Government of Kenya

THE 2015 SHORT RAINS SEASON ASSESSMENT REPORT

Kenya Food Security Steering Group (KFSSG)

February 2016

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Executive Summary

Scope of the 2015 Short Rains Assessment

The assessment of the October – December 2015 short rains was conducted from 1st to 12th February 2016 by the Kenya Food Security Steering Group (KFSSG) and its partners. The assessment covered 23 counties classified as arid and semi-arid and highly vulnerable to food insecurity. These were:

- North and north-west: Isiolo, Marsabit, Samburu, Turkana, Baringo, Laikipia and West Pokot.
- South Rift: Kajiado and Narok.
- North-east: Garissa, Tana River, Wajir and Mandera.
- Coast: Kwale, Kilifi, Lamu and Taita Taveta.
- South-east marginal agriculture counties: Kitui, Makueni, Nyeri (semi-arid areas of Kieni), Meru (Meru North), Embu (Mbeere) and Tharaka Nithi (Tharaka).

The dominant livelihoods in these areas are pastoralism, marginal agriculture, and agro-pastoralism, with pockets of irrigated agriculture.

The objective of the assessment was to determine how the season had affected livelihoods and household food security, focusing on various sectors including agriculture, livestock, water, health and nutrition, education, markets and trade. The assessment made both immediate and long-term recommendations to improve the food and nutrition security of households in these areas.

Rainfall performance

The October to December 2015 short rains were above average in most parts of the country, supported by the prevailing *El Nino* conditions.

The onset of the rains was normal across the country in the first and second dekads of October, except in Kilifi and Kwale counties where it was late in the last dekad of October. The cumulative rainfall amounts were generally above normal, with parts of the pastoral and agro-pastoral livelihood zones receiving more than 140 percent of normal rainfall. The spatial distribution of the rains was good in most counties except in the southern part of Turkana, parts of Garissa and the north of Mandera (Figure 1.1). The temporal distribution was fair in most areas. Cessation was normal across all the livelihood zones, between the first and second dekads of December, although some off-season rains continued in various areas into January, in line with the forecast from the Kenya Meteorological Department[1].
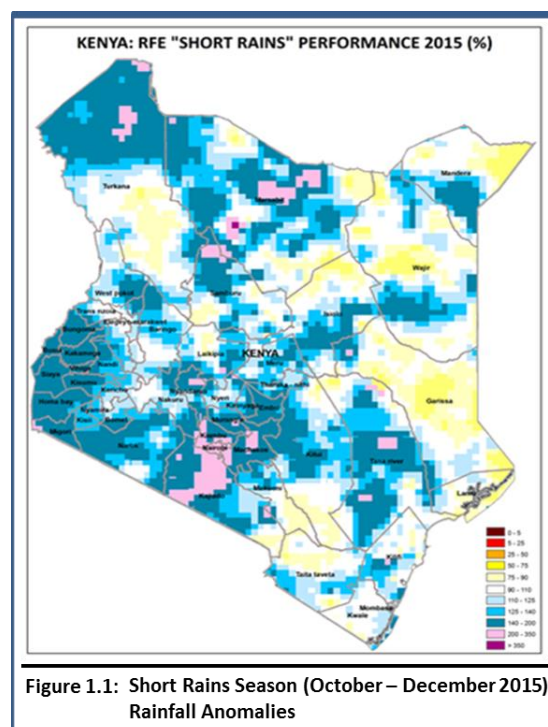

Figure 1.1: Short Rains Season (October – December 2015) Rainfall Anomalies

Summary of key findings

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[1] Kenya Meteorological Department, short rains season forecast, October to December 2015.

The assessment established that the population in need of immediate food assistance for the
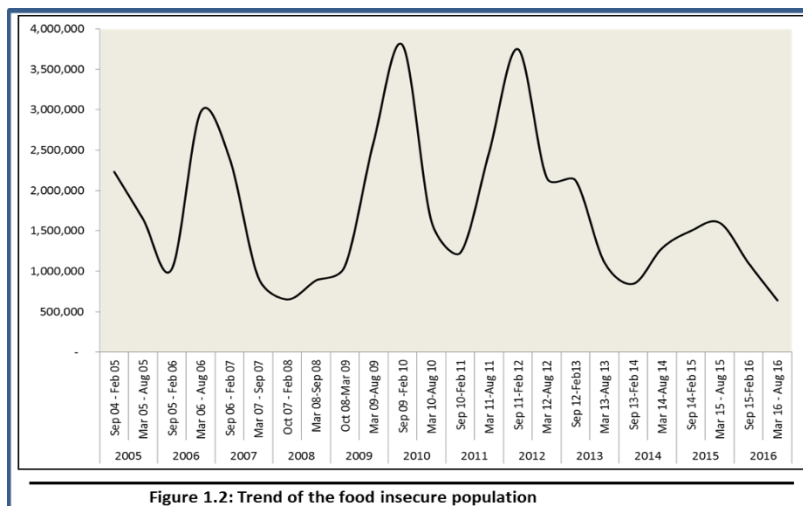

Figure 1.2: Trend of the food insecure population

next six months (March – August) is 0.64 million, a reduction of about 41 percent on the previous assessment in August 2015 (Figure 1.2). Cumulatively, the two consecutive good seasons (2015 long and short rains) have generated substantial improvements in household food security and adequate availability of staple food commodities in the markets, the latter supported by continued cross-border in-flows.

In the pastoral livelihood zones, substantial improvements in household food security were noted following the average to above average short rains. Pasture and browse conditions remain fair to good, though seasonally deteriorating. Water is still largely available for livestock and domestic use, with return trekking distances to watering sources being within seasonal levels. There is limited outmigration of livestock to dry season grazing areas. Livestock body condition ranges from fair to good supported by favourable rangeland conditions. Livestock prices in most pastoral areas remain favourable and above their respective averages. With the exception of Isiolo, where in January 2016 goat prices were near the average, goat prices in the other pastoral markets were six to 50 percent above average, with notable variations between markets. With staple food
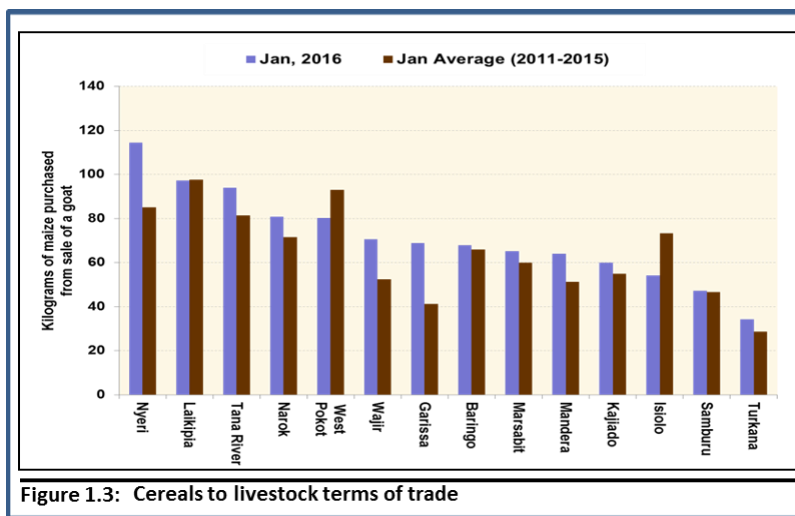
Figure 1.3: Cereals to livestock terms of trade

prices stable, the livestock-to-cereal terms of trade remain favourable. With the exception of Isiolo and West Pokot, the January terms of trade were near average in some counties and 8 – 60 percent above average in most counties (Figure 1.3). However, localized parts of the pastoral areas, including the northern parts of Isiolo and Garissa, western and central Wajir, eastern Mandera, and central Turkana, received only 50-90 percent of normal rainfall during the short rains. These areas are reported to have fair to poor pasture and browse and some dried water sources. Here, livestock have fair to poor body condition, and most have migrated to other parts of their counties where rangeland resources are favourable.

