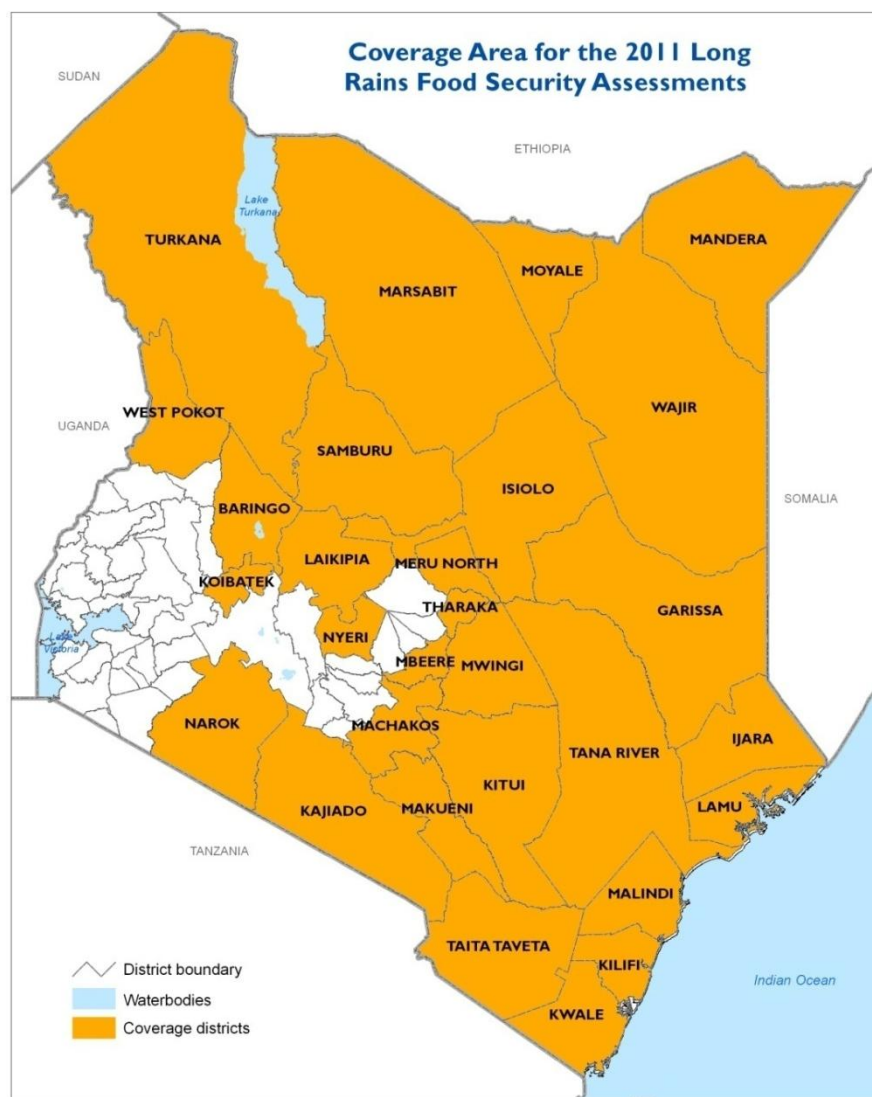




Government of Kenya

THE 2011 LONG RAINS SEASON ASSESSMENT REPORT

Kenya Food Security Steering Group (KFSSG)



Collaborative report of the Kenya Food Security Steering Group: Office of the President, Office of the Prime Minister, Ministries of Development of Northern Kenya and other Arid Lands, Agriculture, Livestock Development, Fisheries Development, Water and Irrigation, Public Health and Sanitation, Medical Services, and Education, WFP/VAM, FEWS NET, UNICEF, FAO, OCHA, Oxfam GB, UNDP, World Vision; with financial support from the Government of Kenya, FAO and WFP.

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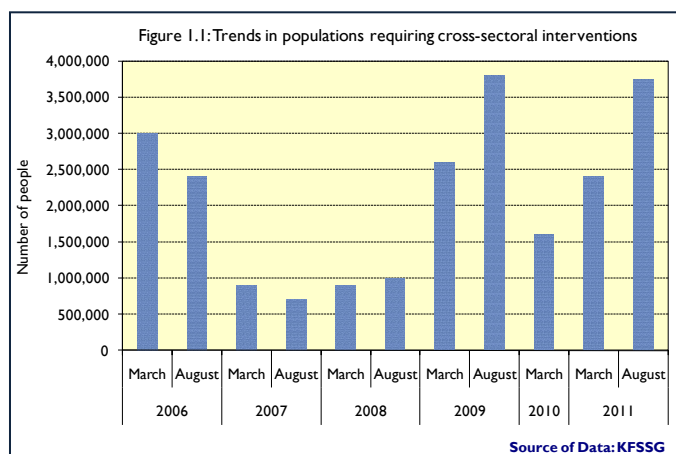
1.0 Executive Summary and Key Recommendations

1.1 Summary of Key findings

Deterioration in food security across pastoral, agro-pastoral and marginal agricultural livelihoods

An estimated 3.75 million persons in August 2011, up from 2.4 million in January 2011 require food and non-food assistance for the next six months (September 20011 to February 2012), at least. The interventions are required urgently, to mitigate a further decline in an already precarious food security situation in addition to protecting livelihoods from further erosion. Failed or poor 2011 March-June long rains have culminated in the third failed season in the southeastern and coastal cropping lowlands and the second failed season in the northern, northeastern and eastern pastoral areas. The impacts of cumulative poor rains have caused an erosion of past gains that extended into August 2010 and precipitated a food security crisis in those areas. The current crisis is particularly significant because the next rains are not anticipated until October 2011, suggesting food insecurity will continue to deepen if mitigation and response actions are not urgently instituted.

The current crisis started in August 2010 in the southeastern and Coastal cropping lowlands after failure of the 2010 long-rains season followed by exceptionally poor October–December, 2010 short rains. The poor rains were attributed to the La Nina episode that has carried into August 2011. However, impacts of the drought were compounded by exceptionally high food and non-food prices, conflict and similarly poor conditions in neighboring countries, particularly Ethiopia and Somalia. The prognosis for the future is highly dependent



on performance of the October–December 2011 short rains coupled with effectiveness of on-going interventions. Figure 1.1 is an illustration of the trend in populations that have been food insecure, over the past seven years, showing a generally unstable food security situation. The key areas of immediate concern include parts of Turkana, Marsabit, Isiolo, Moyale, Mandera, Wajir and Garissa and several parts of the southeastern and Coastal lowlands including Kitui, Mwingi, Makueni, Machakos, Tharaka, Mbeere and Meru North. While it is still early to make a conclusive statement on maize production in Kenya's 'grain basket' districts of the Rift Valley and parts of western Kenya, indications are that the crop is favorable and could moderate, to some extent, major losses in the lowlands.

Urban food insecurity rising precariously

The Kenya Food Security Steering Group (KFSSG) has over the past three years, carried out two detailed urban assessments. The outcomes of the assessments have been a cause for serious concern because food insecurity has accentuated across key urban centers. One third of Kenya's 39 million people live in urban areas, out of which 40 percent reside in slums. The rise in food and non-food prices during 2011 has deepened food insecurity for the lower income quintiles and has pushed borderline quintiles to heightened levels of food insecurity.

Many poor urban households have compromised food and non-food expenditures so as to provide some minimum levels of food for survival. Increasingly children are joining the labor-force, while Medicare is no longer routinely accessible for majority of poor urban households. While food and non-food expenditures have risen precariously, wage rates have remained depressed. Inexplicably, urban migration is unrelenting without any clear evidence that movement from rural areas translates into improved household food security. A significant proportion of male members migrating from rural areas are barely able to meet their own basic needs in urban areas, underlining the inability to remit income to household members left behind in rural areas. Urgent interventions intended to mitigate food insecurity for urban households is critical because of high concentrations of food-poor populations and adverse consequences of deepening food insecurity.

Scope of the 2011 long rains food security assessments

The multi-sectoral 2011 long rains assessments were conducted by the GoK, UN, NGOs and district-level technical teams in 29 districts in the pastoral, agro-pastoral and southeast and coastal marginal agricultural lowlands. The teams evaluated the impacts of up to three successive poor or failed seasons on: crop and livestock production; water availability and quality; nutrition and health; markets and prices; education; and food availability and access at the household level. The impacts of other hazards including conflict and heightened food and non-food prices on household food security were also assessed. Detailed cross-sectoral interventions, intended to address immediate, short-term needs were formulated. Concurrently, interventions and policy options intended to address causal factors of underlying food insecurity were also outlined.

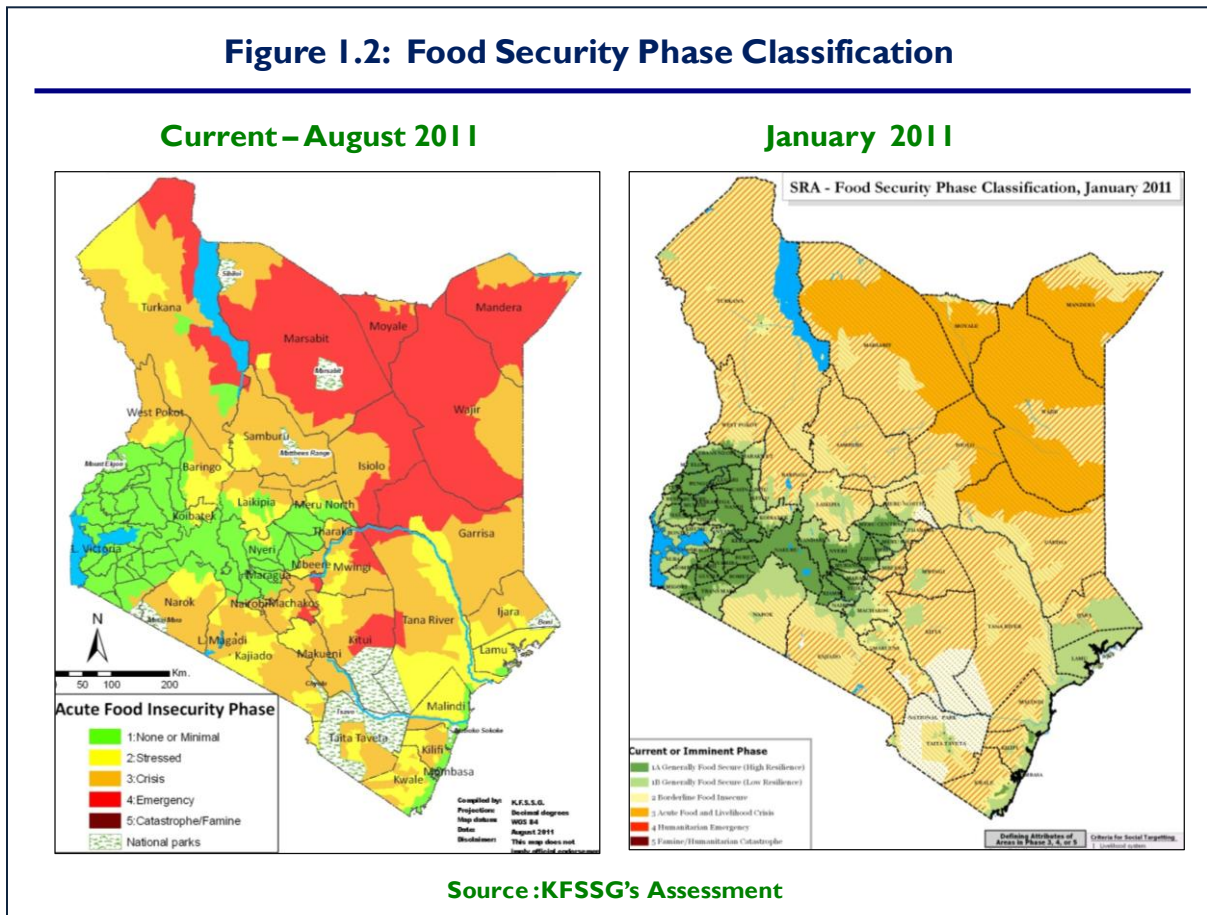
Numbers and categories of the food insecure

1.2 Summary of Food Security Phase Classification (IPC)

The food security status of an estimated 3.75 million pastoralists, agro-pastoralists and marginal agricultural farm households is assessed to have worsened substantially after the poor 2010 short rains were followed closely by similarly poor 2011 long rains. A large proportion of the population resides in areas that have experienced up to three successive poor or failed seasons coupled with the adverse impacts of heightened food prices and conflict. The worst-affected areas are in the north, northeast and eastern parts of the country. On-going programmes include food assistance for 1.7 million people under general food distributions and Food for Assets. The GoK is also distributing food to 800,000 people to complement WFP distributions but the absence of a clear targeting mechanism has limited their effectiveness. An estimated 597,000 school children are included in the on-going School Meals Programme primarily in the pastoral, agropastoral and marginal agricultural areas. An estimated 100,000 are included in the Supplementary Feeding Programme and 362,000 in the blanket Supplementary Feeding Programme. Results from two previous urban assessments suggested that close to 4 million persons in urban centers across all livelihoods are severely food insecure. Detailed analysis of each livelihood cluster will be carried in Sections 3.0-6.0.

1.2.1 Areas classified in the Emergency Phase (IPC Phase 4)

About 1.4 million people are classified in the Emergency Phase (IPC Phase 4), residing predominantly in north and northeastern pastoral areas including Wajir, Turkana, Isiolo, Mandera, Marsabit and Garissa districts. Some localized population centers in southeastern cropping lowlands in Kitui, Machakos and Mwingi districts are also classified in the Emergency Phase. The Emergency Phase 4, shaded red, is defined as household groups experiencing short term instability and extreme loss of livelihood assets that will likely lead to food consumption gaps. In addition, the household group has extreme food consumption gaps resulting in very high acute malnutrition or excess mortality. See figure 1.2.



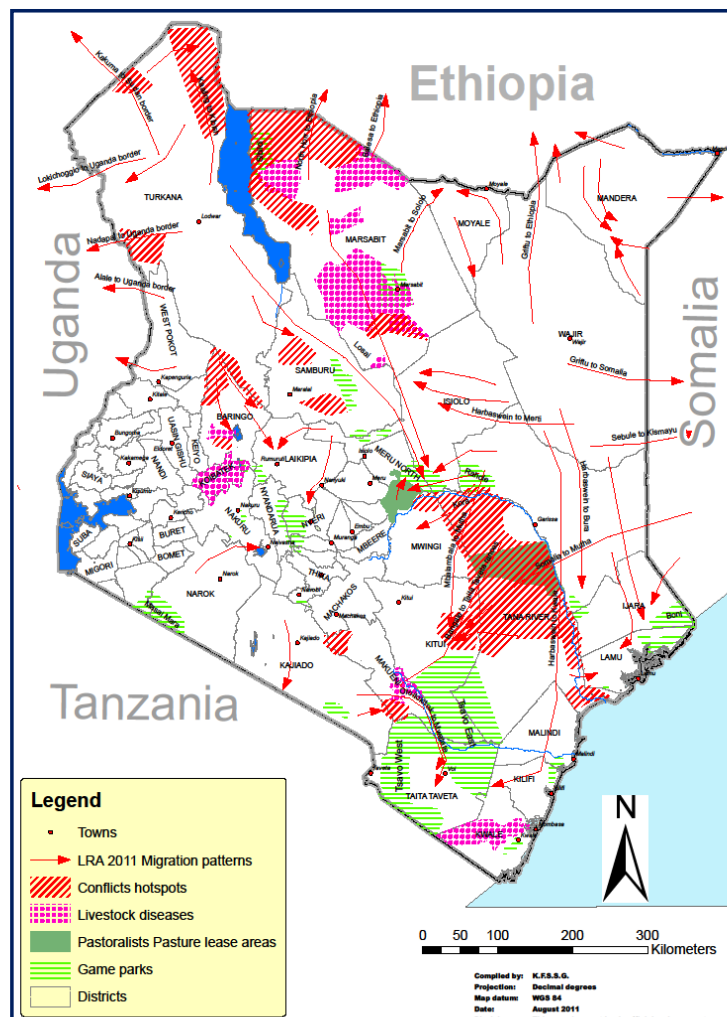
Most pastoral areas classified as Emergency received less than 10 percent of normal rains during the 2011 long-rains season even after receiving less than 20 percent of normal short rains in 2010. The crisis is manifesting in growing scarcity of water. Majority of surface water sources have dried up while boreholes are over-worked because of the high concentration of animals. Most livestock are watered on alternate days instead of daily. The long trekking distances in search of pasture, water and browse surpassed 30 kilometers in several northern and northeastern areas. Pastoralists in emergency areas are losing livestock, particularly the more vulnerable sheep and cattle, because trekking distances are no longer viable for weakened livestock. Assessment teams found that cattle mortalities ranged between 15-20 percent in Wajir, Mandera, Marsabit, Moyale, eastern Samburu, parts of Garissa and northern Isiolo. Most mortalities were reported among cattle and sheep for the 20-30 percent of the livestock that had not migrated out of those districts. An upsurge in livestock disease was reported in eastern Wajir, accentuating drought-related mortalities.

Assessment teams also confirmed that an estimated 70-80 percent of livestock migrated from the northern and northeastern pastoral districts southward to marginal agricultural areas of Meru, Tharaka, Kitui, Mwingi, Taita Taveta, neighboring national reserves, southern Ethiopia and southern Somalia, from May 2011. See figure 1.3. However, environmental conditions are worsening in the areas where animals migrated to, such as Somalia, suggesting that additional mortalities could occur as the dry season progresses. In addition, conflict over resources is increasingly evident in areas where livestock have clustered such as in parts of Isiolo, Tharaka, Meru North, Marsabit and Samburu.

