was only a modest increase in total *per capita* cash income across the wealth groups. The biggest difference was between the very poor (an average 7,600 KSh per person per year) and the poor (roughly 10,000 KSh per person per year); for the better-off *per capita* cash income was only very slightly higher than the poor (at 10,800 KSh per person per year). This underlines the point made in the wealth breakdown section; that the main difference between the wealth groups (apart from the very poor) is in the number of wives and dependants that can be supported by the available livestock holding.

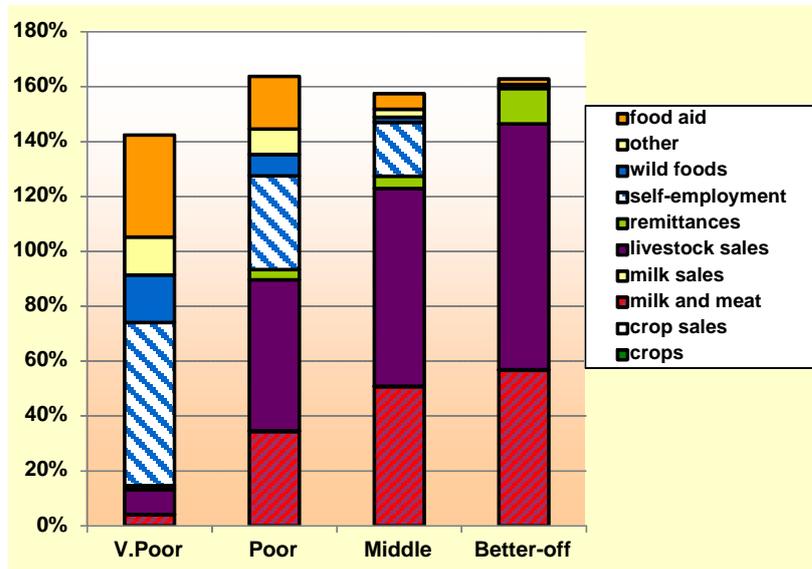
Total Food + Cash Income Per Person in the Reference Year (2011-12)

The analysis presented here looks at total income (food plus cash) per person in relation to minimum food needs. The results underline the point made in previous section, that there are not large differences in *per capita* income between the wealth groups. Overall, total income (expressed in food terms) varied from just over 140% of annual food needs for the very poor to just over 160% for the better-off. If food aid is excluded, differences between the wealth groups are larger (105% for the very poor and 160% for the better-off), but are still relatively modest.

The contribution of livestock (milk/meat consumption plus livestock sales) to total income is striking. Expressed as a percentage of total income (excluding relief), this is 13% for the very poor, 63% for the poor, 83% for the middle and 92% for the better-off.

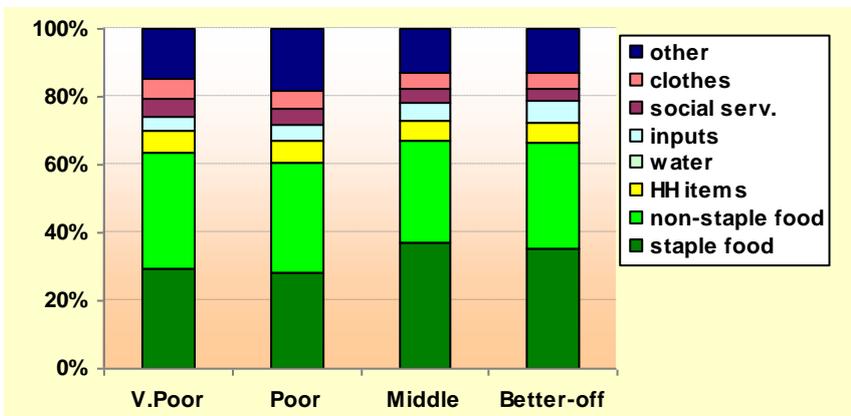
The effect of food aid on total income is of note. Food aid brings the total *per capita* income of the very poor up to a level that is comparable with other wealth groups. For the poor, it is possible that food aid increases total *per capita* income to slightly above that of other wealth groups.