In the south-east marginal agricultural areas, the short rains were largely above average and resulted in good crop production, with harvesting of both legumes and cereals being above

average in most areas. In the coastal marginal agricultural areas, the short rains were average to above average in cumulative amounts. However, their temporal and spatial distribution were poor and uneven and this affected crop development, especially maize. While legume production has been average to above average, maize production is expected to be about 10 – 30 percent below the five-year average.

The nutrition situation analysis (February 2016) of ASAL counties indicates a stable nutrition situation in the northern arid parts of the country and an improving situation in the south-eastern and agro-pastoral areas compared with August 2015 (Figure 1.4). The improvements are mainly attributed to the positive impact of the 2015 short rains season which increased household food security. The nutrition situation in West Pokot County improved from 'Serious'[2] to 'Poor'[3], while in Isiolo County, a nutrition survey conducted in February 2016 indicated an

Figure 1.4: National Nutrition Situation

improvement to 'Serious' from the classification of 'Critical'[4] in August 2015. Indicators on dietary diversity and food consumption score in the same survey also improved. The nutrition situation in Laikipia, Kitui, Narok, Kajiado, Makueni, Taita Taveta, Kilifi and Kwale counties improved from 'Poor' in August 2015 to 'Acceptable'[5] in February 2016. In Turkana, Marsabit, Mandera and Wajir, acute malnutrition rates remain high but stable, with no deterioration noted on the previous season. The improved food security situation and the on-going efforts to ensure that high impact nutrition interventions reach affected populations equitably have prevented further deterioration.

Disease outbreaks were noted in some counties, threatening the health and nutrition of the affected populations. A measles outbreak has been confirmed in Mandera, with 92 cases reported. In other areas (Wajir, Marsabit, Nairobi, Garissa-Dadaab, Mombasa, Kajiado and Tana River) active cholera outbreaks persist and require continued monitoring and treatment. Chronic factors that contribute to malnutrition still persist and should be addressed, including morbidity, limited access to health services, poor sanitation, and sub-optimal child feeding and care practices.

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[2] Global acute malnutrition rates between 10%-14.9% (WHO classification)
[3] Global acute malnutrition rates between 5-9.9% (WHO classification)
[4] Global acute malnutrition rates above 15% (WHO classification)
[5] Global acute malnutrition rates below 5% (WHO classification)

Category of the food insecure population

Summary of food security phase classification

The Integrated Food Security Phase Classification (IPC) is a set of protocols (tools and procedures) for classifying the severity of food insecurity and providing actionable knowledge for decision support. The short rains assessment found that an estimated 0.64 million people were acutely food insecure and in need of immediate food assistance. Most of the food insecure population is in the pastoral livelihood zones (Table 1.1). The major contributory factors are insecurity (terrorism and resource-based), poor temporal and spatial rainfall distribution, below average cumulative rainfall in some areas, flash floods in other areas which destroyed crops and killed livestock, crop and livestock diseases, and human-wildlife conflict. Other underlying factors contributing to food insecurity include the prevalence of high poverty rates, limited income diversification, low use of modern farming technologies, and poor infrastructural facilities.
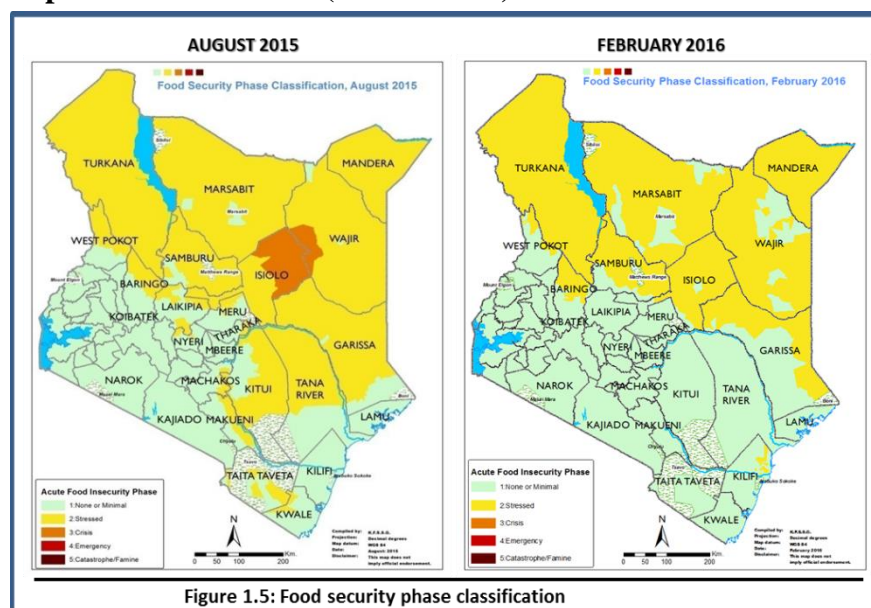
Table 1.1: Distribution of the population affected by livelihood zone

Livelihood zones	Population affected after the 2015 long rains	Population affected after the 2015 short rains
Pastoral	783,000	520,000
Marginal agriculture	291,900	119,000
Total	1,074,900	639,600

Population in Stressed (IPC Phase 2)

Figure 1.5: Food security phase classification

The good performance of the short rains led to a significant reduction in the population under Stressed[6] (IPC Phase 2), compared with the 2015 long rains assessment. Pockets of Wajir and Isiolo which were classified as Crisis[7] (IPC Phase 3) in August 2015 have now improved to the Stressed phase. However, most of the pastoral livelihood zones of Mandera, Wajir, Turkana, Marsabit, Samburu, Isiolo, Garissa and Baringo have remained in the Stressed phase, attributed to the inability of livelihoods to recover fully from the impacts of previous drought (Figure 1.5). For most households their herd size is still too low to generate adequate income to support

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[6] Households in 'Stressed' are able to afford minimally adequate food consumption but are unable to afford essential non-food expenditures without engaging in irreversible coping strategies.

[7] Households in 'Crisis' can marginally meet their minimum food needs only with accelerated depletion of livelihood assets that exposes them to further food consumption gaps.

food consumption. Outside the pastoral zones, the only other areas classified as Stressed are some pockets within the marginal mixed farming zones of Kilifi.

Most of the areas that are Stressed received between 75 and 150 percent of normal rainfall. The spatial distribution was generally even, but the temporal distribution was poor. Water recharge ranged from 60 – 90 percent of the carrying capacity of open water sources. While most of these still have 20 – 50 percent of their carrying capacity, some have dried up already. There was a marked improvement in rangeland conditions with pasture and browse being fair to good and positively supporting livestock productivity. Pasture is expected to last for 1 – 2 months in most of these areas. Livestock body condition for all species is fair to good. Average milk production in most households ranges from 1 – 3 litres per day, which is largely within seasonal levels, while household milk consumption is also normal at 1 – 2 litres per day. Livestock prices improved and were mostly above average. Consequently, the terms of trade were favourable and above average with the sale of one goat able to purchase 45 – 73 kg of maize. However, most households have low numbers of tropical livestock units (TLUs), resulting in few saleable livestock and subsequently insufficient income to meet their food and non-food needs.

Population in Minimal (IPC Phase 1)

Current areas under Minimal[8] (IPC Phase 1) include the southeast and coastal marginal livelihood zones, localized parts of the pastoral areas of Marsabit, Wajir, Isiolo, Samburu, Garissa, all pastoral and agro-pastoral areas of Tana River, and agro-pastoral areas of West Pokot, Baringo, Kajiado and Narok. These areas received two consecutive favourable rains and households have adequate income to support food and non-food access.

Crop production and prospects

National maize supply situation and prospects

National maize availability remains stable following two successive favourable cropping seasons and given continued cross-border imports. Households still have stocks from the above-average long rains harvest, while the short rains season crops have matured and also performed above average. Fruits and vegetables are in stable supply, again due to favourable weather. The total maize production in 2015, from both the long and short rains, is estimated at 3.1 million metric tons (MT), approximately nine percent above the five-year average. Cross-border imports continue to boost food availability in the markets. However, maize imports from Uganda and Tanzania are expected to reduce by around nine percent and may reach 425,000 and 400,000 MT respectively between July 2015 and June 2016. This is attributed to increased household stocks and market supplies in Kenya as a result of the *El Nino* rains that improved production in the marginal agricultural areas of south-western, south-eastern and coastal Kenya which normally rely in part on cross-border imports. Further, supplies from Tanzania are tightening and prices increasing given the 10 percent below average production in Tanzania's May – August 2015 season, and an anticipated below average January – February 2016 harvest.