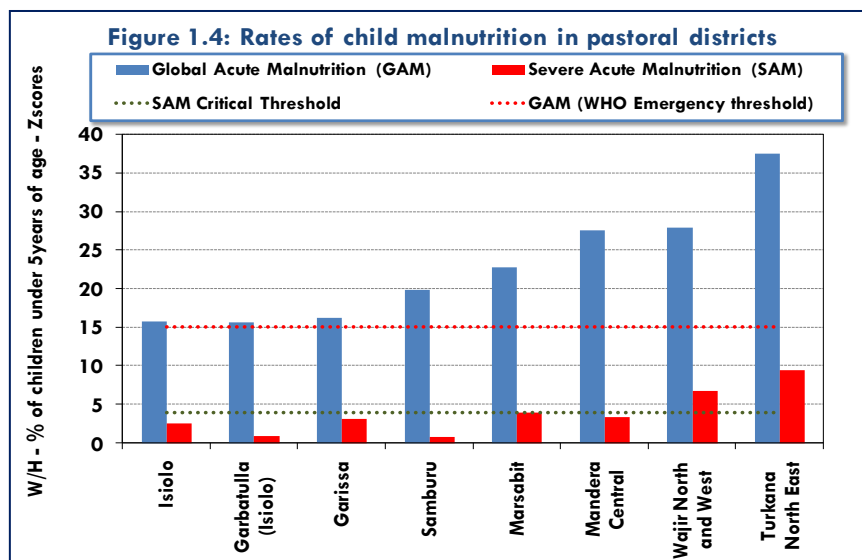
Sedentary household members (women, elderly and children) in the Emergency areas are most vulnerable because the remaining milking herd is largely unproductive due to extensive degradation of environmental resources. In addition, food supply at the household level is severely constrained by lack of purchasing capacities as the price of cereals and other food commodities heighten and become prohibitive to these resource-poor households. Pastoral terms of trade are quickly eroding as livestock body conditions decline while cereal prices are up to 100 percent higher than the 5-year average. Several pastoral households are selling three to four goats in order to purchase a 90-kilogram bag of maize, compared to the usual average of one-and-half to two goats. Many households in Emergency areas are overwhelmingly dependent on humanitarian food assistance which has been hit by significant gaps underlining severity of food insecurity for households in this Phase.

Emergency levels of food insecurity are exhibited in extremely high levels of child malnutrition – many areas of Marsabit, Turkana, Mandera and Wajir are reporting rates of malnutrition far in excess of emergency thresholds. See figure 1.4. In particular, localized parts of the northeastern and eastern parts of Turkana have reported the highest rates of malnutrition, for over a decade. Results from the long rains assessment have found that pastoral households are facing substantial loss of their livelihood after a succession of poor seasons compounded by severe conflict that rendered markets inaccessible; food prices are over 100 percent higher than normal; and interventions are constrained by sporadic raids from southern Ethiopia. Assessment teams also found alarmingly high rates of HIV/AIDS infection among young children. An estimated 80 percent of all young children admitted in Lodwar hospital from different parts of the district were found to be HIV-positive as stated by the medical team in Lodwar.

Figure 1.3: Pastoral migration routes



Refugee populations in Dadaab refugee camps and surrounding host communities are also classified in the Emergency Phase 4. However, the food security of newly arriving refugees improved after June, following the establishment of reception centers which provide food, water, sanitation and health needs of refugees at the point of entry into Dadaab Camp, prior to registration. Nonetheless, substantial gaps in needs exist, particularly in water, sanitation, medical attention and shelter. Total refugees number over 400,000 and are increasing daily, far exceeding capacities of the camps. The unrelenting influx of refugees into Dadaab suggests that cross-sectoral humanitarian needs will continue to increase until the influx stabilizes or halts. Food insecurity is classified as Emergency (IPC Phase 4) for the refugee populations as well as for the host populations in the surrounding areas although substantial interventions are moderating the situation. Host communities are vulnerable to deterioration in food security as drought conditions intensify.



Prospects for improvement in food security in the future are compromised by a severely degraded agroecology that may not fully support vegetation, even in the event of a good rainy season.

The southeastern marginal agricultural areas of Kitui, Machakos and Mwingi that are classified as Emergency have suffered three poor seasons in succession. A near-total crop failure occurred during the two previous seasons, in addition to the current one. Farm households have no food stocks while food prices are 80-100 percent above normal. Terms of trade are deteriorating because livestock are quickly losing condition and productivity after trekking up to 15 kilometers in search of water, pasture and browse. An influx of livestock from pastoral areas has also devastated the agroecology in Kitui and Mwingi districts and displaced households. The price of water is Ksh. 20 as compared to a normal price of Ksh. 2 or less, further underling the erosion in purchasing capacities. Poor households have disposed their livestock at low prices and are drawing down their assets and compromising future productivity. While malnutrition rates are not close to critical thresholds, households are consuming only one or two food groups compromising nutrition and health status. The impacts of HIV/AIDs and the long absence of meaningful interventions in localized areas of Machakos District have also accentuated food insecurity causing deterioration to the Emergency status.

The food security situation for households groups in the areas under Emergency in the cropping lowlands is likely to decline precariously through October 2011. Extensive, well coordinated cross-sectoral interventions are required to mitigate accelerated deterioration in household food security from September through the end of October. Already farm households are employing unsustainable coping strategies that are detrimental to household welfare and future production prospects. Some of these strategies include: increased child labor, distress livestock sales, widespread charcoal production, increased borrowings, migration of male household members (without concomitant remittances) and grazing in protected areas.

1.2.2 Areas classified in the Crisis Phase (IPC Phase 3)

Household groups classified in the Crisis Phase (IPC Phase 3) are residing predominantly in north, northeastern, northwestern and southern pastoral areas; as well as southeastern and Coastal areas, all shaded orange. The areas include parts of: Mandera, Marsabit, Wajir, Isiolo, Samburu, Kajiado, Narok, Tana River, Turkana, West Pokot and Baringo pastoral districts. In addition, most parts of the southeastern and Coastal marginal agricultural districts fall in this category. See figure 1.2. The Crisis Phase (IPC Phase 3) is defined as household groups that are experiencing short-term instability and has significant food consumption gaps with high or above usual acute malnutrition or alternatively that the household group is marginally able to meet minimum food needs only with irreversible coping strategies such as liquidating livelihood assets or diverting expenses from essential non-food items.

Pastoralists classified in the Crisis Phase experienced better rains ranging from 20-50 percent of normal, similar to the previous short-rains season. While most of these pastoralists have not experienced significant livestock mortalities, their livelihoods are nevertheless being eroded by distress livestock sales intended to finance food and non-food purchases. Cereal prices are exceptionally high, more than 80 percent of normal. Pastoralists in the Crisis Phase also trekked long distances in search of pasture, water and browse but migrations started a little later than pastoral households in the Emergency Phase because of relatively better environmental conditions.

Household access to milk and livestock products has declined markedly as most livestock migrated from normal wet-season grazing areas two months earlier than usual in June. Purchasing capacities of livestock keepers have declined by up to 35 percent, underlining the deterioration in pastoral terms of trade.

Subsequently, sedentary household members including the women, children and elderly are having difficulties bridging household food deficits. Milk availability is less than 0.5 liters per household compared to the seasonal normal of 2.5 liters. Global Acute Malnutrition rates are ranging between 10-20 percent, with the highest rates reported in parts of Mandera, Wajir, Marsabit and Garissa. Increasingly, undesirable coping strategies were being adopted by over 70 percent of households, in a bid to bridge food deficient while mitigating livelihood losses. Some of the strategies included sharing and selling of relief food, increased household debt, extended trekking and reduction of meals to one a day.

Farm households in the southeastern and Coastal lowlands in the Crisis Phase constitute household groups that are rapidly eroding their livelihood by sale of assets, mostly livestock. A succession of three crop failures and limited livestock holdings suggest that in the absence of interventions, food insecurity could accentuate even further because the next harvest is not anticipated until February 2012. It is imperative that urgent cross-sectoral interventions are instituted so as to mitigate further deterioration in food security.

1.2.3 Areas classified in the Stressed Phase (IPC Phase 2)

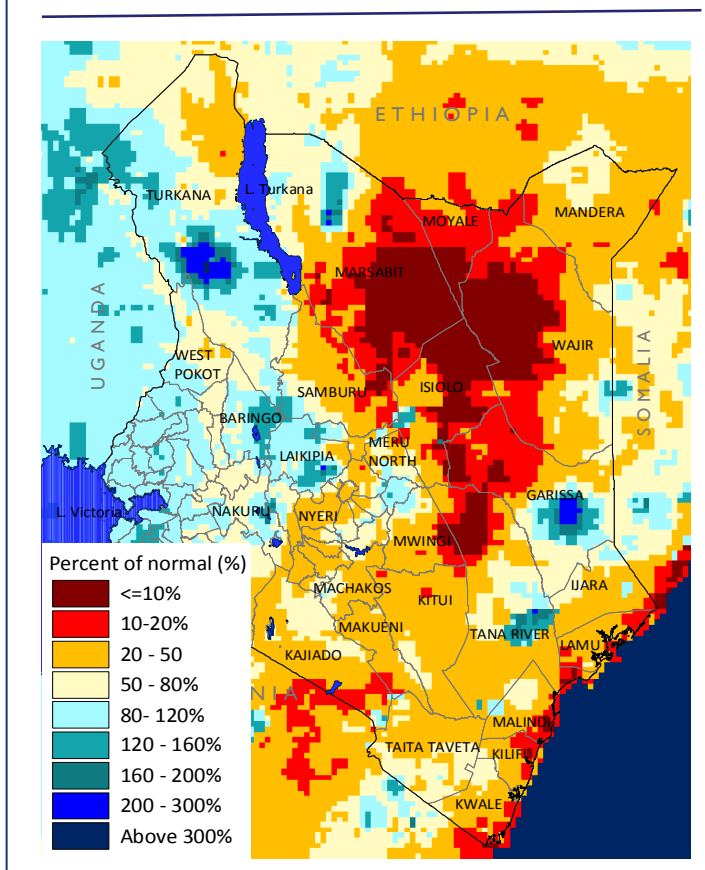
Household groups classified in the Stressed Phase (IPC Phase 2) are residing predominantly in the southeastern and Coastal areas, all shaded yellow and a few localized areas in the northwestern pastoral districts. See figure 1.2. Household groups in the Stressed Phase are characterized by reduced consumption which is minimally adequate without having to engage in irreversible coping strategies. The highland areas of the southeastern districts of Kitui, Makueni, Mwingi, Machakos, Mbeere, Tharaka and Meru North, and most of the Coastal lowlands fall under this category.

The majority of households in the Stressed Phase received 50-80 percent of normal rains and experienced significant losses of up to 60 percent of the maize crop. However, livelihoods in the Stressed Phase are more diversified as compared to household groups in previous Phases which are characterized by cultivation of maize and beans and rearing of indigenous breeds of cattle and goats. Households in the Stressed Phase cultivate cash crops such as coffee, horticultural crops, rear dairy animals and also engage in business. However, farm households in the Stressed Phase have experienced two poor seasons in succession and are also supporting households in the Emergency and Crisis Phases, mostly through providing employment on their farms and remittances.

Assessment teams found that households in the Stressed Phase were reducing consumption because of heightened prices of food and non-food commodities, though some households still retained some limited cereals and pulses from the current harvest. Households have had to compromise consumption because they do not have any marketable surpluses. In addition, most of their off-farm activities including business and trade are dependent on incomes from the agricultural sector, which have not been forthcoming.

While it is unlikely that food insecurity will decline to the Crisis Phase because of greater diversity in income sources, the sources could be eroded by further deterioration in purchasing capacities of household groups in other phases. Should food security accentuate in coming months, some household groups may sell one or two animals so as to finance food and non-food expenditures. Many household groups that run businesses in this phase have indicated their capacities to re-invest is limited because populations in the Emergency and Crisis Phases are unable to repay debts incurred over a period of close to one year.

Figure 1.5: Long-rains season (2011) rainfall anomalies



1.3 Long rains performance and prospects for the 2011 short rains

The 2011 March-June long rains performed dismally across the northern, northeastern, southern and most of the southeastern and Coastal cropping lowlands. The only areas of the country that received normal to above normal rains are found in the western third of the country. See figure 1.5. The areas shaded in the deep red color are areas that received less than 10 percent of normal rains and many of them received similarly poor rains during the October-December 2010 short-rains season. The vast majority of the country received less than 50 percent of normal long rains as depicted by the orange and red colors. The rains started nearly one month late in most areas even in the western sector. The rains were not only inadequate in the key areas of concern but also poorly distributed in time and space. Many areas received exceptionally heavy rains in a space of a day or two, followed by a long hiatus of up to two or three weeks. The impacts of the poor long rains were compounded by two similarly poor previous seasons in the southeastern lowlands and many parts of the northeastern pastoral districts. Dry conditions are expected to accentuate through October 2011 at the onset of the short-rains season in the pastoral and marginal agricultural areas.

Nevertheless, cumulative long rains have been normal to above normal in key growing areas situated in Western Kenya. Surprisingly, rains have also been above normal in southern and western parts of Turkana District and adjacent agropastoral areas of Baringo, Laikipia and West Pokot. Initial prognosis for the upcoming short rains suggests that rains will likely be near normal to above normal in many areas of concerns. The consensus rainfall forecast will be finalized during the first week of September.

1.4 Overall National Maize Supply Situation

Background

The Kenyan production system is characterized by a bi-modal rainfall pattern. The long rains run from March-August and the short rains from October to December. However, the long-rains season which runs from March through January is the most important with respect to maize production, accounting for 85 percent of the annual maize output. The short-rains season runs from October through February. Maize is the overwhelming national staple in Kenya and up to 80 percent of national output is derived from the uni-modal Rift Valley, Western and Nyanza highlands. Maize cultivation is also predominant in most livelihoods, even in the southeastern and Coastal marginal agricultural livelihoods that are not well-suited for production due to recurrence of drought. Area put to maize annually is about 1.8 million hectares, accounting for nearly 60 percent of all land planted to key cereals and pulses. Kenya has a structural deficit in production of the majority of key pulses and cereals including maize, resulting in dependence on inflows through cross-border trade and imports from often volatile overseas markets. A shortfall in domestic production often heightens food insecurity for close to 70 percent of the net deficit-producers and consumers, situated primarily in urban, pastoral, agropastoral and several areas of the southeastern and coastal marginal agricultural livelihoods.

Although the 2010 long-rains season began almost one month late, favorable rains after the late start have improved harvest prospects in the key growing highland areas of Western, Nyanza and the Rift Valley. An estimated 1.2 million hectares were put to maize and a harvest of 2.34 million MT is anticipated. The output is about 15 percent below the short-term long rains average, attributed to failed production in most of the southeastern and coastal cropping lowlands coupled with output losses in key growing areas due to shortages of fertilizer and planting seed.

While crop conditions are favorable and the forecast suggests that rains will continue to be favorable thought the end of the year, the next three months will be decisive since the crop has not yet passed through all the critical growing stages. Maize harvesting is on-going in the south Rift, Western and Nyanza provinces. However, the bulk of harvesting will begin in October and continue through January 2012. The short-rains crop is projected to be 450,000 MT (in addition to the long rains harvest) because of expectation of normal to above normal rains during the October-December short rains. The short rains crop should be harvested in February-early March.

Maize production during the July 2011 – July 2012 production year and prognosis

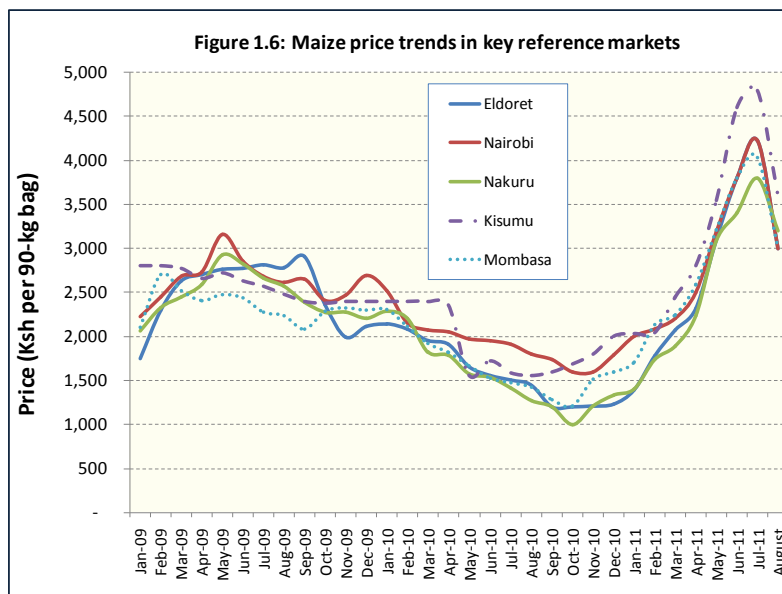
Table 1.1 is an illustration of the maize supply situation during the current marketing year, ending in June 2012. Although Tanzania has imposed a trade ban, 8,000 MT of maize was imported through one border post motivated by the \$250 per MT price differential. The analysis is conservative because neither projected private sector maize imports nor relief maize imports have been included. It is likely that private sector imports will become more important after the long and short rains harvest is exhausted during the second quarter of 2012. The tight market situation is a cause for serious concern because traditional import markets may not be accessed easily because of the twin impediments of heightened prices which are beyond reach for most drought-affected consumers, coupled with reticent over importation of maize that is genetically modified. Many farm households in areas reporting Emergency and Crisis levels of food insecurity can no longer purchase maize because prices are 70-130 percent of normal and prohibitive for households whose purchasing capacities have been eroded. National food stocks held in the strategic grain reserve (SGR) are also very low, estimated at 180,000 MT as compared to the SGR statutory requirement of 720,000 MT. Although the country is likely to witness a significant increase in maize supply from October through March (assuming that the short rains are normal in the lowlands) a substantial deficit will likely manifest in the second quarter of 2012.