The graph provides a breakdown of total income (food plus cash) per person according to income source². Total income is expressed as a percentage of minimum food requirements, with cash income converted into its food equivalents based upon the amount of staple food (maize) that could be purchased, assuming that all cash from each source were used to purchase staple.



Expenditure Patterns for the Reference Year (2011-12)

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



The middle and better-off spent a higher proportion of total income on staple food than the poor (in line with their lower access to food aid), but apart from that the *pattern* of cash expenditure was remarkably similar across the four wealth groups. This is in line with the findings for *per capita* cash income, which - while lower for the very poor - does not otherwise vary greatly between the wealth groups. All groups (apart from the very poor) spend

similar amounts per capita on roughly the same 'basket' of food and non-food items. These findings for expenditure indicate that, with the exception of the very poor, there are not very big differences in 'standard of living' between the wealth groups.

Total expenditure on food (staple plus non-staple) accounted for between 60%-65% of total expenditure. The main staples purchased were maize grain and maize meal, the main non-staple food items were sugar, oil and pulses. There was limited expenditure on health and education (uniforms, notebooks and pens, examination fees), and on livestock inputs (mainly drugs) for all wealth groups. Other expenditures included clothes, household items, tobacco, beer, beads (a relatively high priority) and transport.

² Note that where barter occurs, the transaction has been converted into cash terms for the purposes of calculating income and expenditure for this analysis.

Hazards

The Central Pastoral Livelihood Zone is subject to a number of hazards, some of which undermine food security every year, while others threaten food security in some years more than others. The main hazards affecting the zone are:

Chronic shortage of rain and drought. Lack of rain is a chronic problem in the zone. Rainfall is also highly variable from one year to the next, and drought years are therefore relatively common (strictly speaking a drought is a prolonged period of abnormally low rainfall when compared to the norm for a particular area; a drought in an area of low average rainfall is therefore a period of exceptionally low rainfall). The main effects of drought are to reduce the availability of pasture, browse and water leading to reductions in milk output, loss of livestock body condition (leading to reduced livestock prices), reduced rates of conception and increased mortality.

Livestock disease. This is also a chronic problem. The biggest problems are CCPP (contagious caprine pleural pneumonia), PPR (peste des petits ruminants) and Orf, which affect small stock. Mange and haemorrhagic septicaemia are the most significant problems for camels.

Conflict and Raiding. This is a chronic problem in the south of the LZ. It is also a problem for pastoralists throughout the zone in bad years when they must migrate with their livestock into less secure border areas.

Response Strategies

People in the zone will pursue a range of strategies in an effort to cope with the effects of a hazard. The first strategy is intended to safeguard and protect livestock in the event of a drought. The remaining strategies are pursued in order to maintain access to food and income.

Livestock migration. All types of stock are moved to 'bad year' grazing areas when there is a serious failure of the rains. These tend to be in or close to the less secure border areas. Herds may be split to spread the risk across more than one geographical area. Unusual patterns of migration bring with them the risk of conflict and loss of livestock to raiding.

Increased sale of livestock. This is a key strategy in most pastoral settings. There are obvious limits to what can be achieved, given that prices fall as livestock condition deteriorates and given the limited market demand (unless local demand is supplemented by de-stocking interventions). This is especially so in the case of camels, since there is no export market for this species.

Increased self-employment. Very poor, poor and middle households will spend more time on activities such as firewood and charcoal collection and mat and basket making. As in the case of livestock there are obvious limits to the expansion of these activities, primarily due to limitations in market demand.

Increased wild food collection. This is an important strategy. However, for some types of wild food, production is rainfall dependant, in which case availability can do down in a drought year. There will also be increased competition for wild foods as more households participate in their collection.