According to the State Department of Agriculture's food security report published in January 2016, the national maize stocks stood at 1.21 million metric tons (Table 1.2) at the end of January 2016. Between February and May 2016, analysis of the available maize stocks from

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8 Households in 'Minimal' are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance

the short rains harvest and cross-border imports against their utilization by different actors (manufacturers, consumers), and taking into account potential post-harvest losses, indicates that the country will have a surplus after May of about 0.41 million MT.

Table 1.2: Maize balance sheet, February to May 2016

	90 Kg bag	MT
Stocks as at 31st Jan, 2016 in 90kg bags	**13,473,450**	**1,212,611**
Estimated Imports between Feb to May 2016		-
i) Private sector/ relief agencies estimated imports from the EAC between Jan - Mar 2016	1,800,000	162,000
ii) Government imports	-	-
Estimated harvests between Jan - Mar 2016		-
i) Estimated balance long rains harvest	-	-
ii) Estimated short rains Harvests	4,800,000	432,000
Total available stocks by 31st May 2016	**20,073,450**	**1,806,611**
Expected total exports to the EAC	-	-
Expected exports outside the EAC	-	-
Post-harvest storage losses estimated at 10%	2,007,345	180,661
Amount used for domestic livestock feeds (1%)	200,735	18,066
Amount retained as seed (1%)	200,735	18,066
Amount used for manufacture of feeds and other industrial products (2%)	401,469	36,132
Net available stocks by 31st May 2016	**17,263,166**	**1,553,685**
Consumption @3.17 million bags/month for 44 million people for 4 months	12,680,000	1,141,200
Balance as at 31st May 2016 (surplus)	**4,583,167**	**412,485**

Source: Ministry of Agriculture, Livestock and Fisheries

Food price trends

The availability of food commodities is adequate in most markets in the country and is keeping food prices stable. Price data from the State Department of Agriculture reveal that wholesale maize prices in the major urban markets of Nairobi, Mombasa, and Kisumu remained fairly stable and/or declined from October 2015 through January 2016 (Figure 1.6). The January prices were comparable to their five-year average in Mombasa and Kisumu, but were up to eight percent below the five-year average in Nairobi. However, in Eldoret, prices increased by 11 percent between December and January, mainly attributed to the National Cereals and Produce Board (NCPB) buying maize from farmers for the Strategic Grain Reserve. In the coastal and south-east

Figure 1.6: Maize price trends in major urban markets

marginal agricultural areas, retail maize prices have remained fairly stable over the last two months, supported by adequate supplies from imports and the short rains harvest. In addition, the disposal of old stocks in the markets to create room for the expected above average short rains harvest also increased supplies and stabilised prices. In the pastoral markets, retail maize prices have remained stable, especially in Wajir, Turkana, Samburu and Garissa, but declined by up to 10 percent in Isiolo, Marsabit, Tana River and Mandera. Current prices are near average in Wajir, Tana River and Marsabit, seven – 27 percent above average in Samburu, Turkana and Isiolo, and up to nine percent below average in Garissa and Mandera.

Food Security Prognosis through July 2016
Household food security will typically deteriorate between February and April as the short dry season continues, especially in the pastoral livelihood zones. Although the current land surface temperatures are higher than normal and will accelerate the deterioration of rangeland resources, the condition of these resources will still remain fair due to their above normal regeneration during the short rains. They will continue to support livestock productivity until the onset of the long rains in late March. However, localized areas that received below average rainfall are already experiencing more degraded rangeland conditions, and food security in these areas is declining at a faster rate. Even so, a significant decline in household food security is not expected between now and May in most pastoral areas as the long rains are expected to start by the end of March/early April. The long rains forecast indicates average to below average cumulative amounts. This is likely to result in the regeneration of rangeland resources, albeit at below normal levels, but this will still be adequate to support some livestock productivity through June.

Between April and June, household food consumption is expected to improve, as milk and other livestock-related income become available. Pastoral areas currently in Stressed (IPC Phase 2) and Minimal (IPC Phase 1) are expected to remain so through June. However, from July, food security is expected to deteriorate as rangeland resources which only partially regenerated become depleted faster, exacerbated by the hotter than normal temperatures expected during the June – August period. Household food security is expected to wane from July, as livestock migrate to dry season grazing areas, resulting in reduced consumption of livestock products and reduced income from livestock-related activities. While most households are expected to remain in Stressed (IPC Phase 2) during the July-September lean season, some localized areas where rainfall has been significantly depressed are likely to slide into Crisis (IPC Phase 3).

In the marginal agricultural areas, the good cropping conditions experienced during the short rains are expected to continue supporting household food security through July, as available food stocks coupled with income from wage-earning activities support household food consumption. Labour demand for land preparation and planting for the long rains season will boost household income, further supporting market purchase. Crop production during the long rains, although likely to be below average, is expected to further strengthen food security. Most areas are expected to remain in Minimal (IPC Phase 1) through at least July. However, after July, as the lean season sets in, household food stocks are expected to diminish, while there are typically fewer casual labour opportunities at this time to provide income for food purchase. Food security is therefore expected to diminish with some households moving into Stressed (IPC Phase 2).

The key factors to monitor over the next six months include: hotter than normal land surface temperatures; La Nina conditions- later in the year; cholera and measles outbreaks; livestock

diseases, especially camel disease in pastoral areas; post-harvest management (southeast marginal areas); insecurity – particularly along the Somali borders; and the political environment.

Options for response
Given the current food security situation, and in order to sustain the gains made in the last two seasons, there is need for both immediate and medium to long term interventions to cushion vulnerable populations from becoming more food insecure and help build resilience to climate-related shocks. The immediate interventions include: provision of farm inputs to farmers and promotion of drought-tolerant crops, livestock disease surveillance and vaccination, repair and rehabilitation of boreholes, desilting of water pans and provision of water treatment chemicals, continuation of IMAM services to malnourished children, and control of cholera and measles outbreaks in affected counties. Other interventions include nutrition and disease surveillance as well as provision of water tanks to schools. The implementation of medium to long term interventions is to build resilience as envisioned in the Ending Drought Emergencies (EDE) Common Programme Framework. Table 1.3 gives a summary of recommended interventions.

Table 1.3: Proposed interventions

Sector	Proposed interventions	Cost Ksh.(M)	Cost in U.S. Dollar (M)
Agriculture	Provision of subsidized farm inputs, promotion of drought tolerant crops, water harvesting through construction of pans and irrigation systems, promotion of post-harvest management and marketing, conservation agriculture and good agricultural practices	2,986	29
Livestock	Livestock breeding improvement schemes; Continuous Vaccination and disease surveillance; Up scaling of livestock insurance; Marketing and infrastructure; Pasture & fodder establishment & conservation; Sensitization of farmers and traders on better livestock marketing strategy	1,487	15
Health and Nutrition	Increase staffing; Scaling up High Impact Nutrition Interventions (HINI) and roll out of surge model; Conduct nutrition surveillance activities; Enhanced integrated disease surveillance; Provision of water treatment chemicals; Strengthen community health strategy	1,500	15
Education	Schools Meals Programme, Construction of water tanks, sensitization of parents on importance of education, School fees subsidy, Construction of classrooms, Equipping of modern Kitchen, Provision of water tanks, Construction and equipping of modern kitchens and Water trucking and storage.	470	4.7
Water	Construction of dams and water pans, Fuel subsidy for community boreholes, Provision of water tanks and storage facilities, Water infrastructure development for emergency supply, repair of strategic boreholes in grazing areas, roof water harvesting, water pans repair and purchase generators and fencing of water points.	5,000	49
Food Assistance	Cash and Food For Asset programmes to vulnerable populations. Food commodities and cash including associated costs for food insecure populations in need of assistance for the next six months (March 2016 - August 2016).	3,560	35
Peace and Security	Establishment of peace and conflict resolution mechanisms among pastoral communities and formation of peace committees. Monitoring of conflict hot-spots and facilitation of early response.	153	1.5
Total		15,156	149