Table 1.1 Maize Availability: July 2011 - June 2012		
Period	Source	Quantity (MT)
July 2011	Opening stocks (Farmers, NCPB, millers, traders)	325,000
August 2011 - June 2012*	Imports (cross border and offshore): 1. Projected: Uganda - 250,000 MT; Tanzania and Ethiopia - 100,000 MT; 2. Actual - Private sector (Japan, southern Africa) - 50,000 MT	400,000
August 2011 - January 2012	National Long rains output	2,340,000
February - March 2012	National short rains output	450,000
August 2011 - June 2012	Post-harvest losses	270,000
June 2012	Total national availability	3,245,000
July 2011 - June 2012	Total national consumption	3,420,000
June 2012	Deficit	-175,000
* Imports do NOT include projected private sector imports nor likely relief maize imports.		
Source of Data: MoA, MoSSP, RATIN, NCPB, Millers and Traders		

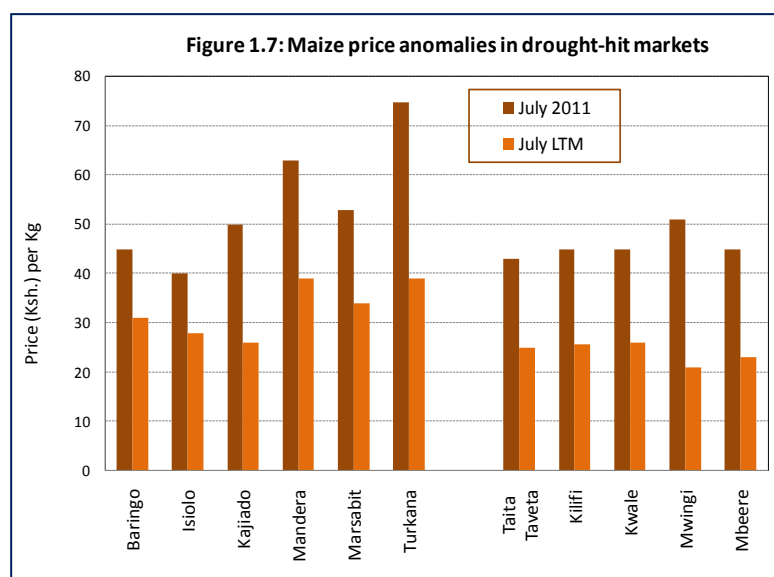
1.5 Food Price Trends

Cereal prices have risen precariously over the past year or so, across all livelihoods in the country, including in production epicenters. Food prices, in particular those of cereals and pulses, are at record levels across most livelihoods outside the harvesting epicenters. Maize prices are over 100 percent above normal in pastoral markets and 80-100 percent above normal in the southeastern and Coastal cropping lowlands. Figure 1.6 is an illustration of rising prices in key reference markets and figure 1.7 shows the disparity in maize prices in markets that are situated in the most food insecure areas of the country.

Maize prices are on a downward trend in key growing areas in the Western, Nyanza and Rift Valley highlands. Maize harvesting started in August, increasing the downward pressure on maize prices especially in key reference markets. Maize prices are also beginning to decline slightly in southeastern and Coastal cropping lowlands attributed to a combination of increased supply from the harvest in western areas coupled with cross border imports. Maize prices have declined by 15-20 percent in Kisumu and Kisii, 20-30 percent in Nakuru, Eldoret, Kitale in key cropping areas in the Rift Valley, Nyanza and Western provinces, and by 10-25 percent in the southeastern and Coastal lowland districts of Machakos, Mwingi, Kitui and Taita Taveta. Nevertheless, maize prices remain up to 100 percent above respective 5-year averages.



In contrast, maize prices increased by 5-15 percent between June and July 2011, for instance, in Turkana, Marsabit and Mandera. Rising maize price in the pastoral, despite generally declining prices, is attributed to high demand for cereals due to the absence of livestock products and the fact that pastoral markets are poorly integrated with those in production areas. However, in southern part of Turkana, maize price dropped by half, to Ksh 35 per kilogram, due to above average harvests in both irrigated and rain-fed areas.



Nevertheless, maize prices remain 80-120 percent above average across the pastoral livelihood zone.

The prices of other important food commodities have also dropped, albeit marginally. For instance, price of beans have dropped by 5-10 percent in Mombasa, Kisumu, Kitale, Nyahururu, Chwele and Meru markets. The decline in bean prices is attributed to improvement in market supply as the beans harvesting season nears its conclusion. Meanwhile, the price of potatoes and vegetables have either remained stable or dropped by about 10 percent in major wholesale markets as the long dry season begins.

1.6 Options for Response

An expanded food and non-food intervention for an estimated 3.75 million people residing in pastoral, agropastoral and marginal agricultural livelihoods is required. The need for an expanded intervention is motivated by several factors that are summarized below:

- Drought conditions are likely to persist through October 2011 in pastoral and southeastern lowlands.
- Subsequently, it is necessary to institute interventions that save the pastoral livelihood by reducing mortalities in worst-affected pastoral districts that include Marsabit, Moyale, Mandera, Wajir, Garissa and Tana River.
- Farmers in the southeastern lowlands have suffered three successive crop failures and coping strategies are no longer viable but are becoming increasingly destructive.
- Debilitating conflict is accentuating food insecurity in the north, northwest and southeastern lowlands.
- Heightened food, water, and fuel prices are likely to moderate improvements after October 2011 in rural and urban livelihoods.
- Emergency levels of acute malnutrition suggest that interventions intended to save lives are required urgently.
- Implementation of non-food interventions has been far below requirement over the past several years.

Table 1.2, in the following page, is a summary of interventions that are required for each sector. More detailed analysis of sector-specific interventions will be expounded in the last chapter of this document.

Table 1.2: Summary of Priority Interventions by Sector – September 2011 - February 2012

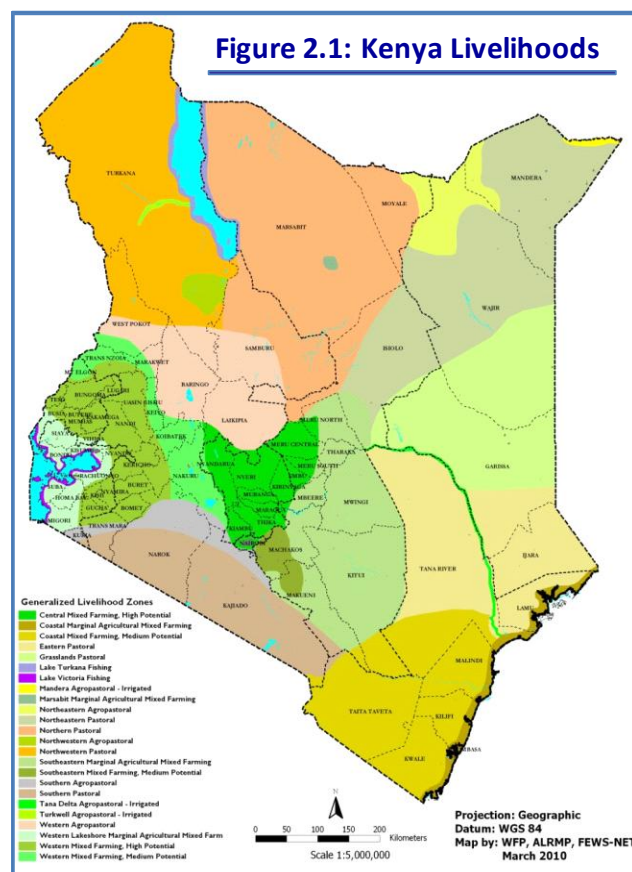
	SECTOR	INTERVENTION	COST
1.	AGRICULTURE SECTOR	Timely provision of drought tolerant certified seeds and fertilizer; capacity building and post-harvest management; provision of green house and micro-irrigation kits; rehabilitation, construction and expansion of irrigation infrastructure; and promotion of soil conservation.	Ksh. 904 M (\$9.74 M)
2.	LIVESTOCK SECTOR	Provision of livestock feed supplements; livestock off-take; disease surveillance, vaccinations and de-worming.	Ksh. 1.1 B (\$ 11.85 M)
3.	HEALTH AND NUTRITION SECTOR	Scale-up integrated management of acute malnutrition through provision of therapeutic feeds; integrated outreach programme; integrated disease surveillance and response; provision of long lasting insecticide treated nets; promotion of infant and young child feeding practices (IYCF); promotion of hygiene practices including water treatment and latrine construction; and de-worming and vitamin A supplementation.	Ksh. 6.9 B (\$ 74.3 M)
4.	WATER SECTOR	Water trucking and fuel subsidy; repair, rehabilitation and maintenance or servicing of water sources; purchase and distribution of plastic water tanks; water quality surveillance and treatment chemical.	Ksh. 447 M (\$ 4.8 M)
5.	EDUCATION SECTOR	Expansion of home grown school meals programme; provision of water storage equipment; support to rain water harvesting; water trucking to schools; and support to mobile school meals programme.	Ksh. 4.8 B (\$ 51.7 M)
6.	MARKET SECTOR	Support to traders in poorly integrated markets (value chain development); livestock trade financing; market infrastructure development – information technology, storage and transportation facilitation; capacity strengthening on value addition.	Ksh. 1.78 B (\$ 19.2 M)
7.	FOOD SECTOR	Food and associated costs for 3.75 million people affected by drought, for the next six months (September 2011 – February 2012). An estimated MT of food commodities will be required.	Ksh. 18.4 B (\$ 205 M)
	Grand Total		Ksh. 34.3 B (\$ 376.59 Million)

2.0 Methodology

2.1 Background and Objectives

The 2011 long rains assessments were carried out under the auspices of the Kenya Food Security Steering Group (KFSSG) that includes institutions in the Government, the United Nations, NGOs and key development partners. The coverage of the assessment extended to 29 traditionally drought-prone pastoral, agropastoral and marginal agricultural districts. The map on page 1 shows the assessment coverage, representing about 80 percent of the country's geographic area. Figure 2.1 shows the generalized livelihood zones. The livelihood zone is the unit of analysis. While the newly sub-divided districts were assessed, the point of reference is the pre-November 2007 district boundaries. The actual field assessments were carried out in the following five livelihood clusters:

- Pastoral Northwest Cluster (Turkana, Moyale, Marsabit and Samburu districts).
- Pastoral Northeast Cluster (Mandera, Wajir, Garissa, Isiolo, Ijara and Tana River districts).
- Agro-Pastoral Cluster (Baringo, Koibatek, West Pokot, Laikipia, Narok and Kajiado districts).
- South Eastern Marginal Agricultural Cluster (Tharaka, Mbeere, Meru North, Makueni, Machakos, Mwingi, Kitui and Nyeri North districts).
- Coastal Marginal Agricultural Cluster (Taita Taveta, Malindi, Kilifi, Lamu and Kwale districts).



The overall objective of the assessment was to inform humanitarian, recovery and short term interventions across the food; water and sanitation; health and nutrition; agriculture and livestock; markets and the education sectors.

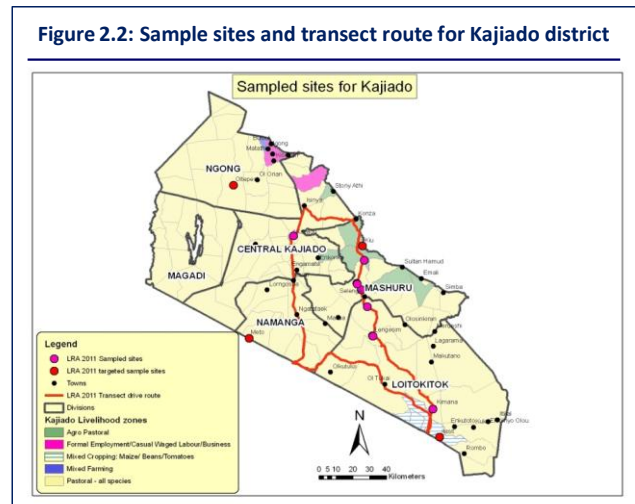
Specific objectives were to:

- Ascertain at the livelihood level, the quality and quantity of the long rains, and assess their impact on all key sectors.
- Establish required non-food interventions, with particular emphasis on programs that promote recovery and build household resilience.
- Assess potential food needs, including options for, food for assets, general food distribution and supplementary feeding.
- Establish the impacts of other compounding factors such as conflict, livestock disease, higher than average food prices and floods on household food security.

2.2 The Approach

The overall assessment processes and methodologies were coordinated and developed by the KFSSG. First a methodology review workshop was conducted to comprehensively evaluate the main activities encompassing the entire assessment process. The workshop objective included the review and update of food security assessment methodology including sampling and data collection procedures; interviewing techniques; presentation and analysis of agro-climatic information including, RFE, NDVI, WRSI and SoS; updating frameworks for sectoral food security analysis, including, indicators, checklists and templates; district steering group (DSG) briefing and debriefing; report writing and effective dissemination of assessment findings. Secondly, secondary data for all assessed districts were collected and collated.

Thereafter, the KFSSG organized a one week training workshop for assessment teams to refined sectoral indicators. At the same time, the KFSSG identified interview sites, statistically, to minimize bias in data collection and analysis. In the field, each assessment team conducted a minimum of two household; two community; two key informant; and two market interviews in each sample site. The teams also used visual inspection techniques during transect drives, to obtain qualitative information. Figure 2.2 depict sampled interviews sites and assessment team transect route for Kajiado district. The field data was collated, reviewed, analyzed and triangulated to verify its validity. The Arid Lands Resource Management Project (ALRMP) drought monitoring bulletins, the KFSSG monthly Food Security Update and other data and reports in the briefing kits provided important additional information.



The KFSSG adopted a multi-sectoral approach covering the Agriculture, Livestock, Markets, Health and Nutrition, Water and Sanitation, Education and the Food Sectors. The analytical framework is the livelihood, while the required outcome is a detailed understanding of the changes in food security and identification of populations in need of multi-sectoral external support, particularly in the immediate term. Results from sampled areas were used, along with outcomes of discussions with the larger District Steering Groups (DSGs) and secondary data analysis to draw inferences for non-visited areas situated in similar livelihood zones. While the analysis was conducted at the livelihood zone level, findings and recommendations were provided at the district and divisional level for planning purposes. The integrated phase classification was employed in categorizing levels of food insecurity.

A combination of factors was considered in the determination of needs and numbers of drought affected populations. First, livelihood zone baseline data was analyzed to understand main sources of income and food and the proportions of income and food derived from each source, for each homogeneous population. The dimension of the crisis was then taken into account looking at the type and magnitude of the shock or combination of shocks. The population dynamics within each livelihood zone including homogeneity in terms of wealth groups within each zone was then considered. Logically, baseline information together with situation analysis were evaluated to obtain convergence of evidence on how each livelihood had been affected and to determine the approximate proportion of people affected in each livelihood zone.

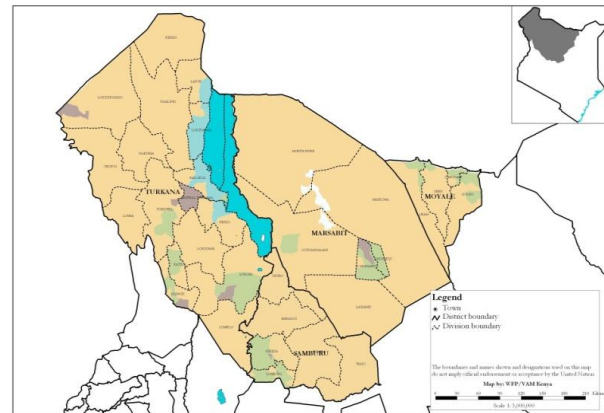
3.0 Food Security Analysis by Livelihood Cluster

3.1 Northern Pastoral Livelihood Cluster

3.1.1 Cluster Background

The Northwest pastoral livelihood cluster consists of the larger Turkana, Marsabit, Moyale and Samburu districts. The cluster is about 169,500 square kilometers in size and has an estimated population of 1,054,377 persons. The larger districts have been subdivided into a total of fourteen new districts. As shown in figure 3.1.1, the main livelihood zone in the cluster is pastoral, which accounts for 60 percent of the cluster population followed by agropastoral livelihood zone that account for 21 percent, formal employment accounting for 11 percent and fisheries accounting for eight percent of the cluster population, respectively. Livestock contributes to 80 percent of total household income.

Figure 3.1.1 Northern pastoral cluster livelihood zone



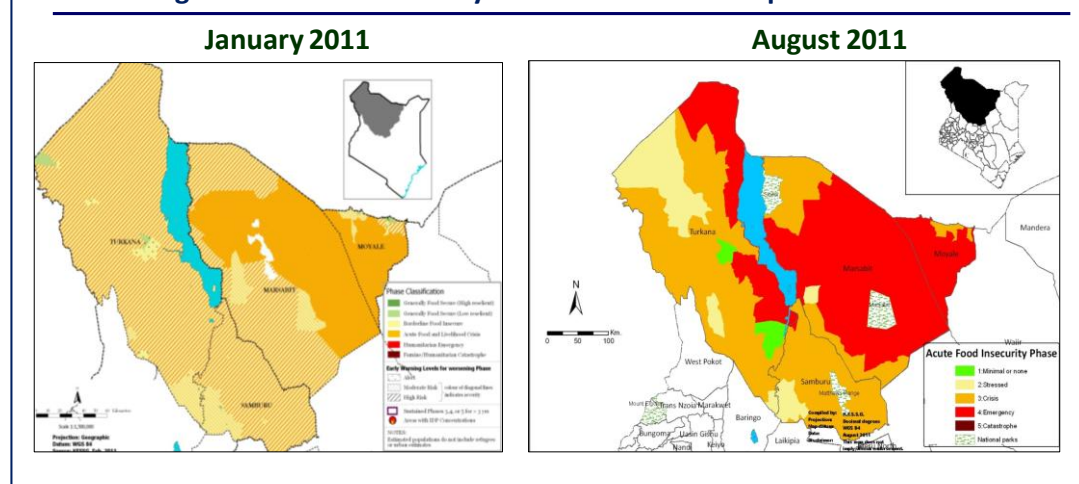
3.1.2 Factors Affecting Food Security

The main factors affecting food security in the cluster is the successive below normal and poorly distributed rainfall, which has resulted into two consecutive failed crops and poor livestock productivity. Other compounding factors are persistent conflicts, high food prices and insecurity. Key underlying factors to food insecurity are land degradation and poor infrastructure.

3.1.3 Overall Food Security Situation

Most parts of Samburu, parts of northwest, west and south Turkana, northwest Marsabit and northern Moyale are in the Crisis Phase while northwest and southwest Turkana as well as southwest Samburu are in the Stressed Phase. The pastoral livelihood zone in northeast and east Turkana, western Marsabit and southern Moyale are in Emergency Phase. Figure 3.1.2 depicts the overall food security situation in August 2011 after the long rains, compared to the situation in January 2011 after the short rains.