Increased remittances and increased social support. Gifts of cash and of livestock (for sale or for slaughter) will increase in a bad year. Gifts of milk will decline, however, in line with the general reduction in milk availability in a bad year.

Switching of expenditure to cheaper foods. Expenditure on non-food items (utensils, clothes, beads, etc.) and on more expensive foods (e.g. wheat flour and sugar) will be decreased by all groups in a bad year.

Key Parameters for Monitoring

The key parameters for a livelihood zone are the most important variables to monitor changes in food security. Changes in these variables are likely to have significant effects on food security within the livelihood zone.

Item	Key Parameter – Quantity	Key Parameter – Price
Livestock production	<ul style="list-style-type: none"> • Camels' milk production • Shoat milk production • Camel sales • Cattle sales • Shoat sales 	<ul style="list-style-type: none"> • Camel prices • Cattle prices • Shoat prices
Other food and cash income	<ul style="list-style-type: none"> • Wild food collection • Charcoal sales • Mat/basket sales • Amount of gifts/remittances 	<ul style="list-style-type: none"> • Wild food prices • Charcoal prices • Mat/basket prices

In addition to the above measures of income, it is important to monitor changes in the price of the main staple foods; maize grain and maize meal.

Programme Implications

Roads, market infrastructure and general market function. One of the most striking features of the economy of the Central Pastoral zone is the very poor access to markets. There is very little market infrastructure and few regular markets. Roads are either non-existent or in exceptionally poor condition. There is no export of camels from the livelihood zone. Relatively few traders are active in the rural areas, and competition between traders is therefore limited outside of the main towns. Taken together, all these factors combine to reduce the prices that pastoralists receive for the items they sell (livestock, mats, baskets, charcoal etc.) and increase the prices of items they buy (both food and non-food items). The lack of a significant market for milk (often a high value product in other pastoral settings) is noteworthy. Lack of demand for pastoral products and low producer prices result in low pastoral incomes and limited demand by pastoralists for both food and non-food goods and services, which again tends to depress local market activity. It is obvious that steps need to be taken to **improve roads, market infrastructure and market function** generally. This will not be easy to achieve and is likely to be relatively expensive in view of the sparse population and long distances between settlements in the county.

It is often said of pastoralists generally that they prefer to accumulate livestock rather than bring them to market. This is a sensible livelihood strategy in a setting such as Turkana, where drought- or disease-induced losses can be great and it is necessary to build up herds between disaster events. This applies particularly to adult females; the productive core of the herd. On the other hand, there is no point keeping elderly females or mature males that exceed reproductive requirements, and it is usual for pastoralists to either slaughter or sell these. The herd dynamics data suggest that this is what the Turkana of the Central Pastoral zone are doing, with little evidence of accumulation of non-productive animals. If market conditions can be improved, it is certain that pastoralists in the zone will benefit from the increased prices of livestock they sell. It is also likely that they will take advantage of improved market conditions to sell more of the animals that they currently slaughter. Equally, it is likely that they would take advantage of any increase in the opportunities for selling milk.

Livestock interventions. Livestock constitute the mainstay of local livelihoods and provide the main source of income (food and cash taken together) for approximately eighty per cent of the population of the livelihood zone. It is important to continue and to improve support to this sector, especially in relation to **veterinary drugs and services** to address the chronic problem of livestock disease. **Water** is another vital sector to support. Hand-dug wells provide the main source of water for both the livestock and human population for much of the year; these do not provide a reliable source of supply and a number of areas in the livelihood zone suffer chronic problems of water shortage.

Diversified livelihood interventions. A significant proportion of the population (an estimated 20%) own very few livestock and are primarily dependant upon food aid and self-employment activities including charcoal sales and the production of baskets and mats. These self-employment activities would benefit from the improved access to markets and improved market function discussed above. There are also opportunities to improve income from items such as baskets and mats, for example through the development of higher quality, higher value products that better match consumer demand, or through training to improve skills, or through the provision of loans or grants to promote small business development.