1.0 Introduction

1.1 Assessment Coverage and Objectives

The October to December 2015 short rains season food and nutrition security assessment was conducted between 31st of January 2016 and 12th February 2016. The assessment was coordinated and conducted by the Kenya Food Security Steering Group (KFSSG)[9] and the County Steering Groups (CSG) in the 23 persistently drought-prone pastoral, agro pastoral and marginal agricultural counties. The counties assessed cover close to 80 percent of the country's geographic area with diverse livelihood zones (Figure 1.7). Specifically, the following counties, grouped into five livelihood clusters, were covered during the assessment:

1. Pastoral Northwest Cluster (Turkana, Marsabit and Samburu Counties);
2. Pastoral Northeast Cluster (Mandera, Garissa, Isiolo, Wajir, and Tana River counties);
3. Agro pastoral Cluster (Baringo, West Pokot, Laikipia, Narok, Kajiado and Nyeri (Kieni) counties;
4. Southeastern Marginal Agricultural Cluster (Tharaka-Nithi, Embu (Mbeere), Meru North, Makueni, and Kitui counties); and
5. Coastal Marginal Agricultural Cluster (Taita Taveta, Kilifi, Lamu, and Kwale counties).
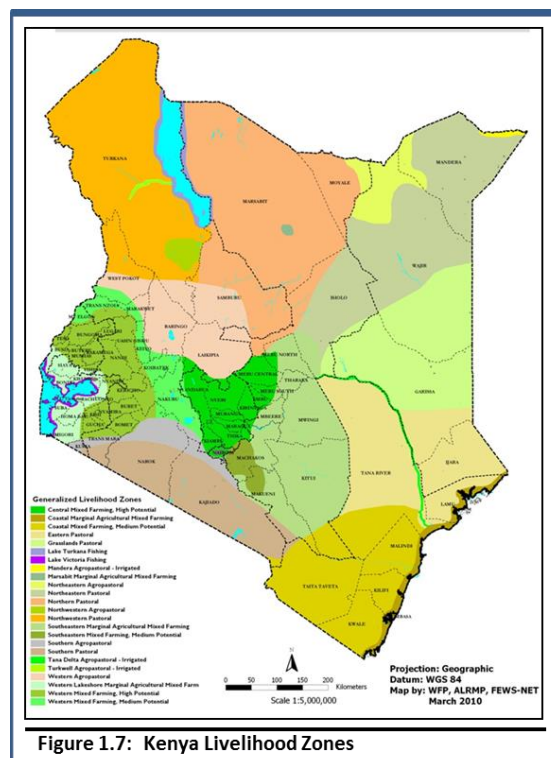
Figure 1.7: Kenya Livelihood Zones

The overall objective of the assessment was to develop an objective, evidence-based and transparent food and nutrition security situation analysis, taking into account the cumulative effect of previous seasons in order to inform the government and relevant stakeholders on the status of food security across the arid and semi-arid areas. The assessment also aimed to identify areas with high severity of food insecurity and provide recommendations for appropriate response options, whether short or long term. Specific objectives were to:

- Ascertain at the livelihood level the quality and quantity of the 2015 October to December short rains and assess their impact on all key sectors including crop agriculture, livestock, water, health and nutrition and education.
- Establish the impacts of other compounding factors on household food security, such as conflict, crop pest and disease, relative high food prices and floods.
- Establish required non-food interventions, with particular emphasis on programmes that promote preparedness and build household resilience.
- Assess potential food needs, including options for appropriate transfer modalities including food for assets, cash and vouchers, safety nets and general food distribution.

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[9] KFSSG is comprised of Government of Kenya (GoK) ministries, the UN, NGOs and key development partners.

1.2 Assessment Approach

Figure 1.8: Sentinel sites for food security outcome monitoring
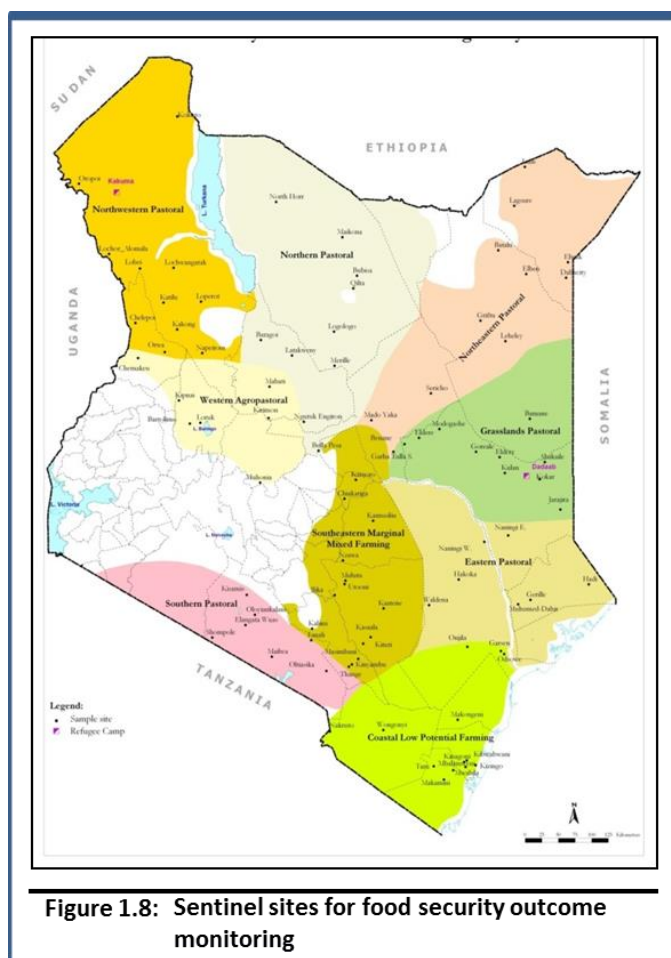
The overall assessment processes and methodologies were coordinated and developed by the KFSSG. First, secondary data for all assessed counties was collected, analyzed and collated into briefing packs. The data included livelihood zone baseline data, drought monitoring information, monthly nutrition surveillance data, price data and satellite imagery. Thereafter, the KFSSG organized a one-week training workshop for the assessment teams. During the workshop, the teams refined sectoral indicators and interview guides, and were taken through the entire assessment process, including, agro-climatic information analysis, sampling methods and field data collection techniques, integrated food security phase classification, estimation of population in need of immediate food assistance, and report writing. In addition, food security outcome monitoring indicators were also collected from 2,700 households situated in 90 sentinel sites. Figure 1.8 shows the sentinel sites from which the outcome indicators were collected. Once in the counties, each assessment team conducted a minimum of two community, two key informant and two market interviews in each sample site. The teams also visited health and education institutions to gather relevant information. Visual inspection techniques were also used during transects drives to obtain qualitative information. The field data was collated, reviewed, analysed and triangulated to verify its validity. The NDMA drought monitoring bulletins, nutrition SMART survey reports and secondary data and the KFSSG monthly Food Security Updates provided important additional information.

The KFSSG adopted a multi-sectoral and multi-agency approach covering the Agriculture, Livestock, Markets, Health and Nutrition, Water and Sanitation, Education and Food Assistance Sectors. While the analytical framework is generally the sustainable livelihoods framework, with the livelihood zones being the focal areas, the required outcome is a detailed understanding of the changes in food security and identification of populations affected and in need of multi-sectoral assistance, particularly in the immediate and medium term. The results from sampled areas, along with outcomes of discussions with the larger County Steering Groups (CSGs) and secondary data analysis, were used to draw inferences for non-visited areas situated in similar livelihood zones. The findings and recommendations were provided at both the county and sub-county levels for planning purposes. The Food Security Integrated Phase Classification (IPC Version 2.0) was employed in classifying severity levels of food insecurity in different livelihood zones.