Figure 3.1.2: Food security situation in Northern pastoral cluster



3.1.4 Food Security Trends

In January 2011, the cluster was generally Borderline Food Insecure (Stressed Phase) with the exception of Moyale and eastern Marsabit that were in Acute Food and Livelihood Crisis (Crisis Phase). However due to the poor performance of the long rains, heightened conflicts, poor livestock productivity and high food prices, household food security situation has worsened to Crisis level in most areas. The exceptions are northeast and east Turkana and most parts of Marsabit and Moyale where food security situation has worsened to Emergency level. The food security situation has remained in the Stressed Phase in northwest and parts of southern Turkana, localized areas in western Marsabit and southwestern Samburu due to better performance of long rains and improved crop and livestock production.

3.1.5 Current Shocks and Hazards

3.1.5.1 Rainfall

The onset of long rains varied and was characterized by either early onsets, false starts or no start at all. Rainfall started in mid-March in most parts of Turkana and Samburu, which was 1-2 weeks earlier than normal. In Moyale, Marsabit and pastoral areas of Samburu rains started towards end of April, which was a 3-4 weeks delay. Rainfall amounts were generally above normal in most of Turkana and northern Marsabit that received 80-120 percent of normal rains. In the other areas, rainfall amounts were less than 50 percent of normal and particularly low in Moyale and eastern Marsabit that received less than 20 percent of normal rains. The spatial and temporal distribution of the rains was poor across the cluster as the rainy season lasted less than three weeks instead of the usual three months. At the same time, the season was characterized by long dry spells of up to one month in April. The season ended between mid and end of May in Moyale, Marsabit, northeastern Turkana and eastern Samburu, which was 2-4 weeks earlier than usual. However, rains have continued in the western and southwestern part of the cluster in August and have been uncharacteristically enhanced in western and northwestern Turkana and southwest Samburu.

3.1.5.2 Other Shocks and Hazards

Other shocks and hazards that have negatively impacted household food security in the cluster are widespread unusual livestock migrations, high food prices and enhanced conflicts and insecurity. Livestock migrations have prevented households from accessing livestock products while high food prices are leading to rapid deterioration of terms of trade. Enhanced conflicts and insecurity, particularly in Turkana, Marsabit and Samburu have led to loss of livelihood assets, displacements and market disruptions.

3.1.6 Impacts of Shocks and Hazards on Food Security

3.1.6.1 Crop Production

Overall, area under maize production was about 74 percent of the five year average. While irrigated area under maize more than doubled, rain fed area declined by 50 percent. As a result, only 40 percent of normal maize output was expected, particularly in the irrigated areas where output was likely to be about eight percent above average. In the rain fed areas, output was expected to be about 25 percent of five year average. Maize harvests were expected to be half of normal in Samburu and up to 10 percent above normal in Turkana. Enhanced production in Turkana is attributed to timely distribution of certified seed to farmers; increased water harvesting for crop production; and the rehabilitation or development of irrigation schemes. The 5-10 percent above average maize and sorghum output in Turkana West, where there are no irrigation infrastructure, was attributed to above average long rains.

3.1.6.2 Livestock Production

The pasture and browse condition was generally poor or had depleted across the cluster, which was highly unusual at the end of the rainfall season. However, in the agropastoral zone in Samburu and Turkana; and pastoral zone in north, northwest and western Turkana and northern Samburu, pasture and browse were in fair to good condition. Available pasture and browse were expected to last two to three months instead of the usual five months, mainly due to livestock concentrations. Livestock trekking distances had increased to 30-50 kilometres compared to the usual 10-24 kilometres across the cluster. Trekking distances were lowest in the agropastoral zone in Turkana and Samburu averaging 10-20 kilometres but had more than tripled from the normal of 4-6 kilometres. Livestock watering frequency had declined from an interval of 1-2 days to 2-3 days for cattle, sheep and goats, and 7-12 days for camels in many areas.

The livestock body conditions for all species were generally below normal; fair to poor in the pastoral zone in Turkana, Marsabit, Moyale and Samburu; and fair to good in the agropastoral zone in Samburu and Turkana. In Marsabit, camel conditions were unusually poor due to increased stress at lactation period. Due to poor livestock productivity, milk availability was significantly below normal at household level. As a result, price of milk had increased to Ksh. 60-75 compared to the normal of Ksh. 30-45 per litre. Majority of households were accessing less than a litre of milk per day, with the exception agropastoralists in Turkana and Samburu that were accessing 3-5 litres against a normal of five litres.

About 80-90 percent of livestock migrated within and outside the cluster in search of pasture and browse. Within the cluster, livestock moved into Kibish and Oropoi in Turkana; Tumm area in Samburu; and into Sololo in Moyale. Other migrations were from Marsabit to Isiolo, Samburu, Sololo in Moyale and Ethiopia. In Moyale there were livestock in-migrations from Marsabit, and southern Ethiopia into Uran division. The only significant outbreak of livestock disease was reported in parts of Samburu and Marsabit where Foot and Mouth disease (FMD) occurred. Across the cluster, significant livestock mortalities occurred in Marsabit and Moyale where an estimated 10-15 percent of cattle; 15 percent of sheep and goats; and five percent of camels died due to a combination of drought and disease.

3.1.6.3 Water and Sanitation

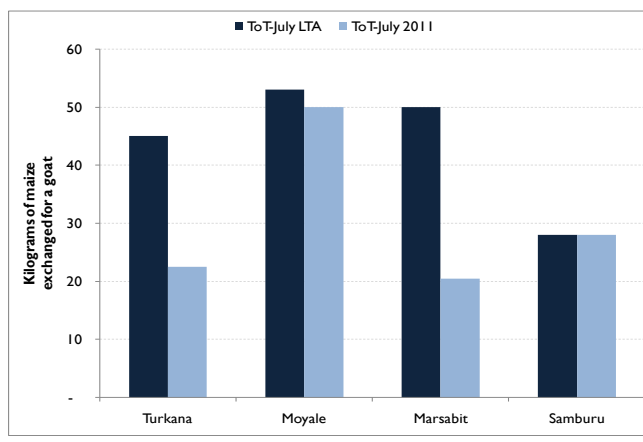
The recharge of temporary water sources was 50 percent below normal and available water was expected to last less than three weeks. In the agropastoral zone in Samburu and Turkana, temporary water sources recharged well but water was expected to last less than the usual 2-4 months due to influx of livestock. In northern Turkana, access to water was limited due to insecurity. Despite pressure on boreholes, average price of water remained unchanged at Ksh. 2-5 per 20 liters except in pockets of Moyale, Marsabit and Samburu where prices reached Ksh. 10-20, up from the usual Ksh. 5-10. However, in Lokori division of Turkana district, water price reduced from a normal of Ksh. 10-15 to about five shillings because of good flow of River Kerio.

Distances to water ranged between 5-10 kilometers against the usual 2-5 kilometers across the cluster except in Marsabit where they reached 15-25 kilometers. At the same time, waiting time increased from a normal of 15-30 minutes to 1-3 hours reaching eight hours in northeast and eastern Turkana and Balesa in Marsabit. Average water consumption declined to 4-6 liters per person per day against a normal of 6-10 liters. Water consumption declined significantly in areas that were experiencing severe water shortage including northeast and east Turkana and most parts of Marsabit, from the usual 10-15 liters to 2-5 liters per person per day.

3.1.6.4 Markets and Trade

Normal market operations were disrupted because of insecurity, conflicts, out migration of livestock and high transport costs. In Marsabit, 20-30 percent of households were unable to sell livestock due to absence of buyers in the market because of ethnic conflicts. In Turkana, doubling of transportation costs resulted in below normal market supply. Goat prices ranged between Ksh. 2,100 in Moyale and Ksh. 1,400 in Turkana and were above average by five percent in Marsabit; and by 100-170 percent in Turkana, Samburu and Moyale. Similarly, cattle prices were 100-150 percent above average in Samburu, Turkana and Marsabit but about 40 percent below average in Moyale. Despite above average livestock prices, pastoralists' terms of trade were unfavorable due to high maize prices that were 130-170 percent above five year average. Terms of trade were 50-60 percent below five year average in Turkana and Marsabit but near average levels in Samburu and Moyale as shown in figure 3.1.3. In Moyale, inflow of cereals from Ethiopia usually exerts a downward pressure on maize prices, which probably explains the relatively better terms of trade.

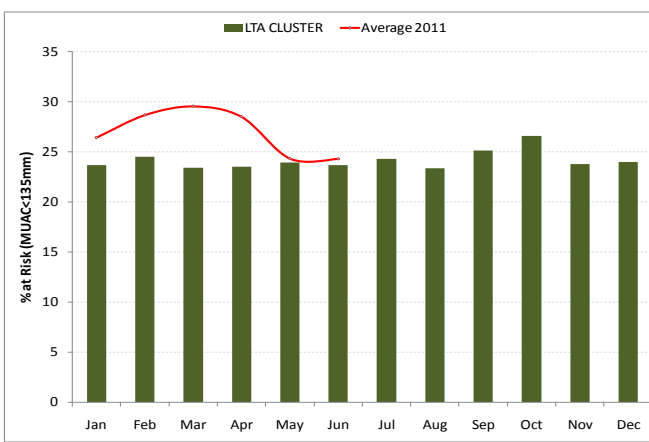
Figure 3.1.3: Comparative terms of trade in Northern pastoral cluster



3.1.6.5 Health and Nutrition

The trend of morbidity depicted an upward trend across the cluster. For instance, Turkana district reported 45-60 percent increase in morbidity between January and June 2011, compared to 2010. At the same time, cases of dysentery increased significantly in Samburu and Turkana while measles outbreak occurred in Turkana. The high morbidity incidence was attributable to generally low immunization coverage, among other factors, such as, long distances to health centers. According to the May 2011 nutrition survey results, Global Acute Malnutrition (GAM) rates were 19.8 percent in Samburu, 27.2 percent in Marsabit, and 24.4-37.4 percent in Turkana, which was above emergency threshold of 15 percent. High GAM rates were attributed to programmatic challenges that affected implementation of food aid and Supplementary/Therapeutic Feeding (SFP/TFP) between March and May 2011. In addition, insecurity in Kibish and Lapur divisions prevented supporting partners from implementing nutrition interventions. However, trend of the proportion of children at risk of malnutrition (MUAC<135mm) is suggestive of a stable nutrition status. Nevertheless, as figure 3.1.4 shows, MUAC rates are still above average indicating that nutrition has not improved significantly, probably due to poor food consumption patterns. Majority of households were consuming 2-3 food groups instead of the usual 3-4 food groups while the number of meals has reduced from a normal of 2-3 to 1-2.

Figure 3.1.4: Proportion of under-5 year olds at risk of malnutrition



3.1.6.6 Education

In general, enrolment and attendance improved by 65 percent in both Early Child Development (ECD) centers and primary schools, partly due to the School Meals Program (SMP). However, implementation of SMP in remotely located primary schools was constrained by high transportation costs. Poor availability of water and firewood were also constraining implementation of SMP across the cluster. The low school dropout rate estimated at 7.5 percent was attributed to migration of households with livestock; and pupils engaging in income generating activities such as mining and casual labor activities to supplement household income.

3.1.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.11 in Samburu and 0.26 in Marsabit. Although the CSI were below the critical threshold of 0.4, it indicated that 11-26 percent of households in parts of the cluster were employing severe coping strategies. Among the coping strategies that were being employed included reducing number and sizes of meals; restricting food consumption to children and the elderly; consuming less preferred food; and borrowing food from neighbors. Among the severe coping strategies reported included exclusive eating of wild fruits; migration to urban centers and near settlements; and dropping out of pastoralism altogether, particularly in northeast Turkana and northern Marsabit.

3.1.7 Food Security Prognosis

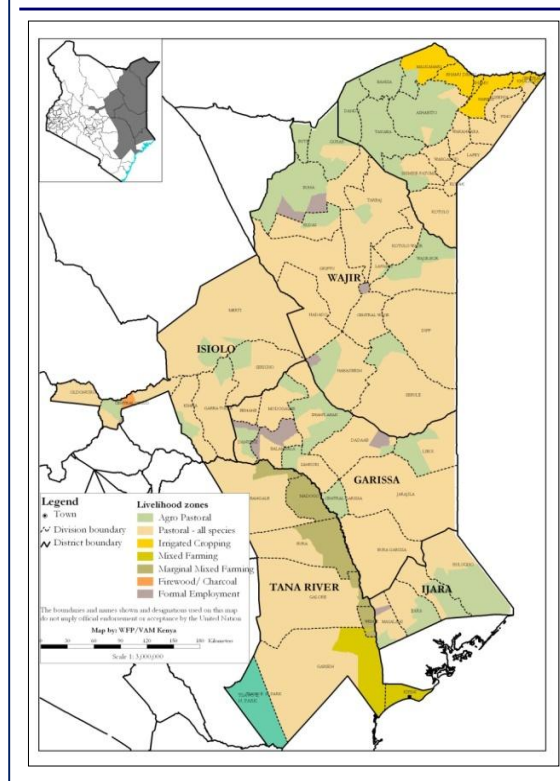
The food security situation in pastoral northwestern cluster is likely to remain precarious in the next three months as the long dry season intensifies. Depletion of grazing resources is likely to hasten the deterioration in livestock conditions leading to declining livestock prices, which may further exacerbate already poor terms of trade. At the same time, resource based conflicts are likely to heighten leading to loss of livestock assets, market disruptions and destitution. Effective implementation of recommended interventions may mitigate further decline in food security situation and lay ground for start of livelihood recovery particularly if the short rains are good. However, poor short rains will herald the third successive failed season leading to deepening of food insecurity.

3.2 The Eastern Pastoral Livelihood Cluster

3.2.1 Cluster Background

The Pastoral Northeast livelihood cluster consists of the larger Mandera, Garissa, Wajir, Tana River, Isiolo and Ijara districts. The cluster covers an estimated area of 190,753 square kilometers and has an estimated population of 1,844,780 persons. The larger districts are further subdivided into a total of twenty two new districts. Figure 3.2.1, shows the main livelihood zones in the cluster which are pastoral, agropastoral and mixed farming that account for 47, 21, and 18 percent of the cluster population respectively. The main sources of household income are livestock and crop production that account for 60 and 30 percent of total income respectively.

Figure 3.2.1: Eastern pastoral livelihood cluster

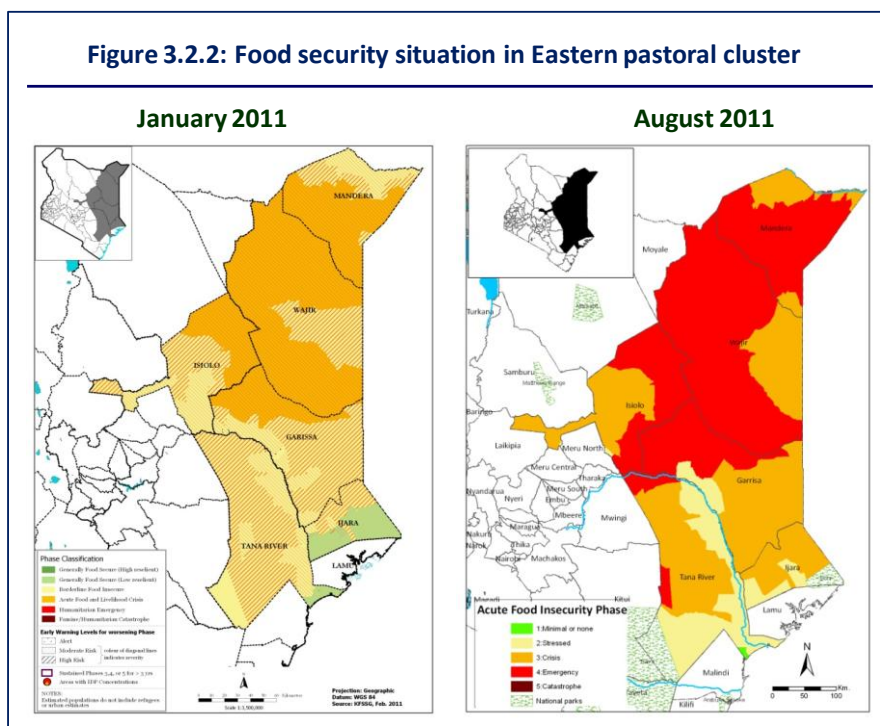


3.2.2 Factors Affecting Food Security

The main factors affecting food security in the cluster are below normal and poorly distributed rainfall leading to low crop and livestock productivity; sporadic outbreaks of livestock diseases; acute water shortage; and rapid depletion of forage. Poor road networks, poor market performance, land degradation, insecurity and resource-based conflicts also compound food insecurity.

3.2.3 Overall Food Security Situation

Most of the pastoral livelihood zone in Mandera, Wajir and Isiolo, northwest Garissa and northern Tana River are in Emergency Phase of food insecurity classification. The agropastoral zone in Garissa, Ijara and Isiolo; mixed and marginal mixed farming zone in Tana River; and the agropastoral zone in the Riverine area of Mandera are in Crisis Phase (Acute Food and Livelihood Crisis). The areas adjacent to River Tana including the Riverine of Tana River and Garissa and mixed farming and agropastoral areas of Tana River and Ijara are in the Stressed Phase (Borderline Food Insecure). Figure 3.2.2 shows overall food security situation in August 2011 compared to January 2011.



3.2.4 Food Security Trends

The food security situation has declined in most parts of the cluster. Most areas of the cluster that were classified as Stressed in January are now in Crisis while areas that were in no Acute Food and Livelihood Crisis have moved to the Stressed Phase. Eastern part of Isiolo, northern Garissa, most of Wajir and southern Mandera that were in Crisis have now deteriorated to Emergency level.

3.2.5 Current Shocks and Hazards

3.2.5.1 Rainfall

The 2011 long rains started between mid and end of April, which was a 2-4 weeks late except in Ijara where rains started normally towards end of March. Most parts of the cluster received less than 50 percent of normal rains. Lowest amounts of rainfall, less than 10 percent of normal, was recorded in northeastern Isiolo, northwestern Wajir, and parts of northern Garissa and Tana River. Only pocket areas in northern Mandera, southern Garissa, eastern Wajir and central Tana River received between 50-80 percent of normal rains. The long rains were intermittent and the season was truncated as rains received for a period of 30-40 days only. The rains ceased in mid to end of May across the cluster compared to the usual end which is early June.

3.2.5.2 Other Shocks and Hazards

Other shocks and hazards that have negatively impacted livelihoods in the cluster are irregular livestock outmigration, conflicts over natural resources, high price of basic food commodities and poor terms of trade. Poor infrastructure and poor market integration are underlying to food insecurity.

3.2.6 Impacts of Shocks and Hazards

3.2.6.1 Crop Production

Crops contribute to about 30 and 35 percent of income and food respectively. The three main crops in this cluster are maize, cowpeas and beans. Total area planted with maize was 77 and 28 percent of average for irrigated and rain fed crop production, respectively. Only 60 percent of normal maize production was expected, mainly from Irrigated area. Area put to maize production reduced due to lack of inputs as well as the response of farmers to the forecasted poor long rains. As a result maize production under rain fed agriculture was negligible. Irrigated area fell by 20 percent as a result of irregular water supply especially in Isiolo and Mandera. The cluster had stocks of 58,434 bags of maize which is about 43 percent of normal. Households stocks were less than 10 percent of normal across the cluster. While households in Wajir and Mandera did not hold any stocks, farmers in Tana River were holding 60 percent of normal stocks. Traders and millers were holding 31 and 55 percent of the normal stocks respectively while the National Cereal and Produce Board had 53 percent of normal stocks.

3.2.6.2 Livestock Production

Livestock production contributes to 80 and 50 percent of cash income for pastoral and agropastoral households, respectively. However, grazing resources were generally poor with available pasture expected to deplete within a month. Though browse situation was fair it was rapidly deteriorating, particularly in Wajir and Mandera. As a result, households residing within the irrigation scheme in Mandera resorted to using tasseling maize as livestock feed. Outside of the irrigation schemes, livestock trekking distances to water increased to an average of 10-20 kilometers and up to 50 kilometers in parts of Mandera and Wajir compared to the usual 5-10 kilometers. Livestock watering frequency increased from one to three days for cattle, sheep and goats and from eight to 15 days for camels in Mandera, Wajir, and in pastoral zone in Isiolo and Garissa.

In general, livestock productivity had declined and body condition range from fair for camels and goats to poor for cattle and sheep. Average milk production declined to less than 0.5 liters per household compared to the usual 2.5 liters. In Wajir, Mandera, Isiolo and Garissa, milk was mainly available from camel and goat. Due to scarcity, camel milk was selling for Ksh. 150, up from the normal of Ksh. 90. Low milk availability was also attributed to extensive livestock migrations. It was estimated that up to 80 percent of livestock had migrated from Mandera, Wajir and Garissa towards Isiolo, Laikipia, Somalia and Ethiopia and were clustering in areas where pasture, browse and water was available.

Although no significant livestock disease outbreak was reported in the cluster, above normal livestock mortality was reported for livestock that remained near settlements, mainly due to drought. About 15 percent of cattle and sheep; and six percent of goats died in Mandera and Wajir. In Garissa livestock mortality was estimated to be six percent for cattle and sheep and four percent for goats. In general, prevailing household livestock holdings was estimated to be 15 cattle, 30 goats, 20 sheep and 15 camels compared to 60 cattle, 75 goats, 50 sheep and 20 camels in the baseline year of 2007.

3.2.6.3 Water and Sanitation

The recharge of temporary water sources was estimated to be 30-40 percent of capacity and available water was expected to last until end of August, with the exception of Garissa and Mandera where available water was expected only to last until end of July. Up to 90 percent of pans that would normally be having water at similar time of the year had dried up and most areas were relying on water trucking. The average return distance to water points ranged from 1-5 kilometers in Isiolo and Garissa and 2-10 kilometers in Mandera. Watering distances were highest in Wajir averaging 10-20 kilometers from the normal of 3-6 kilometers. Majority of households were relying on boreholes. However, due to livestock influx, boreholes were experiencing frequent breakdowns and waiting time at water sources increased significantly to 30-60 minutes compared to a normal of 5-30 minutes. Waiting time increased significantly in Garissa and Ijara where they reached 1-2 hours. Nevertheless, due to external support price of water did not change from a normal of Ksh. 2-5 per 20 liters. Consequently, average water consumption reduced from 10-12 liters per person per day to 3-5 liters.

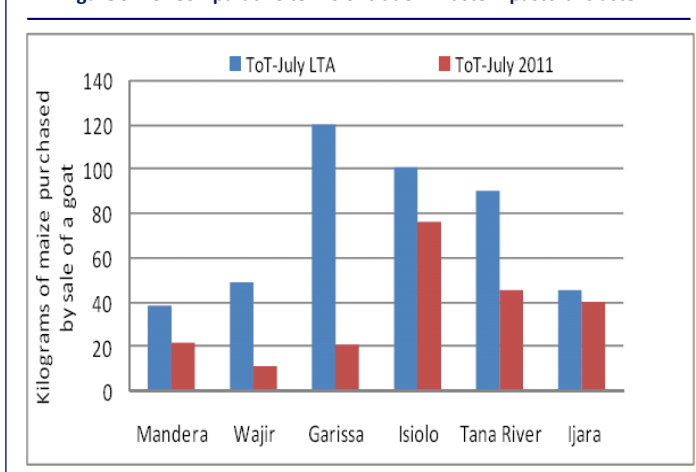
3.2.6.4 Markets and Trade

Normal market operations were disrupted in parts of the cluster due to extensive livestock migrations. For instance, in Wajir Hadado market closed at the beginning of May 2011 following extensive livestock migration from the area. In markets that did not close, operations were much below normal due to reduced trade volumes. Competition was also high in markets that were supplied with better quality livestock from Ethiopia. The price of a mature goat ranged between Ksh. 800-2,800 across the cluster, and was highest in Isiolo and lowest in Garissa. While goat prices were 50-80 percent above average in Ijara and Tana River, they were 5-20 percent below average in Isiolo, Mandera, Garissa and Wajir. Cattle prices were 20-60 percent below average across the cluster with the exception of Ijara and Tana River, where they were 30-60 percent above average. In general, livestock prices were declining as body conditions were worsening.

In general, maize prices were above average across the cluster, by 40-60 percent in Isiolo, Mandera and Wajir and

80-120 percent in Garissa, Ijara and Tana River. As a result, terms of trade were generally unfavorable and below average by 10-40 percent in Ijara, Isiolo and Mandera, and 50-80 percent in Tana River, Wajir and Garissa. Terms of trade were worse in Wajir where one goat was exchanging for about 10 kilograms of maize as depicted in figure 3.2.3.

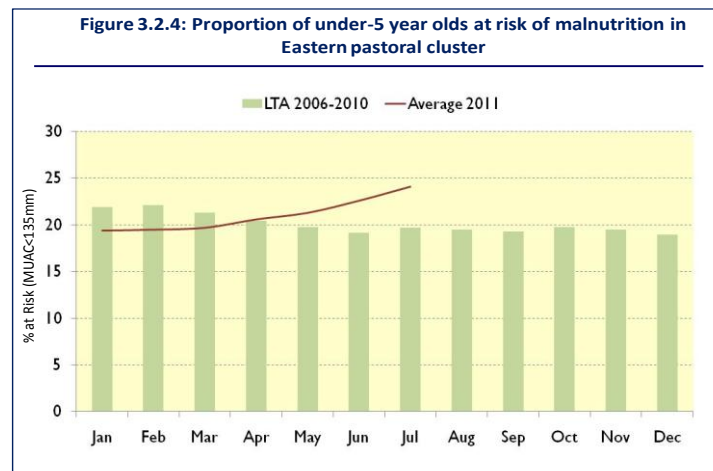
Figure 3.2.3: Comparative terms of trade in Eastern pastoral cluster



3.2.6.5 Health and Nutrition

A significant upsurge in diarrhea cases was reported in Mandera, Ijara, Wajir, Isiolo and Garissa districts, mainly due to declining access to water and poor hygiene and sanitation practices among households. Measles outbreak was reported in Wajir, Isiolo and Mandera where two children died. Immunization and vitamin A supplementation, which are important to the prevention of morbidity and mortality, especially in children, were below national target of 80 percent throughout the cluster, which partly explains the measles outbreak. However, poor nutrition likely led to reduced child immunity resulting into increased morbidity.

Nutrition surveys conducted in May 2011 indicated that GAM rates were above emergency levels in Mandera (29 percent), Wajir (26.4 percent), Isiolo (18.7 percent) and Garissa (16.2 percent). However, only Wajir recorded a significant increase in GAM compared to the same period last year. High GAM rates could be attributed to reduced access to milk at the household level, poor child care, infant and young child feeding practices. Dietary diversity was poor with most pastoralists consuming two to three food groups while majority of households were consuming 1-2 meals per day largely sourced from relief supplies. As figure 3.2.4 shows, the nutrition status of children under five years of age was generally declining across the cluster. The proportion of children at risk of malnutrition (MUAC<135 mm) was generally above average levels and sharply rising. MUAC rates were significantly above average in Isiolo and Garissa at 94 and 41 percent respectively.



3.2.6.6 Education

Enrolment in public ECD and primary schools increased by 47 percent across the cluster as compared to the same period last year. Boys enrolment was higher than girls for instance in Mandera where the ratio was 64:36, likely due to preference for boys' education while girls remain at home as house helps. Increased transfers of pupils were reported in Isiolo due to migration and insecurity. Similarly, increased pupils transfers into boarding primary schools was also reported, for instance in Garissa. High school dropout rates up to 60 percent above the same period last year were reported in Ijara, Garissa and Isiolo, particularly in pastoral and remote agropastoral zones, and mainly due to nomadism, insecurity and involvement of children in economic activities. The SMP being implemented in all schools was greatly contributing to increased enrolment and retention in primary schools. However, some pupils were unable to get meals due to shortage of water and firewood for cooking, and overwhelming numbers of unregistered pupils, for instance in Danyere and Mbalambala divisions of Garissa.

3.2.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.08 in Mandera and 0.43 in Isiolo. With the exception of Isiolo, majority of households were employing less severe coping strategies including consumption of less preferred and less expensive meals, charcoal burning, skipping meals, reduced number and proportion of meals, borrowing, increased reliance on remittances, substitution of livestock sale with the sale of wood product, hand crafting and reuse of water and sewing of mats. In Isiolo up to 43 percent of households were employing severe coping strategies.

3.2.7 Food Security Prognosis

Food security situation is likely to continue deteriorating until October due to poor livestock productivity, likely heightened loss of livestock assets and poor access to livestock and livestock products that are hampering normal market operations. Good performance of the short rains in October-December may arrest further deterioration in food security as up to 70 percent of migrated livestock will return near settlements leading to improved availability of livestock products. However, if the short rains are poor, food insecurity will deepen to emergency level for majority of household in any areas within the cluster.

3.3 The Agropastoral Livelihood Cluster

3.3.1 Cluster Background

The Agro pastoral livelihood cluster consists of the larger Kajiado, Narok, West Pokot, Baringo, Laikipia and Koibatek districts. The cluster covers approximately 66,830 square kilometers and has an estimated population of 3,055,040 persons. The main livelihood zones in the cluster are mixed farming, pastoral, marginal mixed farming and agropastoral (figure 3.3.1), which account for 36, 28, 13 and 11 percent of the cluster population, respectively. Livestock production accounts for 85 percent of cash income in the pastoral while crop production contributes to 55 percent of cash income in agropastoral livelihood zone. Households in this cluster access 30 and 60 percent of food from own production and market purchases respectively.

3.3.2 Factors Affecting Food Security

The main factor affecting food security in the cluster is below normal and poorly distributed rainfall. Other factors are livestock diseases; poor road networks; insecurity and cattle rustling particularly in East Pokot; poor terms of trade; lack of certified seeds and high cost of inputs. In addition, insecurity and human-wildlife conflict are of concern particularly in Baringo, Laikipia and Narok.

3.3.3 Overall Food Security Situation

Most of the districts in the cluster are in the Crisis Phase. The central and southern parts of Kajiado and the agropastoral areas of Narok, Laikipia, Baringo and West Pokot districts are classified in the Stressed Phase. Across the cluster, the mixed farming zone in higher altitude areas are classified as Generally Food Secure in phase one (Minimal or No Acute Food Insecurity). Figure 3.3.2 shows the overall food security situation in the cluster in January 2011 and after the long rains assessments in August 2011.

Figure 3.3.1: Agropastoral livelihood cluster

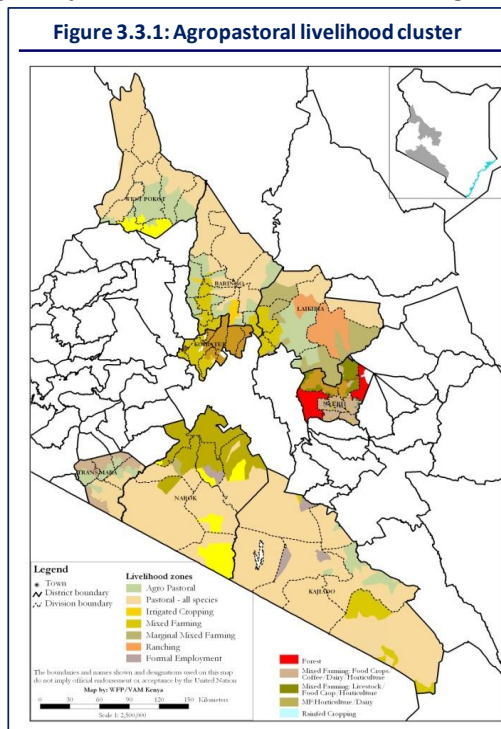
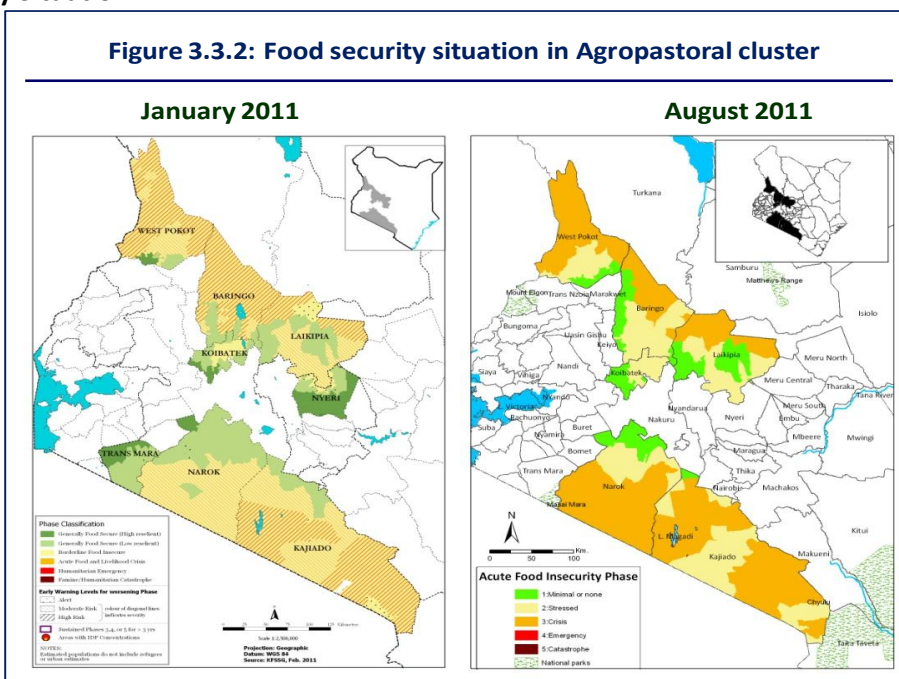


Figure 3.3.2: Food security situation in Agropastoral cluster



3.3.4 Food Security Trends

The food security situation has deteriorated in most of the pastoral areas in the cluster. With the exception of high altitude areas that have remained in no Acute Food Insecurity Phase and pocket areas that are still in Stressed Phase, the northern West Pokot, Baringo and Laikipia; southern Narok; and most areas of Kajiado have deteriorated from Stressed to Crisis level.

3.3.5 Current Shocks and Hazards

3.3.5.1 Rainfall

The long rains started on time in mid February and early March across the cluster, but stopped almost immediately suggesting false start to the season. The rains resumed towards end of March and early April when the season established. Rainfall amounts were lowest in the pastoral zone in Kajiado and parts of Narok that received less than 50 percent of normal rains. The northern districts including West Pokot, Baringo, Koibatek and Laikipia received more rains averaging 80-120 percent of normal rains. Eastern Baringo and southern Laikipia received highest rainfall amounts that reached 200 percent of normal. However, the long rains were poorly distributed temporally. For instance, initial rains were followed by up to 20 dry days. The rains were intermittent and erratic between March early May and ceased earlier than usual at the start of June instead of late June or early July. However, off season rains were reported in parts of Laikipia, Narok, Baringo and Koibatek, in August.

3.3.5.2 Other Shocks and Hazards

Other shocks and hazards in the cluster are exceptionally high prices of basic food commodities, which has led to erosion of purchasing capacities of households; intermittent conflicts, particularly in West Pokot and Baringo East; and influx of livestock from neighboring pastoral districts. Human-wildlife conflicts over grazing resources are also emerging as a concern in the marginal mixed farming areas.

3.3.6 Impacts of Shocks and Hazards

3.3.6.1 Crop Production

In the agropastoral cluster, crop production account for about 35 and 40 percent of household food and income, respectively. During the season, area put to maize production in the irrigated and rain fed areas were 101 and 143 percent of long term average, respectively. However, germination did not establish and crops wilted almost immediately due to poor start of rains. Farmers were unable to replant effectively when rains resumed, due to shortage and high cost of necessary inputs such as seed and fertilizer. Rain fed maize harvests were expected to be about 36 percent of long term average while harvests in irrigated areas were expected to be up to 80 percent above average. Overall, maize stocks were about 40 percent below normal across the cluster. Households were holding about 30 percent of normal stock which was expected to last until end of August, instead of end of September.