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2.0 Food and Nutrition Analysis by Livelihood Cluster

2.1 The Pastoral Northwest Livelihood Cluster

2.1.1 Cluster Background

The cluster is made up of Marsabit, Turkana and Samburu Counties and covers an area of 173,877 square km with an estimated population of 1.37 million people (KNBS Census 2009). It supports three main livelihoods: pastoral, agro-pastoral and fisheries/formal employment/ business/petty trade, which have a population of 69, 24 and seven percent respectively. The pastoral zone represents about 80 percent of the total area. The main sources of income include livestock
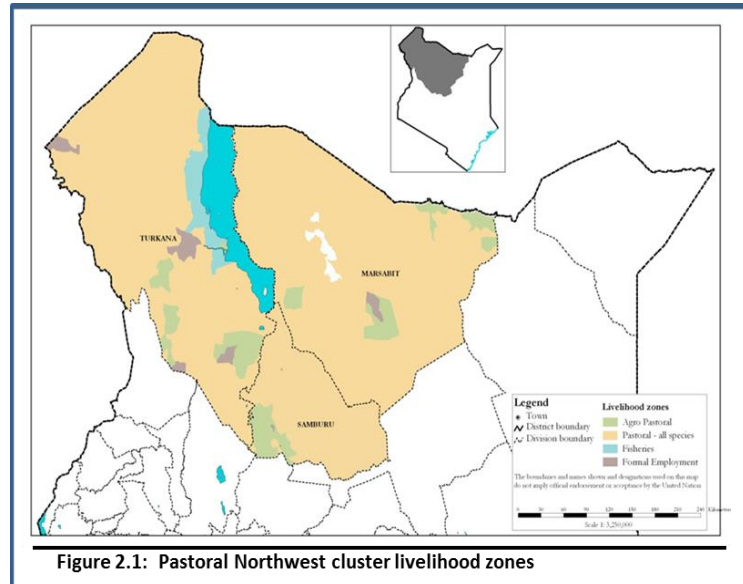
Figure 2.1: Pastoral Northwest cluster livelihood zones

production at 80 percent, crop production at 15 percent and others such as fishing, casual labour and charcoal burning that contribute five percent.

2.1.2 Factors Affecting Food Security

The main factors affecting food security are poor temporal and spatial distribution of the rains, endemic livestock diseases, outbreak of Acute Camel Death Syndrome disease, cattle rustling and resource-based conflict. Other factors include elevated food commodity prices across the cluster, and wildlife menace and crop pests in Samburu County.

2.1.3 Cluster Food Security Situation

2.1.3.1 Current Food Security Situation

The cluster was classified under the Stressed phase (IPC Phase 2) except sections of the agro-pastoral livelihood zone in Marsabit and Samburu counties that were classified under the None/Minimal phase (IPC Phase I). The terms of trade were favourable and above the long term average (LTA) across the cluster. The nutrition status of children has improved with the percentage of children under five years at risk of malnutrition now 18 percent compared with the LTA of 20 percent. Water consumption was 15 - 20 litres per person per day which was normal for this time of the year. Average milk production was 1 - 2 litres per day compared with the LTA of 2 - 3 litres. About 75 percent of the milk produced was consumed at the household level. An estimated 26, 42 and 32 percent of households in the cluster had a poor, borderline and acceptable food consumption score respectively. In the agro-pastoral zone, individuals were consuming 2 - 3 meals a day while in the pastoral zone they were consuming 1 - 2 meals a day consisting of cereals, legumes, milk/meat and vegetables. The crude mortality rate and infant mortality rates were within the normal ranges.

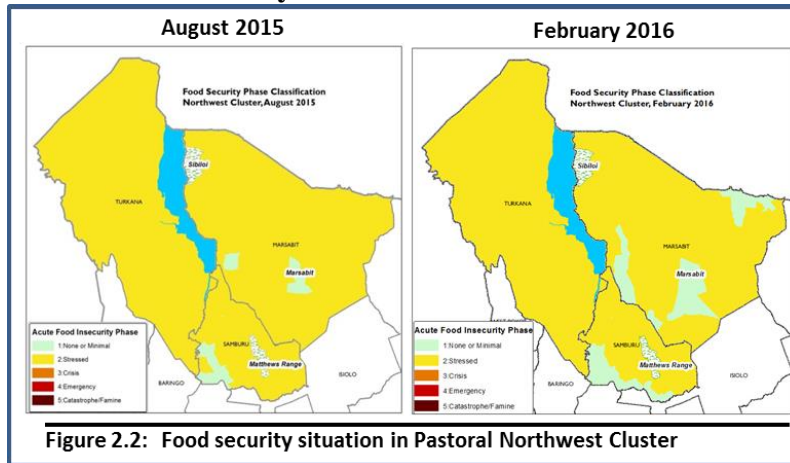## 2.1.3.2 Food Security Phase Classification

Figure 2.2: Food security situation in Pastoral Northwest Cluster

The cluster is classified as Stressed (IPC phase 2), just as it was after the long rains of 2015 apart from section of agro pastoral livelihood zones of Marsabit and Samburu that have improved and are now classified as None/Minimal (IPC phase I).

The food security situation in the cluster has improved over the last six months. Good to fair rainfall performance led to regeneration and growth of pastures and recharge of water sources. Water consumption per person per day was above 15 litres an increase compared with July 2015 when it was 10 – 15 litres per person per day. Livestock productivity generally improved. In Turkana, there was a 53 percent increase in milk production from 1 - 2 litres per household per day, and an improvement in milk consumption from 0.5 litres to one litre per household per day, as well as a reduction in the price of raw milk by 50 percent. The population with a poor, borderline and acceptable food consumption score were 26, 42 and 32 respectively in December 2015 compared to 38, 27 and 35 respectively in December 2014, implying improvements. The terms of trade were favourable compared to the LTA. In January 2015 pastoral communities in Turkana and Marsabit were able to purchase 34 and 75 kg of maize from the proceeds of the sale of one goat compared with 36 and 60 kg respectively in July 2015. The coping strategy index was 25 in December 2015 same as in December 2014.

2.1.4 Rainfall Performance

The onset of the rains in Marsabit was timely in the first dekad of October and late in Samburu and Turkana. In Samburu, the rains began in the second dekad of November compared with the normal onset of the third dekad of October, while in Turkana they began in the third dekad of October. Rainfall performance was above normal with the northern parts of Turkana and most parts of Marsabit and Samburu receiving over 125 percent of their normal rainfall. The central parts of Turkana received 75 - 90 percent of rainfall as did a few parts in eastern Samburu and the southern and north-eastern parts of Marsabit. Areas around Shurr and Moyale also received 50 - 75 percent of normal rainfall. The temporal distribution was poor across the cluster with most of the rain received in the first dekad of November and the second dekad of December in Marsabit, while in Samburu, there were dry periods between the second and third dekad of October. The spatial distribution in the cluster was uneven. The cessation was normal in the third dekad of December in Marsabit and early in Samburu and Turkana. In Samburu, the cessation was in the second dekad of December compared with the normal timing of the third dekad, while in Turkana it occurred in the second dekad of December compared with the normal first dekad of January. Off-season rains were experienced in January/February period in some parts of the cluster.

2.1.5 Current Shocks and Hazards

The current shocks and hazards in the cluster include human disease outbreaks (cholera cases reported in Moyale), livestock disease outbreaks (foot and mouth disease, acute camel death

syndrome in Marsabit), poor temporal distribution of rainfall and cattle rustling and insecurity in parts of Merti and Baragoi in Samburu county.

2.1.6 Impact of Rainfall Performance, Shocks and Hazards

2.1.6.1 Crop Production
The main crops grown under rain-fed production in the cluster are maize, beans and sorghum. The area under maize and beans increased marginally compared with the LTA, while that under sorghum was 44 percent below the LTA. The marginal increase in acreage planted for maize and beans was attributed to the opening up of more land in preparation for the forecasted above normal short rains. The production of maize, beans and sorghum was 83, 73 and 25 percent of the LTA, attributed to the poor temporal distribution of the rains.

The main crops grown under irrigation are maize, sorghum and cowpeas. Both the area planted and the quantity produced of maize, sorghum and cowpeas were 70, 80 and 61 percent respectively of the LTA. The decline in production was due to a shortage of irrigated water and delayed supply of mechanized land preparation in Turkana.