3.3.6.2 Livestock Production

Livestock production contributes to 90 and 40 percent of household income in the pastoral and agropastoral zones respectively. While pasture condition was fair to good in the mixed farming, ranching and agropastoral zones, browse condition was fair to good in all livelihood zones. Pasture and browse were expected to last for 2-3 months as compared to normal of 2-4 months, due influx of livestock from the pastoral. In the mixed farming zones of Laikipia and Narok, crop residues were supplementing livestock forage. However, access to some of the grazing areas in Baringo, Laikipia and West Pokot were constrained by insecurity.

Return distances to watering points increased in the pastoral zones of East Pokot and parts of Kajiado to 10-15 kilometres, compared to the usual 1-5 kilometres. As a result, livestock watering frequency was on alternate days in the pastoral areas, and had started to impact negatively on livestock productivity. For instance, while livestock body condition was good for cattle and sheep, in the mixed farming zones, it was only fair in the pastoral zones. Nevertheless, camels and goats were in good body condition in all livelihoods. Milk availability declined at household level, from a normal of 2-5 litres to 0.5-1 litre per day in both pastoral and agropastoral zones. Thus, milk prices increased from Ksh. 15-30 to Ksh. 30-60 per litre leading to reduced consumption from a normal of 1-2 litres to 0.5 -1 litre.

Livestock diseases were problematic in parts of the cluster. For instance Foot and Mouth Disease (FMD) and Lumpy Skin Disease (LSD) outbreaks were reported in Koibatek and Baringo resulting into closure of markets. At the same time, outbreaks of Newcastle disease and Coccidiosis were reported in Baringo resulting in 40 percent poultry mortalities. While livestock migrations were largely into the cluster, instances of livestock migration out of the cluster were reported, for example, from western part of West Pokot into Uganda. Meanwhile, an influx of livestock from Samburu, Isiolo, parts of Marsabit, and Baringo occurred in Laikipia. In Narok, livestock were migrating into the farming zone in search of pasture and crop residues.

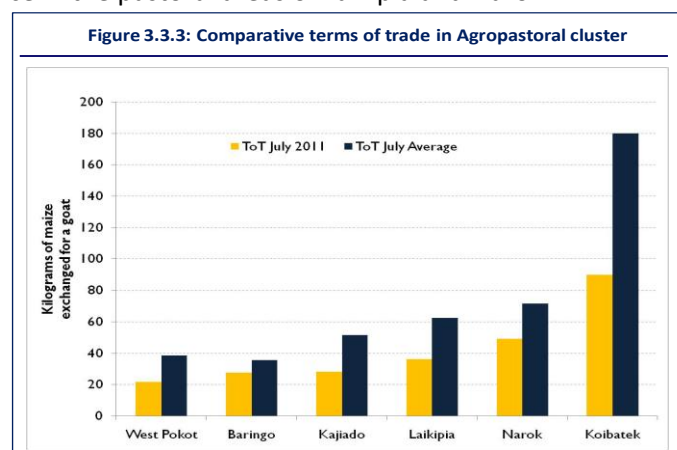
3.3.6.3 Water and Sanitation

In most parts of the cluster, temporary water sources recharged to 20-50 percent of capacity. However in the mixed and marginal mixed farming areas of Laikipia, sources recharged to 60-80 percent of capacity. As a result, return distances to water sources remained within the normal ranges of 0.5-2 and 1.5-6 kilometers in the mixed farming and marginal mixed farming areas, respectively. However, a significant increase in distances to water was noted in pastoral zones in Narok and Kajiado from three to eight kilometers and five to 15-20 kilometers, respectively.

While waiting time at water sources was normal within the mixed farming areas, averaging 10-20 minutes, in the pastoral zone, households were waiting for 30-60 minutes compared to a normal of 10-30 minutes. Water consumption varied from 5-10 liters per person per day in the pastoral zone and 10-15 liters per person per day in the mixed farming zone. The cost of water increased to Ksh. 20 per 20 liters from a normal range of Ksh. 2-5, for instance in the pastoral areas of Laikipia and Narok.

3.3.6.4 Markets and Trade

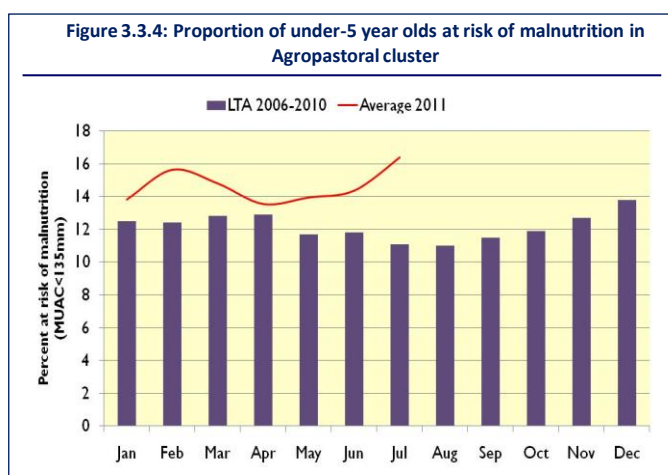
Market operations were normal in many parts of the cluster. However, Ravine, Emining and Mogotio markets in Koibatek and Kipsaraman market in Baringo were closed due to an outbreak of FMD. The influx of livestock into Laikipia was also contributing to above normal livestock supply in the market. However, livestock prices were generally above average due to good body conditions and high demand in the markets. Goat prices ranged from Ksh. 3,500 in Narok to Ksh. 1,700 in West Pokot and were above average by 60-80 percent across the cluster, except in Kajiado where they were only five percent above average. At the same time, cattle prices were 20-50 percent above average in all the districts with the exception of Narok where they were about 15 percent below average.



The beneficial effects of high livestock prices were being moderated by exceptionally high maize prices. The price of a kilogram of maize ranged between Ksh. 40-60, which was 90-110 percent above average in most districts and 180-200 percent above average in Laikipia and West Pokot. Consequently, terms of trade were 20-50 percent below average across the cluster. Figure 3.3.3 shows comparative terms of trade in agropastoral cluster.

3.3.6.5 Health and Nutrition

The main causes of morbidity in the cluster included typhoid and kalazaar in Baringo; measles and dysentery in Narok and West Pokot; and heightened diarrheal diseases in Narok. The increase in diarrheal diseases among under-five year olds in Narok is attributable to poor hygienic practices. Also, low immunization coverage particularly in West Pokot and Loitokitok where coverage is less than 50 percent could also be contributing to high morbidity. The GAM rates were below emergency threshold across the cluster. Compared to May 2010, GAM rates had declined from 16.6 to 14.9 percent in West Pokot and 11.5 to 8.6 percent in Kajiado which suggested that nutrition status was slightly better. However, the rising proportion of under five year olds at risk of malnutrition (MUAC<135 mm), which was over 50 percent above the five year average in July as shown in figure 3.3.4, indicated that nutrition status was rapidly declining. Possible drivers of poor nutrition are increased morbidity and poor food consumption patterns. Households were consuming only two meals compared to a normal of three meals per day while the dietary diversity was limited at 2-3 against 4-5 food groups.



3.3.6.6 Education

Enrolment increased by about 10 percent, partly due to ongoing SMP in most primary schools. Compared to 2010, dropout rate had declined by five percent. However, it was noted that water and firewood scarcity, high food prices in markets and poor storage of food stocks in some schools particularly in Kajiado, Narok and Koibatek were hindering implementation of SMP. An estimated 27,553 primary school pupils in Narok and Kajiado districts were in dire need of SMP.

3.3.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.03 in Kajiado and 0.24 in Baringo. Although the CSI was below the critical threshold of 0.4, up to 24 percent of households were employing undesirable coping strategies. Nevertheless, majority of households were employing normal coping strategies such as sand harvesting, crushing of stones to sell as ballast, selling of firewood, eating wild fruits, migrating livestock, skipping of meals, borrowing from friends and increased gold panning.

3.3.7 Food Security Prognosis

Food security situation is likely to worsen in all the districts. In the pastoral and agropastoral livelihoods, livestock body condition is likely to worsen in the next two months as livestock movements heighten. Livestock diseases are likely to increase with livestock concentrations. However, normal to above normal short rains are likely to reverse declining food security. However, failure of the short rains may lead to further deterioration of food security situation to Crisis and even Emergency levels.

3.4 The Southern Marginal Agricultural Livelihood Cluster

3.4.1 Cluster Background

Southern marginal agricultural cluster comprises of the larger Tharaka, Mbeere, Makueni, Machakos, Mwingi, Kitui, Nyeri North and Meru North districts, which have been further subdivided into 39 districts. The cluster covers 54,158 square kilometers and has an estimated population of 4,445,779 people. The main livelihood zones, as illustrated in figure 3.4.1, are mixed farming and marginal mixed farming which account for 65 percent and 26 percent of the population respectively. Crop production is the most important source of income contributing to 40 percent of household income. Livestock production and employment related activities contributes to 35 and 25 percent of income respectively.

3.4.2 Factors Affecting Food Security

The main factors affecting food security in the cluster are three successive failed rain seasons, high food prices and human diseases. In addition, livestock influx into Mwingi, Tharaka and Kitui districts have caused resource-based conflicts.

3.4.3 Overall Food Security Situation

Although some pockets areas within the cluster are classified in the Emergency or Stressed Phase, most parts are classified in the Crisis Phase of food insecurity. Southeast Kitui, northwest and eastern Mwingi and pockets areas in eastern part of Machakos are classified in Emergency Phase. The mixed farming livelihood zone is generally in the Stressed Phase. Areas where irrigated agriculture is predominant in Tharaka and Mbeere; central and south Meru North as well as Nyeri North are classified as being in No Acute Food Insecurity Phase. Figure 3.4.2 shows comparative food security situation in January 2011 after the short rains and the overall situation in August 2011 after the long rains.

Figure 3.4.1: Southern Marginal Agricultural livelihood cluster

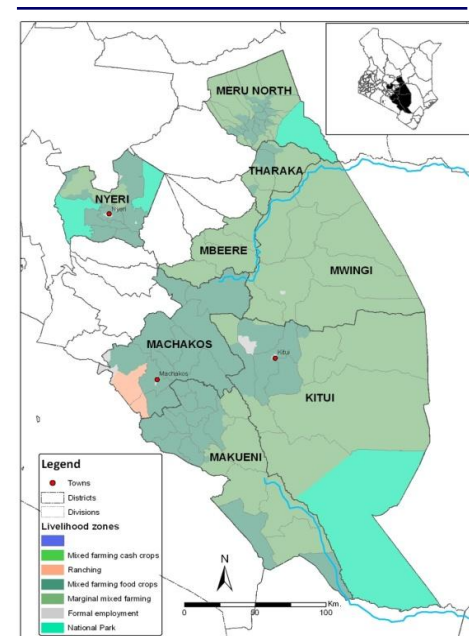
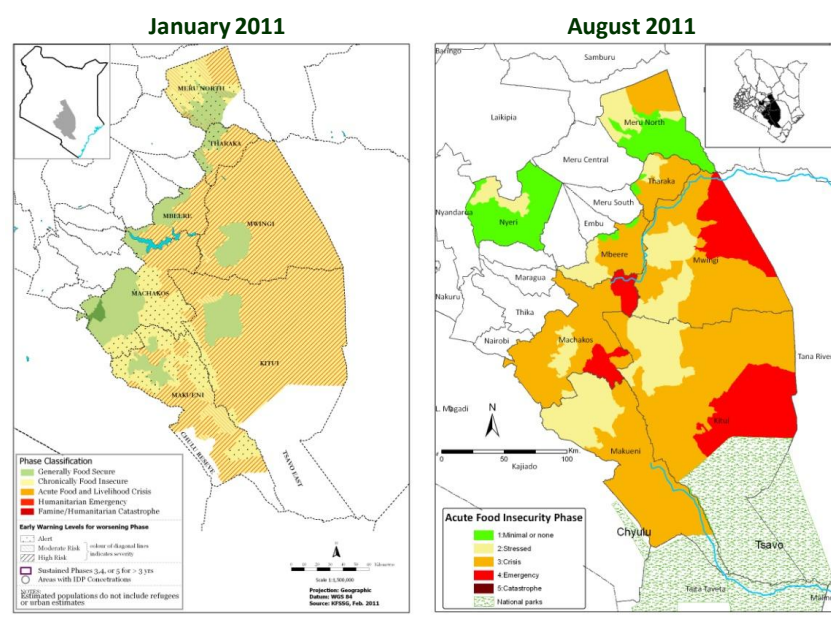


Figure 3.4.2: Food security situation in Southern Marginal Agricultural cluster



3.4.4 Food Security Trends

In January 2011 most parts of the cluster were classified in Stressed with the exception of the mixed farming areas in the hilly masses that were under No Acute Food Insecurity. However food security situation has deteriorated after the third successive failed rainfall season and most areas have moved to Crisis and even into Emergency Phases. At the same time, most areas that were in No Acute Food Insecurity phase have also deteriorated to Stressed Phase.

3.4.5 Current Shocks and Hazards

3.4.5.1 Rainfall

The long rains started on time towards end of March and early April across the cluster. However, start of rains was erratic and characterized by false starts. The rains were generally below normal and averaged less than 50 percent of normal in most areas. The lowest amount of rainfall was recorded in eastern part of Mwingi which received below 20 percent of normal long rains. Most parts of Mbeere and southwestern part of Machakos (Matungulu, Kangundo and Ndithini divisions) received 50-80 percent of normal rainfall. Highest amount of rainfall was received in Mavoko Municipality (Machakos), northwestern part of Tseikuru (in Mwingi) and most parts of Tharaka that received 80-120 percent of the normal rains. The long rains were characterized by irregular and long dry spells of up to 20 days until end of June and early July. Parts of Mwingi (Central and Tseikuru) and Kitui (Central and Chyuluni) hardly experienced rainfall onsets but had very short episodes of 10-20 day rainfall. Generally, the rains ceased unusually early in Kitui and Makueni, in late April instead of late May to early June. Meanwhile, in Tharaka and Mbeere the rains ceased in mid-to end of May, which was the normal cessation.

3.4.6 Impacts of Shocks and Hazards

3.4.6.1 Crop Production

In general, area under rain fed and irrigated production was 65 percent (148,000 hectares) and 17 percent (10,750 hectares) of average, respectively. Area planted declined mainly because farmers were reluctant to plant because of forecasts of below normal long rains. As a result only eight and 58 percent of normal long rains maize harvests were realized in rain fed and irrigated areas respectively. Overall achieved maize output was 168,640 ninety kilogram bags compared to a long term average of 1,974,700 bags with most of these harvests being realized in the mixed farming livelihood zones. Available maize stocks at household, traders, millers and NCPB were much below the normal of 586,280 bags and were 244,156 bags. Stocks at household level were expected to last for one month compared to the normal three months.

3.4.6.2 Livestock Production

Livestock production accounts for 35 and 25 percent of household income in the mixed farming and marginal mixed farming livelihoods, respectively. Pasture and browse condition ranged from fair in mixed farming to poor in marginal mixed farming areas. Pasture was expected to last one month, while browse was likely to last two months. In the mixed farming zone, crop residues were an important forage supplement. Average return trekking distances to water doubled from a normal of 1-3 to 3-6 kilometers. Thus, watering frequency reduced to alternate days, particularly in the marginal mixed farming livelihood zone. As a result, livestock body condition ranged from fair to poor for cattle and sheep and good to fair for goats in both livelihood zones. In most households, milk availability reduced from two to one liter per day. Consequently, milk consumption at household level was low at about half a liter per day compared to the normal of 2.5 liters per day. The price of milk increased from Ksh. 40 to Ksh. 60 per liter in all zones.

An influx of livestock from Garissa, Wajir, Isiolo, Tana River and Somalia resulted into tension and conflicts among communities due to increased competition for pasture and water. Meanwhile in Tharaka, livestock from the marginal mixed farming livelihood zone were migrating into the rain fed cropping and mixed farming livelihood zones as well as to Meru National park. Increased livestock migration was likely to result into contagious livestock diseases outbreaks as animals were weakening.

3.4.6.3 Water and Sanitation

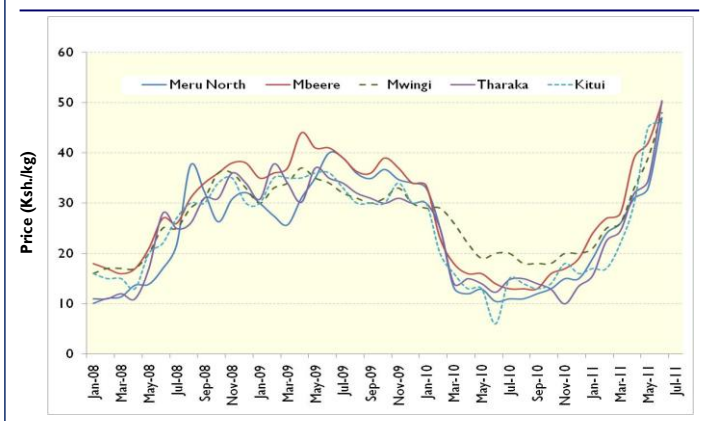
The long rains recharged the temporary water sources to approximately 50 percent of capacity. Permanent sources like boreholes, springs, shallow wells and rivers were also recharged albeit inadequately. However, available water was expected to last 1-2 months instead of the usual 3-4 months. Return trekking distances to water sources increased particularly for households that relied on temporal sources. In the mixed farming zone, distances increased from 0.5-4 kilometers to 5-9 kilometers and from 4-10 kilometers to 10-20 kilometers while in the marginal mixed farming zone, with the exception of parts of Makueni, Machakos and Mwingi where return distances were below 10 kilometers. Also, average waiting time at piped water points increased from a normal of 15 minutes to 30 minutes. Overall, waiting time increased from a normal of 30 minutes to between 1-2 hours, in mixed farming zone, and from less than an hour to 2-3 hours in the marginal mixed farming livelihood zone in Kitui. Longest waiting times of up to four hours were reported in Meru North; while in pocket areas of Kitui (Mutha), waiting time reached 10-18 hours at hand pump sites and water kiosks. The cost of water increased in the marginal mixed farming from the Ksh. 5-10 to Ksh. 20 per 20 liters, particularly in Meru North, Kieni and Tharaka. In the mixed farming areas across the cluster, water consumption ranged between 10-15 liters per person per day, except in Mbeere where it was 18 liters per person per day. In the marginal mixed farming areas, water consumption was 6-10 liters per person per day except in Mbeere where it was 13 liters per person per day.