Maize stocks held by households, traders and the NCPB were 61, 64 and 93 percent of the LTA respectively, while the stocks held by millers were 60 percent above the LTA. The increase in the stocks held by the millers was in preparation for milling flour for sale to schools once they reopened.

2.1.6.2 Livestock Production
In the pastoral and agro-pastoral livelihood zones, livestock production contributes 80 - 90 percent and 20 - 60 percent respectively to cash income. Pasture and browse conditions ranged from good to fair across the cluster. Pasture is expected to last 1 - 2 months compared with the normal three months due to the prevailing high land surface temperatures while browse is projected to last for the normal 3 - 4 months except in areas of Loima and Turkana Central where it will only last for 1 - 2 months due to poor regeneration. The livestock body condition is good for all species and the situation is expected to prevail over the next two months. Birth rates were normal for all the livestock species in Turkana and Marsabit. However, in Samburu, birth rates were low for all species due to previous successive poor seasons that affected the breeding cycle of livestock. Milk availability at the household level was 1 - 2 litres per day compared with the normal amount of 2 - 3 litres per day and 75 percent of the milk produced was being consumed at the household level. The average retail price of raw milk was Ksh. 35 - 60 per litre while a litre of processed milk was being sold at Ksh. 140 - 160 which is normal at this time of the year.

The return trekking distances from grazing areas to water points were 2 - 6 km compared with the normal distance of 10 - 15 km. Livestock were watered daily across the cluster except in Marsabit where they were watered once in two days. Available water sources are expected to last for three months. There has been progressive growth in herd sizes in the cluster following improved rainfall performance in the past few rain seasons. Currently, the average Tropical Livestock Units (TLUs) per household in the agro pastoral and pastoral zone are 3 – 10 in Marsabit and Samburu and 20 - 60 in Turkana. Livestock migration is normal towards the dry season grazing zones within and outside the cluster. In-migration has been observed in Marsabit especially from Wajir County and Hidlilola and Miyo areas in Ethiopia where conflict occurred. Foot and Mouth Disease, Contagious Caprine Pleuro pneumonia, Contagious Bovine Pleuro pneumonia, Peste de Petit Ruminants and Sheep and Goat Pox are some of the diseases

reported in the cluster. The concentration of livestock in dry season grazing zones will lead to faster depletion of pasture and water and increased risk of livestock disease outbreaks. Livestock mortalities varied across species and livelihood zones and were mainly attributed to diseases and natural death. Mortality rates in all livestock species were ranged between 2 – 3 percent in Marsabit and 10 - 20 percent in Turkana. Over 300 camel deaths due to acute camel death syndrome were reported in Marsabit.

2.1.6.3 Water and Sanitation

The main sources of water for domestic use are boreholes, pans/dams, springs, shallow wells, rivers and Lake Turkana. Open water sources were recharged above 80 percent of their capacity across all the counties and water is expected to last for 2 – 3 months. Average return distances to water sources were within the seasonal range of two km in the agro pastoral zone and ten km in some pockets of the pastoral zone of Marsabit. However, in a few areas such as Korr and Farakoren in Marsabit - and some pockets in Samburu East, return distances to domestic water sources ranged from 10 – 15 kilometres. The waiting time at the water source was between 10 – 45 minutes across the cluster with only a few exceptional areas in Marsabit - where the waiting time was more than an hour (Bubisa and Burgabo). The cost of water ranged between Kshs. 2 – 5 across the cluster with the exception of Marsabit Township and Moyale town where the cost is between Kshs. 25 – 50. Household water consumption was within the normal range of 15 - 30 litres per person per day across the cluster. Water treatment at household level was below 50 percent across the cluster despite the availability of water treatment chemicals and tablets in many health facilities and promotion of the same by stakeholders. Open defecation and watering of livestock directly at the source are some of the main sources of water contamination reported across the cluster. Water related diseases reported in the cluster include diarrhea and malaria.

2.1.6.4 Market Performance

The market operations were normal with the main livestock sold being goats and sheep while food commodities include maize, beans, kale, cabbages and potatoes. In the Turkana agro-pastoral livelihood zone, maize, green grams and cowpeas were available from the irrigation schemes in Kaptir, Kainuk, Lokichar, Katilu, Lokori and Kakuma trading centres while in the other livelihood zones the main source of supply of cereals were the neighbouring counties.

The average price of maize in the cluster in January was Ksh. 60 per kg with Marsabit recording the lowest price of Ksh. 48 and Turkana the highest price of Ksh. 81. The average medium size goat price in the cluster is Ksh. 2,756 and ranges from Ksh. 2,361 in Samburu to Ksh. 3,132 in Marsabit. The current terms of trade are favourable compared with the LTA (Figure 2.3). This is attributed to increased goat prices due to the good body condition.
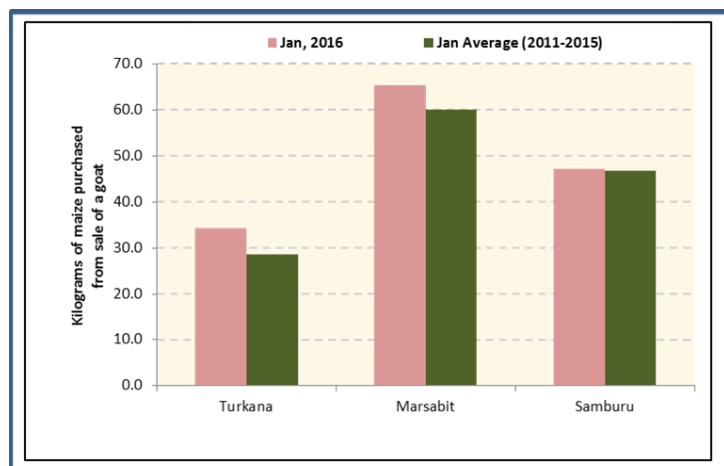

Figure 2.3: Comparative terms of trade in the cluster

2.1.6.5 Health and Nutrition

2.1.6.5.1 Morbidity and mortality patterns
The top five common diseases for children under five and the general population are upper respiratory tract infections, diarrhoea, malaria, pneumonia and diseases of the skin. In Turkana, cases of malaria reduced by 23 percent for children under five years and in the general population. There were 49 active cases of cholera reported in Marsabit in January 2016 and ten cases of measles in Turkana. Diarrhoea cases were high in all three counties attributed to the short rains. The crude mortality rates (CMR) and under-five mortality rates (U5MR) in the period under review were within seasonal norms.

2.1.6.5.2 Immunization and Vitamin A Supplementation
The coverage for fully immunized (FIC) children was 51.6, 71.8 and 107 percent in Samburu, Marsabit and Turkana counties respectively. Samburu and Marsabit were below the national target of 80 percent. Vitamin A supplementation among children aged 6 - 11 months ranged between 28 and 107 percent while that of children aged 12 - 59 months ranged between eight and 69.5 percent, below the national target of 80 percent. The low coverage of both immunization and vitamin A supplementation was attributed to low health seeking behaviour, non-attendance of children at child welfare clinics, inadequate social mobilization and limited integrated outreach in Samburu and Marsabit. Turkana performed well as a result of various immunization campaigns carried out in the county.

2.1.6.5.3 Nutritional status and dietary diversity
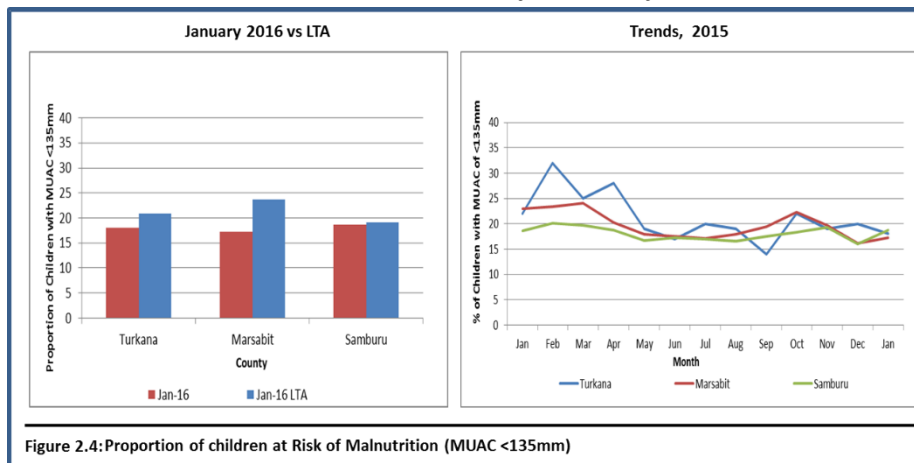
Figure 2.4: Proportion of children at Risk of Malnutrition (MUAC <135mm)

The proportion of children at risk of malnutrition (MUAC<135mm) was below the LTA and within seasonal norms ranging between 17.9 -18.7 percent (Figure 2.4). Dietary diversity remains fair across the clusters as most households are consuming more than two food groups including cereals, pulses, meat, dairy and oils.