3.4.6.4 Markets and Trade

Following the near total crop failure in the cluster, market demand for staple maize sourced outside the cluster increased significantly. Normally, 20-30 percent of households rely on market purchases at a similar time of the year compared to 80-90 percent of households that were relying on markets. Maize price ranged between Ksh. 50-70 in Mbeere, Tharaka, Kitui and Machakos and Ksh. 40-45 in

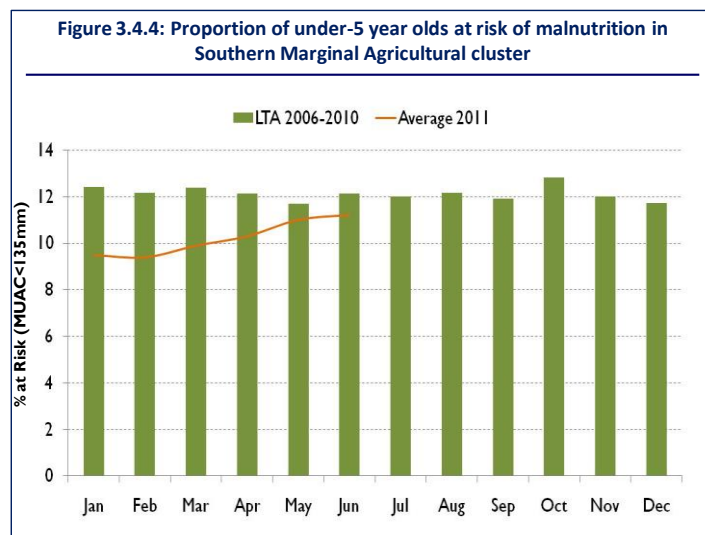
Makueni, Meru North and Nyeri North, which was 120-140 percent and 70-100 percent above five year average respectively. As figure 3.4.3 shows, maize prices have risen sharply since the beginning of the year. Meanwhile, livestock prices were above average but declining due to increased supply by pastoralists and declining body conditions. Goat prices were above July average by 25-50 percent across the cluster with the exception of Meru North where they were five percent below average. Similarly cattle prices were 40-60 percent above July average except in Mbeere where they were 10 percent below average. Notably, increased sale of young livestock including calves, kids and chicks was observed in the markets which suggested distress sales. Terms of trade were 20-50 percent below normal across the cluster. In Mbeere, Mwingi, Tharaka, Machakos and Kitui, a household was able to procure 30-45 kilograms of maize from sale of a goat compared to the normal 55-65 kilograms.

Figure 3.4.3: Trends of maize prices in Southern Marginal Agricultural cluster



3.4.6.5 Health and Nutrition

An outbreak of measles occurred in Mwingi resulting in four deaths. Meanwhile an upsurge of diarrhea was reported in Machakos (Athi River, Masinga and Yatta) and Kitui while dysentery outbreak also occurred in Mbeere. However, crude mortality rates and under five mortality rates were below the threshold of 0.5 deaths per 10,000 per day which depicted a normal situation. The fully-immunized child coverage was generally below the national target of 80 percent with an exception of Kieni (85 percent). Vitamin A supplementation coverage varied across the cluster and was highest in Makueni while in Mbeere and Mwingi, coverage was significantly lower at 48 and 51 percent, respectively. The nutritional status of children under five years had been gradually deteriorating since April. As figure 3.4.4 shows, proportion of children at risk of malnutrition (MUAC<135mm) was rising though below average level. Ongoing feeding program was among the likley factors moderating the rapid decline in child nutrition. However, nutrition status was likely to decline further as food consumption patterns worsened. Majority of households were consuming 2-3 food groups with the exception of households in Tharaka and Kieni that were consuming up to five food groups. Apart from households in Kieni, the remaining majority were consuming an average of 1-2 meals per day compared to a normal of 3-4 meals.



3.4.6.6 Education

The SMP has had a positive impact on enrolment, attendance, retention and transition rates particularly at the ECD and primary levels. Notably, school enrolment in the cluster increased by 1-5 percent between Term II of 2010 and Term II of 2011. Meanwhile, school attendance had stabilized remarkably with most districts recording attendance rates surpassing 80 percent. Gender disparity had reduced remarkably with schools in all districts recording a near 1:1 boy-girl ratio. School drop-out rate in Term II 2011 was below 0.5 percent across the cluster.

3.4.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.11 in Tharaka and 0.27 in Mwingi, which was below the emergency threshold of 0.4 meaning that most of the households were not employing severe coping strategies to mitigate the effects of drought. The common coping strategies included reducing number of meals, distress sale of livestock, increased begging, limiting meal proportions and increased charcoal burning. However, 11-27 percent of households were employing undesirable coping strategies such as abandonment of families, for instance in Mbeere and Kitui districts; prostitution and sex work; and disposal of productive assets such as land, in Machakos district.

3.4.7 Food Security Prognosis

The food security situation is likely to worsen over the next three months. Unrelentingly high food prices are likely to remain above average in the short term while livestock body conditions are expected to worsen due to depleting pasture and browse as well as acute water shortages. Further reduction in livestock prices is likely to aggravate already unfavorable terms of trade.

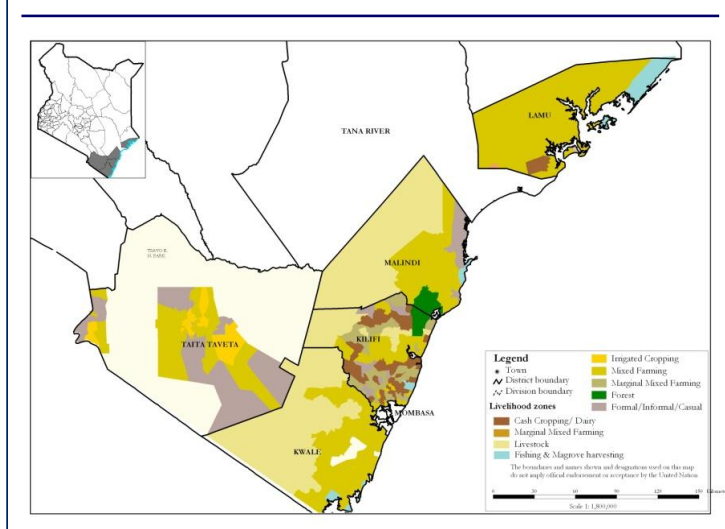
In addition, resource-based conflicts may escalate in Kitui, Mwingi and Tharaka where there is an influx of livestock from the pastoral livelihood. In Nyeri North, off-season rains that were being received in July were likely to positively impact water sources, pasture and browse condition hence leading to better livestock body conditions and subsequently increased milk production. Good performance of the 2011 short rains will activate recovery and improve food availability from November onwards when short cycle crops become available. The situation will likely be better in December 2011 although full recovery will not be expected immediately. However, poor short rains will lead to widespread deterioration of food security situation to Emergency level.

3.5 Coastal Marginal Agricultural Livelihood Cluster

3.5.1 Cluster Background

The Coast Marginal Agricultural cluster consists of Malindi, Kilifi, Taita Taveta, Kwale and Lamu districts. The cluster covers an area of 47,860 square kilometers with an estimated population of 2,145,862 people. The five larger districts have been subdivided into thirteen smaller districts. As shown in figure 3.5.1, the main livelihoods in the cluster are mixed farming, formal employment including casual labor and business and marginal mixed and livestock farming, which account for 61, 19 and 16 percent of the cluster population, respectively. Livestock and crop production and waged labor are the main sources of household income in the cluster. Livestock production contributes to 40 percent while crop production and waged labor each contribute to 30 percent of household's income.

Figure 3.5.1: Coastal Marginal Agricultural cluster



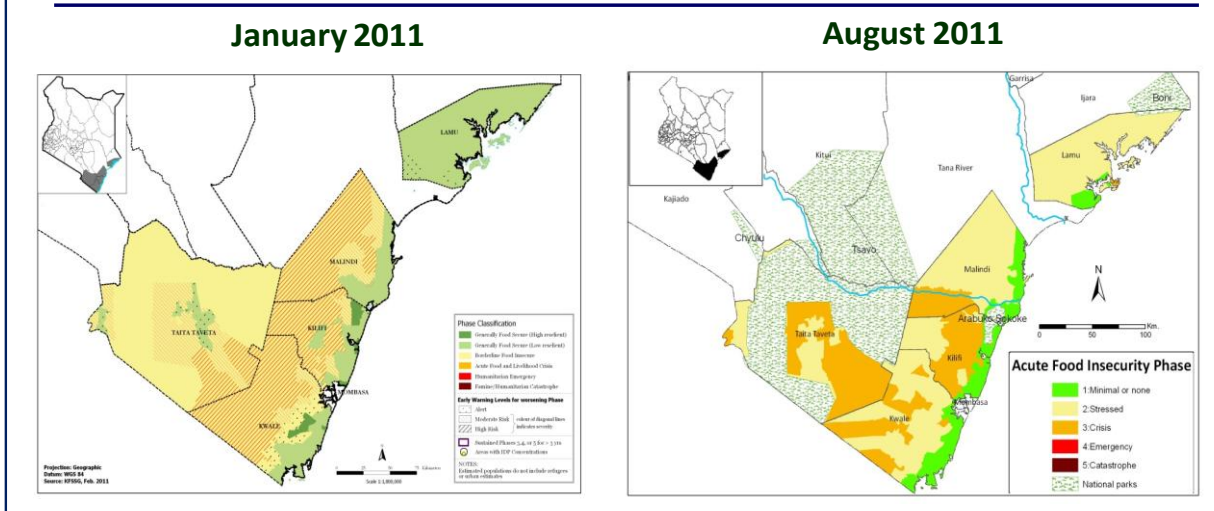
3.5.2 Factors Affecting Food Security

The factors affecting food security in this cluster include, low adoption of modern agricultural technologies; chronic poverty; poor road network that hinder market integration; and poorly diversified crop production and over reliance on maize production in areas unsuitable for maize production. In addition, high cereal and pulses high post-harvest losses, and frequent human and wildlife conflict in areas bordering national parks also impact negatively on food security.

3.5.3 Overall Food Security Situation

Most areas of the cluster are classified in the Stressed Phase. The eastern, central and western parts of Kilifi, western parts of Kwale; and most of Taita Taveta district are classified in Crisis Phase while the coastal belt of Lamu, Malindi, Kilifi and Kwale districts are in Phase one, No Acute Food Insecurity. Figure 3.5.2 shows food security situation in January 2011 compared to the situation after the long rains assessments in August 2011.

Figure 3.5.2: Food security situation in Coastal Marginal Agricultural cluster



3.5.4 Food Security Trends

The food security situation has declined across the cluster except in areas along the coastal belt. Most areas of Taita Taveta, eastern Kilifi and western Kwale that were in Stressed Phase in January 2011 have deteriorated to Crisis Phase. In Lamu district, household food security situation has declined from No Acute Food Insecurity to the Stressed Phase. However, most areas in Malindi and eastern parts of Kwale have remained in the Stressed Phase.

3.5.5 Current Shocks and Hazards

2.5.5.1 Rainfall

The onset of the long rains was generally timely in mid March. However, the rains were characterized by false starts to the season. The rains were generally below normal across the cluster, particularly in the eastern parts of the cluster that received 20-50 percent of normal rains. Rainfall amounts were lowest in localized areas in eastern part of Kilifi, southern Malindi and eastern Kwale that received less than 10 percent of normal rains. Highest amount of rainfall was received in the southern part of Lamu and Taita Taveta and northwestern Malindi and Kwale that received 50-80 percent of normal rains. The rains ceased in early May as opposed to the normal cessation in late July or early August. However, rains extended into July in parts of Kwale and Malindi.

3.5.6 Impacts of Shocks and Hazards

3.5.6.1 Crop Production

The long rains contribute to 50-70 percent of annual crop production in the cluster with maize accounting for 60 percent of household cash income. The area put to maize production was 12 percent above five year average across the cluster due to increased availability of planting seed supplied by the Ministry of Agriculture. At the same time, irrigated area was 40 percent above five year average during the long rains. Despite increased maize hectareage, only about 45 percent of average production was realized due to below normal and poorly distributed long rains. Staple maize production was lowest in Kilifi that recorded about 10 percent of normal long rains output. However, 10 and 50 percent of maize was yet to be harvested in Lamu and Kwale respectively, by end of July, after replanting occurred.

An estimated 800,000 bags of maize harvest was being anticipated in the cluster. The harvests were expected to augment available carryover stocks estimated to be 113,000 bags. The total maize stock at the end of the season was expected to be about 40 percent of five year average. Outside Kilifi, households were holding 32 percent of normal stocks, including carryover stocks, which were expected to last 1-2 months as opposed to the normal 3-4 months. Meanwhile, trader stocks were estimated to be 14 percent of long term average.

3.5.6.2 Livestock Production

Pasture and browse condition was fair to good across the cluster and was projected to last 2-3 months instead of the normal four months, due to influx of livestock from the pastoral. In Malindi and Kilifi, pasture and browse was expected to last only one month due to unusual pressure on grazing resources. Livestock trekking distance increased to 15 kilometres from the usual 1-5 kilometres. Trekking distance was longest in Kilifi at 10-15 kilometres compared to a usual of 5-10 kilometres and shortest in Kwale at 2-3 kilometres compared to a usual of 1-5 kilometres. Livestock body condition was fair for cattle and sheep but good for goats. However, milk availability at household level was below normal, averaging 1-2 litres in Taita Taveta, Lamu and Malindi compared to the usual 3-5 litres. In Kwale and Kilifi, milk availability was normal at 3-5 litres per household per day. Nevertheless, milk prices increased from Ksh. 25-40 to Ksh. 40-60 per litre across the cluster. The main livestock diseases reported in the cluster were FMD, in Kwale and Malindi; LSD, in Malindi; and Newcastle disease in Kwale, which resulted into nearly 70 percent poultry mortality. Livestock migrated into the cluster from northeastern pastoral and Kajiado was heightening the risk of disease outbreaks and conflicts.

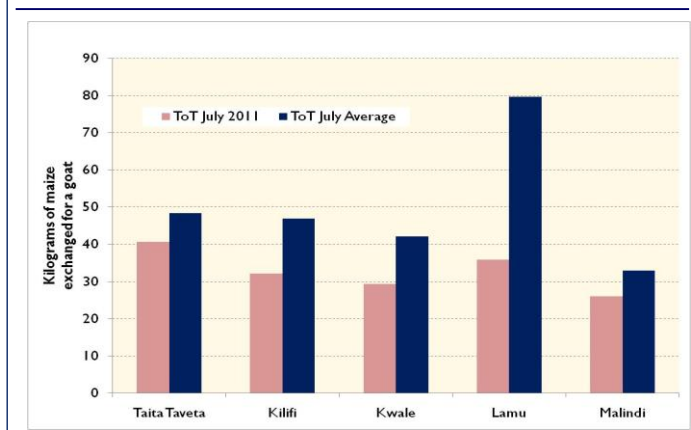
3.5.6.3 Water and Sanitation

The long rains resulted into 30-50 percent of recharge of temporal water sources across the cluster. Although available water was expected to last for 2-3 months, some sources of water had dried leading to water trucking in areas with severe water shortages, for instance, Kiunga, Faza and Manda in Lamu; Fundissa, Marereni, Adu, Langobaya and Chakama in Malindi; and Ganze, Kakoneni, Vitengeni and Mariakani in Kilifi. High competition for water also led to an escalation of human-wildlife conflict in Taita Taveta in areas bordering the national parks. Although return distance to water points was normal at 1-5 kilometers in Kwale and Taita Taveta, they had increased to 10-15 kilometers against a normal of 3-4 kilometers in Lamu and Malindi and 5-10 kilometers in Kilifi. The cost of water was normal across the cluster at Ksh. 3-5 per 20 liters except in pockets of Malindi and Lamu where a 20 liter jerry can was selling at Ksh. 20-50. Nevertheless water consumption remained normal at 10-15 liters per person per day across the cluster.

3.5.6.4 Markets and Trade

Normal markets operations were disrupted in Malindi, Lamu, Kwale and Kilifi due to an influx of livestock from the northeastern pastoral livelihood zone. At the same time, traders were unable to effectively replenish stocks due to high food prices. Maize prices ranged from Ksh 40-50 per kilogram across the cluster and were 70-80 percent above average in Taita Taveta, Malindi and Kwale. However, prices had started to decline in the mixed farming zones within the cluster where harvesting was ongoing.

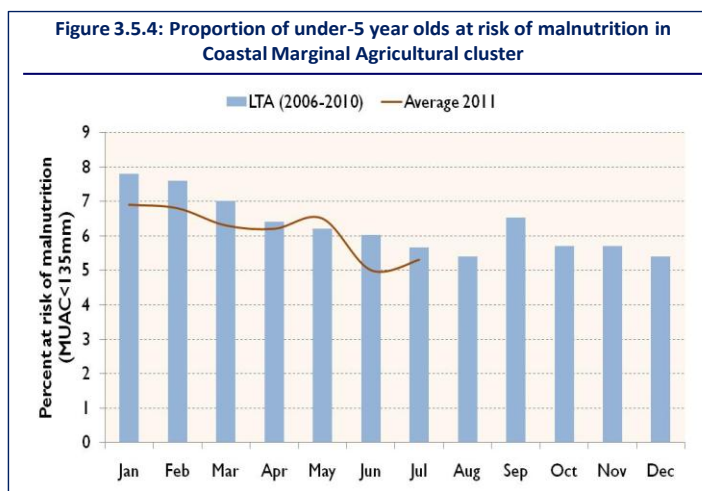
Figure 3.5.3: Comparative terms of trade in Coastal Marginal Agricultural cluster



The price of a goat ranged between Ksh. 1,150-1,480 in Malindi and Kilifi, which was 55-75 percent above five year average. However, influx of livestock from northeastern pastoral livelihood zone was likely to push prices down in 2-3 months. As figure 3.5.3 shows, household terms of trade were unfavorable and averaged 20-50 percent below average in Kilifi, Malindi and Lamu. Terms of trader were relatively better in Taita Taveta and Kwale that borders Tanzania and normally benefit from cross border maize inflows. In general, a household was able to purchase 30-40 kilograms of maize from sale of a goat, compared to a normal of 40-70 kilograms.