2.1.6.6 Education
There are approximately 875 Early Childhood Development Education (ECDE) and primary schools in the cluster, with an estimated population of 293,126 pupils. Enrolment and attendance generally improved in the cluster attributed to establishment of more ECDE centres, the recruitment of more ECDE teachers by the county governments and the availability of meals in schools. Samburu recorded high drop-out rates in primary schools of 20.4 percent for boys and 14 percent for girls. The causes include early marriages and lack of sanitary towels for girls, long distances to schools, lack of access to education by pastoralists' children and lack of school fees.

The transition rate from ECDE to primary for boys was 88.2 percent and 96.9 percent in Marsabit and Samburu respectively, while for girls it was 85.8 and 99.1 percent. Between

primary and post-primary, the transition rate ranged between 56.7 and 92.6 percent for boys while for girls it ranged from 46.8 to 96 percent. Turkana had the lowest primary to post-primary transition rate at 56.7 percent for boys and 46.8 percent for girls. The counties within the cluster are under two school meals programmes with schools in Marsabit and Turkana under the Regular School Meals (RSMP) supported by the World Food Programme (WFP) while schools in Samburu are under the Home Grown School Meals Programme (HGSMP) supported by Government of Kenya.

2.1.7 Coping Mechanisms
The mean coping strategy index in December 2015 was 25 and comparable to the same period in 2014. Consumption-related and livelihood strategies employed were reducing the number and portion size of meals, sale of firewood, weaving of baskets, beads and mats, charcoal burning, casual labour and petty trade.

2.2 The Pastoral Northeast Livelihood Cluster

2.2.1 Cluster Background
Five counties, Garissa, Mandera, Tana River, Wajir and Isiolo constitute this cluster that covers 191,038 square km, with a population of about 2,693,370 persons (KNBS Census 2009). The main livelihoods are pastoralism, which represents 57 percent of the population, agro-pastoralism (21 %), marginal mixed farming (9 %), irrigation (7 %) and informal/formal employment/business/petty trade, (6 %). Livestock production contributes 60 percent to the household income and crop production provides 30 percent.

2.2.2 Current Factors Affecting Food Security
The main factors affecting food security in the cluster include poor temporal and spatial distribution of rains, poor pasture and water availability, prevalence of livestock diseases, resource-based conflicts, insecurity in Mandera, Wajir and Garissa, and floods in Tana River and Mandera. Other factors include poor terms of trade coupled with high food commodity prices**.**
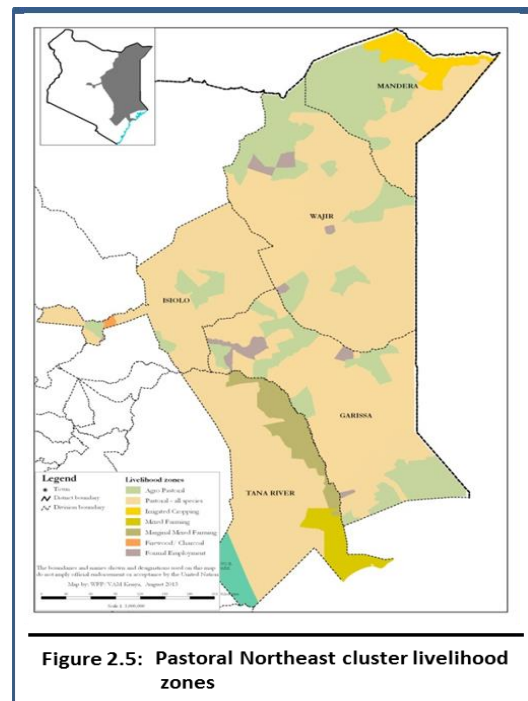
Figure 2.5: Pastoral Northeast cluster livelihood zones

2.2.3 Cluster Food Security Situation

2.2.3.1 Current Food Security Situation
The current food insecurity phase classification for the cluster is Stressed (Phase 2) with the exception of parts of Wajir and Garissa and a part of the agro pastoral livelihood zone in Isiolo, and the whole of Tana River that has been classified in Minimal (IPC Phase 1). The current terms of trade are above the January 2016 average with the exception of Isiolo where households are able to purchase 54 kg of maize from the sale of a goat compared with the January average of 73 kg. Households are currently consuming between two and three meals a day with two to four food groups. Livestock body condition was good to fair in all the livelihood zones across the cluster. The return trekking distances to watering points was 10 - 20 km and 0.5 - 3 km in the pastoral and agro-pastoral livelihood zones respectively, which is

normal at this time of the year. Milk production per household per day is normal and ranged between 1 to 3 litres across the livelihood zones. Water consumption is 10 - 20 litres per person per day across the cluster with the exception of Wajir where consumption was 6 - 10 litres per person per day compared with normal figure of 10 to 30 litres. The percentage of children at risk of malnutrition as measured by Mid Upper Arm Circumference (MUAC <135mm) is stable and below the LTA across the cluster.

2.2.3.2 Food Security Phase Classification

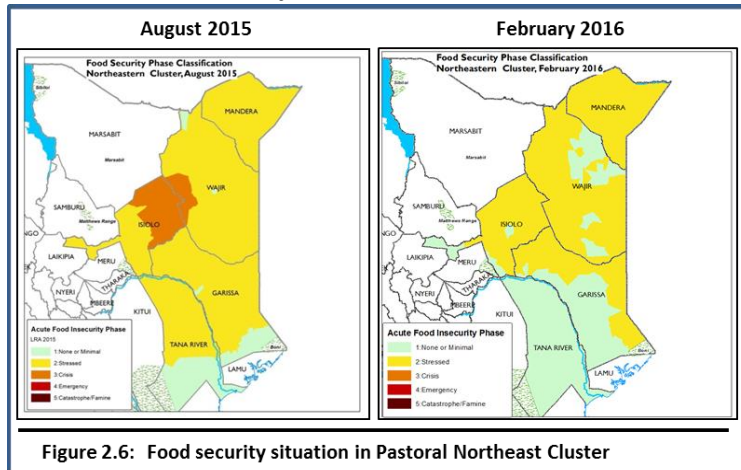Figure 2.6: Food security situation in Pastoral Northeast Cluster

In August 2015 after the long rains season the cluster was largely classified as Stressed (IPC Phase 2) except parts of north-eastern Isiolo and western Wajir which were under Crisis (IPC Phase 3). In February 2016 after the short rains season, improvements have occurred. While most parts of the cluster are still in the Stressed Phase, Tana River and parts of Garissa, Wajir and Isiolo have improved to Minimal (IPC Phase 1) classification.

2.2.4 Rainfall Performance
The onset of the rains was early in Mandera, Wajir and Tana River in the first dekad of October instead of the second dekad normally. In Garissa, the rains started normally in the 2nd dekad, while in Isiolo, the onset was late, in the 1st dekad of November. Parts of Mandera, Wajir, Garissa and Isiolo received 50 - 90 percent of normal rains, while the rest of the cluster received 110 - 200 percent of normal rains. The spatial distribution was uneven and the temporal distribution was poor. Cessation was normal in the first to third weeks of December 2015.

2.2.5   Current Shocks and Hazards
The main shocks and hazards include, flash floods after River Tana burst its banks, resource-based conflict particularly in the riverine areas, livestock disease outbreaks, insecurity in Somalia and security operations along the Kenya-Somali border, and outbreak of cholera in Wajir and Tana River.