3.5.6.5 Health and Nutrition

The main causes of morbidity for children under five year of age and the general population were within the seasonal norms across the cluster. However, measles and cholera outbreaks were reported in Malindi district. Coverage for immunization ranged from 64-79 percent and was on a downward trend compared to the same period in 2010 except in Malindi and Msambweni in Kwale, where coverage was above national target. Similarly, vitamin A supplementation was below WHO threshold across the cluster especially for children aged 12-59 months. As shown in figure 3.5.4 the proportion of children at risk of malnutrition (MUAC<135mm) was below July average levels. However MUAC rates had started rising suggesting that nutrition status had started to deteriorate. The deterioration in nutrition status could be attributed to poor food consumption patterns as households were consuming an average of 1-2 meals across the cluster except in Malindi and Kwale where households were consuming 2-3 meals. At the same time, dietary diversity was poor across the cluster with households taking 1-2 food groups except in Malindi and Kwale where households were consuming 4-5 food groups.



3.5.6.6 Education

In general, enrolment improved across the cluster, partly due to SMP. Compared to 2010, respective enrolment for girls and boys were 75 and 73 percent higher. In schools implementing SMP, retention was also higher. However, 44 schools in Malindi, 60 in Lamu and all schools in Msambweni needed to be included in the SMP due to worsening food security situation. In Ganze, the SMP experienced frequent disruptions due to logistical challenges.

3.5.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.04 in Taita Taveta and 0.24 in Kwale. In general, CSI was below the critical threshold of 0.4 across the cluster. The most commonly employed coping strategies included sale of wood products; distress sale of livestock; increased dependency on social networks for gifts and food; increased petty theft, for instance by up to 10 percent in Lamu, mainly from farms; sharing food with neighbors; wine tapping in Kilifi; and increased consumption of wild fruits.

3.5.7 Food Security Prognosis

The food security situation in the Coastal marginal agricultural cluster is likely to deteriorate further in the next three months, particularly in the marginal mixed farming zones. In these areas, there has not been any significant long rains harvest and water scarcity is rising. Meanwhile food prices are likely to remain above average, further reducing household purchasing capacities. However, if ongoing off season rains intensify and spread to most areas in the cluster, environmental conditions are likely to improve considerably. Assuming good short rains, it will be imperative for households to be supplied with drought tolerant seed for the short rains harvests to be appreciable. However, if short rains are poor or households are not adequately supported, food insecurity is likely to intensify throughout the entire six months period.

4.0 Conclusion

The failed or poor 2011 March-June 2011 long rains have culminated in the third failed season in the southeastern and coastal cropping lowlands and the second failed season in the northern, northeastern and eastern pastoral areas. The impacts of cumulative poor rains have caused an erosion of past gains that extended into August 2010 and precipitated a food security crisis in those areas. The current crisis is particularly significant because the next rains are not anticipated until October 2011, suggesting food insecurity will continue to deepen if mitigation and response actions are not urgently instituted. In addition, necessary non-food interventions will be required at the onset of the short rains to prevent further loss of livelihood assets and hasten the recovery of livelihoods that have been battered by the prolonged drought.

5.0 Proposed Emergency Sectoral Interventions

5.1 Agriculture Sector – Priority Interventions, September – February 2011

Irrigated agriculture has been identified as important to enhancing food security, particularly in the arid and semi arid areas. Therefore, it is necessary to develop new irrigation schemes while at the same time ensure that non-operational schemes are rehabilitated. Environmental degradation is a major impediment that must be addressed for agricultural production to take off. While the foregoing would enhance farmers ability to improve crop production, timely distribution of appropriate drought tolerant seed and other necessary inputs is also critical. Among the interventions recommended to enhance agricultural production include the following;

Immediate Interventions					
	Intervention	Districts	Cost (Ksh.)	Available (Ksh.)	Gap (Ksh.)
1.	Provision of agricultural inputs (drought tolerant certified seeds and fertilizers).	Kajiado, Baringo, Koibatek, Malindi, Lamu, Taita Taveta, Kwale, Kilifi, Isiolo, Mandera, Wajir, Garissa, Tana River, Samburu, Kieni, Turkana, Marsabit, Machakos, Makueni, Mbeere, Meru North, Mwingi, Tharaka and Kitui.	320 M	-	320 M
2.	Rehabilitation and construction of irrigation schemes.	Kajiado, Narok, Laikipia, Koibatek, Mandera, Garissa, Tana River, Taita Taveta Kwale, Kilifi, Turkana, Machakos, Makueni, Mbeere, Mwingi, Tharaka and Kitui.	562 M		562 M
3.	Promotion of post-harvest management technologies.	Taita Taveta, Kwale and Lamu	6.2 M	-	6.2 M
4.	Soil and Water Conservation.	Marsabit	16 M	-	16 M
Grand Total			904.2		904.2

5.2 Livestock Sector – Priority Interventions, September – February 2011

The performance of the 2011 long rains was generally poor and the below normal and poorly distributed rains culminated into the second or third failed season in many areas of concern. As a result, pasture and browse regeneration was poor in many places. Furthermore, poor rangeland management and widespread environmental degradation also encumber effective regeneration of pasture. Livestock left around settlements were exposed to inadequate feeds resulting into poor productivity and even starvation, while extensive migrations increased the risk of disease outbreaks. As a result, it is necessary to institute interventions that may counter the negative impacts of poor rains and that enhance feed and water availability and access for livestock. At the same time, it will be necessary to continuously monitor and promptly control livestock diseases to avert significant loss of livestock asset in areas where they are concentrated and at the onset of the short rains. Among the proposed interventions aiming at achieving these objectives include the following;

Immediate interventions					
	Interventions	District	Cost (Ksh.)	Available (Ksh.)	Gaps (Ksh.)
1	Provision of feed supplements.	Kajiado, Narok, Baringo, Turkana, Moyale, Marsabit, Mwingi Kieni Machakos, Kilifi, Isiolo, Makueni, Tharaka, Mandera, Garissa, Ijara, Malindi, Wajir, Turkana and West Pokot.	480 M	180 M	300 M
2	Surveillance, vaccination, de-worming.	Kajiado, Laikipia, Koibatek Garissa Mandera, Taita Taveta, Malindi, Lamu, Kilifi, Moyale, Samburu Wajir Mbeere, Kieni, Kitui, Makueni, Kwale, Machakos, Marsabit, Meru North and Tana River.	660 M	160 M	500 M
3	Livestock off-take.	Isiolo, Wajir, Garissa, Tana River, Turkana, Kitui, Laikipia, Moyale, Marsabit Samburu, Makueni Mbeere, Machakos and Meru North.	415 M	150 M	265 M
Sub Total			1.1 B	490 M	1.1 B
Medium to Long term intervention					
1.	Promotion of bee keeping.	West Pokot, Mandera, Baringo, Turkana, Kitui, Samburu, Garissa, Tana River, Ijara, Wajir, Isiolo, Baringo, Makueni, Tharaka, Kwale and Koibatek.	60 M	-	60 M
2.	Development and conservation of pasture.	Narok, Koibatek, Isiolo, Kwale, Moyale, Wajir, Machakos, Meru North, Tharaka, Marsabit, Mandera, Garissa, Ijara, Tana River, Turkana, West Pokot and Baringo.	238 M	80 M	158 M
3.	Promote poultry production.	Machakos, Makueni, Kitui, Mwingi, Taita Taveta, Kwale, Kilifi, Malindi, Tana River, Koibatek, Baringo, Kajiado and West Pokot.	395 M	-	395 M
Sub Total			693 M	80 M	613 M
Grand Total			1.8 B	570 M	1.7 B

5.3 Water Sector – Priority Interventions, September – February 2011

The long rains had little impact on recharge of temporary water sources. As a result, trekking distances and unit cost of water have increased in most parts of the pastoral, agropastoral and marginal mixed farming livelihoods. There is pressure on permanent water sources, such as boreholes and shallow wells. Furthermore, quality of available water in the unprotected sources including pans and dams is generally poor suggesting appreciable contamination. As a result, water consumption per person per day is significantly below recommended thresholds. Consequently, there is need to provide clean drinking water to affected households immediately, to prevent spread of water borne diseases and save lives. In addition, there is need to improve rain water harvesting and storage capacity during the upcoming short rains season. The recommended interventions in water sector include the following:

Immediate Interventions					
	Intervention	District	Cost (Ksh.)	Available (Ksh.)	Gap (Ksh.)
1.	Water trucking and fuel subsidy.	Machakos, Mbeere, Mwingi, Kitui, Turkana, Samburu, Marsabit, Isiolo, Mandera, Wajir, Garissa, Tana River, Ijara, Taita Taveta, Malindi, Lamu, Kwale, Kilifi, Kajiado and Narok.	350 M	-	350 M
2.	Construction and rehabilitation of water sources – repair, maintenance and servicing.	Turkana, Samburu, Marsabit and Isiolo.	90 M	-	90 M
3.	Supply of water storage facilities and treatment chemicals.	Moyale, Lamu, Isiolo and Tana River.	7 M	-	7 M
Sub Total			447 M	-	447 M
Medium to Long Term Interventions					
1.	Construction and rehabilitation of water infrastructure.	Machakos, Makueni, Meru North, Tharaka, Kieni, Kitui, Garissa, Tana River, Ijara, Taita Taveta, Malindi, Kwale, Kilifi, Narok, Baringo, Laikipia and Koibatek.	387 M	-	387 M
Sub Total			387 M	-	387 M
Grand Total			824 M	-	824 M

5.4 Market Sector – Priority Interventions, September – February 2011

Poor market integration and high transaction costs are identified as underlying factors to food insecurity in most of the pastoral, agropastoral and marginal agricultural zones. At the same time, the assessments team noted that some remote locations were not provisioned with cereals because households lacked cash needed to purchase commodities. Also, affected households did not have access to livestock due to extended livestock migrations. To enhance household access to food and improve market performance, the following interventions are proposed:

Immediate Interventions					
	Interventions	Districts	Cost (Ksh.)	Available (Ksh.)	Gap (Ksh.)
1	Trader support in poorly integrated market areas targeting the very poor (supply support through cash or voucher schemes).	Mandera, Wajir, Moyale, Marsabit, Turkana, Isiolo, Tana River, Ijara, Garissa, Mwingi, Kitui and Machakos.	200 M	-	200 M
2	Livestock trade financing to ranchers and itinerant traders.	Kwale, Taita Taveta, Kilifi, Machakos, Nakuru,	1.2 B	400 M	800 M
3	Promotion of value addition (for crop and livestock products).	All 29 districts	780 M	-	780 M
Sub Total			2.18 B	400 M	1.78 B
Medium to Long Term Interventions					
1	Market infrastructure (roads, communication and fresh produce markets).	Moyale, Mandera, Wajir, Baringo, Marsabit, Turkana, Isiolo, Tana River, Ijara and Garissa.	200 B	-	200 B
2	Promotion of value addition (for crop and livestock products).	Mandera, Wajir, Moyale, Marsabit, Turkana, Isiolo, Tana River, Ijara, Garissa, Mwingi and Kitui.	700 M	-	700 M
Sub Total			900 M	-	900 M
Grand Total			3.08 B	-	2.68 B

5.5 Health and Nutrition Sector – Priority Interventions, September – February 2011

The health and nutrition status of vulnerable groups in the pastoral, agropastoral and marginal agricultural districts remains precarious. Households in pastoral livelihoods reported some of the highest GAM rates, above 20 percent. At the same time, trend of proportion of children at risk of malnutrition has consistently remained high and above long-term averages suggesting a chronic situation in most of these areas. An estimated 634,709 children who are less than five years old are moderately malnourished and 101,300 are severely malnourished. The former have three while the latter have nine times more chances of dying if appropriate interventions are not instituted. In addition, malnourished children also burden care-givers who are often unable to meet their own basic needs owing to poor household food security. In order to address these worrisome trends, a multi-faceted approach is required, so as to tackle both immediate and underlying causes of high rates of child malnutrition and associated mortalities. The table below shows proposed immediate and medium term interventions.

Immediate Interventions					
	Intervention	District	Cost (Ksh.)	Available (Ksh.)	Gap (Ksh.)
1	Integrated Management of Acute malnutrition (SuFP, OTP and BSFP).	Moyale, Samburu, Turkana, Mandera, Wajir, Marsabit, Mbeere, Kieni, Kitui,, Makueni, Mwingi, Laikipia, Koibatek, Taita Taveta, Kwale, Kilifi, Tana River, Ijara and Isiolo.	5.8 B	-	5.8 B
2	Integrated Outreach programme, Integrated Disease Surveillance & Response and Provision of long lasting insecticide treated nets.	Taita Taveta, Ijara Isiolo, Mandera Moyale, Samburu, Marsabit Kwale, Meru North, Kitui, Mwingi, Wajir Narok, Kajiado, Mbeere, West Pokot, Kilifi, Lamu and Turkana.	1.1 B	-	1.1 B
Sub Total			6.9 B	1.45 B	6.9 B
Medium to Long Term Interventions					
3	Promotion of Infant and Young Child Feeding (IYCF) practices.	Kajiado, Turkana, West Pokot, Mandera, Moyale, Samburu, Marsabit, Baringo, Mwingi, Kitui, Makueni, Kilifi , Ijara Kwale, Tharaka, Tana River, Lamu, Wajir Malindi, Laikipia and Garissa.	200 M	-	200 M
4	Promotion of hygiene practices including water treatment, latrine construction.	Turkana, Samburu, West Pokot, Marsabit, Garissa Baringo, Mandera, Moyale, Wajir, Kitui, Makueni, Kilifi, Kwale, Tharaka, Tana River, Machakos Lamu, Malindi, Laikipia, Mwingi, Ijara and Kajiado.	461 M	65 M	396 M
3	Deworming and Vitamin A supplementation.	All 29 ASAL districts	150 M	-	150 M
Sub Total			811 M		746 M
Grand Total			7.7 B		7.65 B

5.6 Education Sector – Priority Interventions, September – February 2011

Although the ongoing SMP has mitigated school dropout rates in many areas of the pastoral, agropastoral and marginal agricultural districts, there is need for continuation and expansion of the program. Many households have become vulnerable to food insecurity and are likely to withdraw children from school so as to engage in income generating activities to supplement household food. There is an increase in mobility of pupils that are migrating with their families in search of pasture and browse for livestock. To enable the development of human capital that is necessary for addressing cyclic food insecurity among the highly vulnerable population, the following interventions are proposed:

Immediate interventions					
	Intervention	Districts	Cost (Ksh.)	Available (Ksh.)	Gap (Ksh.)
1.	Home Grown School Meals Programme (HGSMP) and Up-scale Emergency School Meals Programme (ESMP).	Meru North, Tharaka, Kieni, Kitui, Malindi, Lamu, Msambweni, Makueni, Mbeere, Mwingi, Tharaka, Kitui, Moyale, Marsabit, Kwale, Kilifi and Kajiado.	4.4 B	-	4.4 B
2.	Mobile school meals Programme.	All pastoral districts.	400 M	-	400 M
Sub Total			4.8 B	-	4.8 B
Medium to Long Term Interventions					
1.	Provision of water harvesting and storage facilities in schools.	Machakos, Kwale, Turkana, Samburu	12.2 M	-	12.2 M
2.	Construction of latrines in schools.	Pastoral districts	150 M	-	150 M
Sub Total			162.2 M		162.2 M
Grand Total			4.96 B	-	4.96 B

5.7 Food Sector – Priority Interventions, September – February 2011

While cross sectoral non-food interventions are necessary to prevent further employment of undesirable coping strategies, food interventions are necessary to avert loss of lives. The following table shows the locations and populations that are in urgent need of food assistance, until February 2012:

District	Total District Population	March 2011 – August 2011		September 2011 – February 2012	
		% in need	Number of people in need of food assistance	% in need	Number of people in need of food assistance
Turkana	539,264	49	265,300	60	322,500
Wajir	619,220	33	205,300	50	308,700
Mandera	337,800	39	132,500	50	167,600
Garissa	411,728	28	116,800	32	130,400
Marsabit	187,367	66	124,000	77	144,100
Samburu	223,947	30	67,800	43	95,600
Laikipia	399,227	14	54,700	16	61,900
West Pokot	512,690	13	67,900	13	67,900
Tana River	240,075	26	61,400	45	107,600
Isiolo	143,294	59	84,000	63	90,000
Kajiado	687,312	12	71,600	13	90,600
Baringo	389,329	25	96,200	28	107,200
Moyale	103,799	37	38,000	48	50,100
Ijara	92,663	34	31,200	34	31,200
Narok	576,388	2	13,500	5	27,000
Koibatek	166,232	17	29,000	27	45,100
Subtotal Pastoral Districts	5,630,335	26	1,459,200	33	1,847,500
Makueni	884,527	14	121,000	44	385,800
Kwale	649,931	21	135,300	23	150,900
Mwingi	384,948	31	119,700	52	198,700
Kilifi	709,221	11	74,600	14	97,800
Kitui	627,761	30	186,400	37	233,500
Taita Taveta	284,657	20	57,900	42	119,000
Malindi	400,514	11	43,900	20	81,100
Mbeere	219,220	29	63,000	43	93,500
Tharaka	130,098	23	31,000	47	61,300
Machakos	1,098,584	11	116,500	20	217,900
Meru North	775,982	10	75,000	27	206,000
Kieni	324,659	9	30,300	9	30,300
Lamu	101,539	0	0	27	27,400
Subtotal Marginal Agricultural Districts	6,591,641	10	1,054,600	30	1,903,200
Total	12,221,976	20	2,513,800	31	3,750,700