2.2.6 Impacts of Rainfall Performance, Shocks and Hazards

2.2.6.1 Crop Production
The cluster depends on both the long and short rains. Crop production contributes about 30-40 percent of food and cash income. The main food crops planted during the short rains season are maize, sorghum and green grams. Others are cow peas and beans. Rain fed area under maize, sorghum and green grams was 61, 37 and 86 percent respectively of the LTA. Maize and sorghum production was approximately 70 percent of the LTA while that of green grams was 63 percent of the LTA. The area under irrigation for maize and cowpeas was 50 and 71 percent of the LTA while that for banana was 75 percent above the LTA. The production of maize and cowpeas was 42 and 53 percent of the LTA while that of banana was 42 percent above the LTA. Other crops under irrigation were tomato, onion vegetables and mango. Maize stocks held by households were 49 percent of the LTA, while traders and millers held 78

percent of what they would normally have at this time of the year. The total stocks held were 62 percent of the LTA.

2.2.6.2 Livestock Production

Pasture and browse condition was good to fair across all the livelihood zones in the cluster and was estimated to last 1 - 3 months, which is normal for the season. Forage and water were accessible across the cluster except in some pockets due to insecurity and the on-going operations in Dadaab, Liboi and Hulugho areas, as well as the outbreak of acute camel death syndrome (ACDS) across the cluster. Livestock body condition was good to fair in all the livelihood zones across the cluster, except in parts of Mandera and Wajir. The trend is likely to remain stable for the next three months. The return trekking distances to watering points range from 10 - 20 and 0.5 - 3 km in the pastoral and agro-pastoral livelihood zones respectively, which is normal at this time of the year. The average watering frequency was once per day for all livestock species in all livelihood zones across the cluster except in Mandera where the frequency was two, three and 7 days for cattle, small stock and camel respectively. Milk production per household per day was 1 – 3 litres across the livelihood zones, which was normal. Household milk was being sold to generate household income. A litre of milk costs Ksh. 80 compared with the normal price of Ksh. 60 in the pastoral livelihood zone and ranged between Kshs. 30 - 50 in the agro-pastoral livelihood zone, which is normal. Household TLUs ranged between 10 and 30, compared with the normal range of 25 and 44, in all livelihood zones across the cluster.

Migration patterns were normal except in Garissa and Wajir where migration was affected by insecurity, diseases and limited access to markets. No out-migration was reported in Isiolo and Tana River. Confirmed cases of acute camel death syndrome resulted in 600 deaths across the cluster. Suspected cases of CCPP, Foot and Mouth Disease, Contagious Bovine Pleuro-pneumonia and Lumpy Skin Disease were reported across the cluster. Current livestock mortality rates are low across all livelihood zones which is normal at this time of year.

2.2.6.3 Water and Sanitation

The major water sources are boreholes, dams, rivers, shallow wells, pans and, in major towns, piped water. Recharge of open water sources was about 60 percent of capacity and is projected to last for one to three months. About 70 percent of water pans in the eastern and northern part of Mandera have dried up due to poor recharge. Return distances to water sources are normal and range from 1 to 3 km in Tana River, Wajir, Isiolo and the agro-pastoral areas of Garissa. Distances in the eastern and southern part of Mandera have remained normal at 1 to 5 km while distances in other parts of Mandera have increased from the normal 1 to 5 km to 5 to10 km. Currently 74 sites in Mandera are under water trucking due to the drying up of pans.

The cost of buying water has remained normal at Ksh. 2 to 5 per 20 litres jerrycan except in the northern parts of Mandera where it has increased to about Ksh. 10 per 20 litres jerrycan. Vendors in the pastoral areas of Isiolo and Tana River are selling a 20 litre jerrycan at Kshs. 20 to 30. Waiting time at water sources has remained within the seasonal norm of 30 minutes except in the pastoral livelihood zones of Mandera where households are waiting up to 90 minutes. Water consumption has improved to 20 to 30 litres per person per day from the normal 15 to 20 litres per person per day except in Mandera and pastoral areas of Tana River, Isiolo and Wajir where it is within the normal range of 7 to 10 litres per person per day.

Latrine coverage has improved in the cluster and is now between 36 percent and 53 percent. The highest latrine coverage of 53 percent was recorded in Isiolo and the lowest in Wajir. Open

defecation is one of the major causes of water contamination. Although most of the major water sources are unprotected, water treatment is not a common practice and in Isiolo only 20 percent of households treat their drinking water. Aqua tabs are the preferred mode of treatment across all livelihood zones.

2.2.6.4 Markets and Trade

Markets operations in the cluster were normal with goats, sheep and cattle being the main livestock traded. However there were disruptions in Buna and Eldas markets in Wajir and Garbatula market in Isiolo mainly as a result of inter-clan conflicts. Bura and Hola markets in Tana River were also disrupted by floods November 2015 which left the roads inaccessible. The traded volumes of livestock in the market were normal in the cluster

Figure 2.7: Comparative terms of trade in the cluster

except in Garissa which reported lower volumes than normal as pastoralists held on to their stocks in anticipation of better prices.
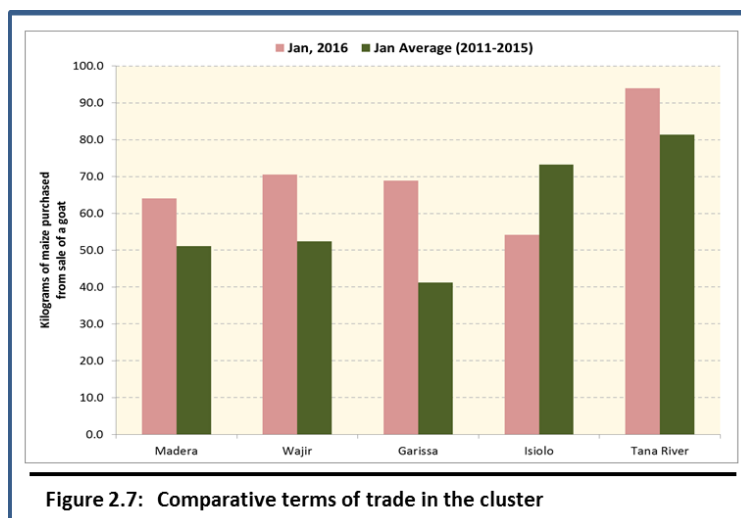
The average medium size goat price in the cluster was Ksh. 3,438 and ranged from Ksh. 2,710 in Isiolo to Ksh. 3,843 in Mandera. The average price of maize in the cluster in January was Ksh. 50 per kg with Tana River recording the lowest price of Ksh. 39 and Mandera the highest price of Ksh. 60. The current terms of trade were above the January average with the exception of Isiolo, where households were able to purchase 54 kg of maize from the sale of a goat compared with the January average of 73 kg as shown in Figure 2.7.

2.2.6.5 Health and Nutrition

2.2.6.5.1 Morbidity and mortality patterns
The most prevalent diseases among under-fives and the general population in the cluster were other diseases of the respiratory system, diarrhoea, skin diseases, pneumonia, and intestinal worms, comparable with cases reported in the same period in the previous year. Outbreaks of cholera were reported in Wajir, Garissa Isiolo and Tana River, and measles in Mandera. In January 2016, Garissa and Wajir still had active cases of cholera while in Isiolo and Tana River the outbreak had been brought under control. The mortality rate for under-fives was within the normal range as per WHO levels.

2.2.6.5.2 Immunization and Vitamin A supplementation
The percentage of fully immunized children ranged between 26 and 58 percent, a slight increase across the cluster, except Garissa and Mandera where it decreased slightly compared with the same period in 2014. Coverage was below the national target of 80 percent across the cluster. Vitamin A supplementation of the 6 to 11-month cohort was between 59 and 97 percent and of the 12 to 59-month cohort between 31 and 71 percent. However, all the cohorts were below the national target of 80 percent except Garissa which achieved 97 percent. There was

slight improvement in the 12 to 59-month cohort across the livelihood zones due to the *Malezi Bora* campaigns.
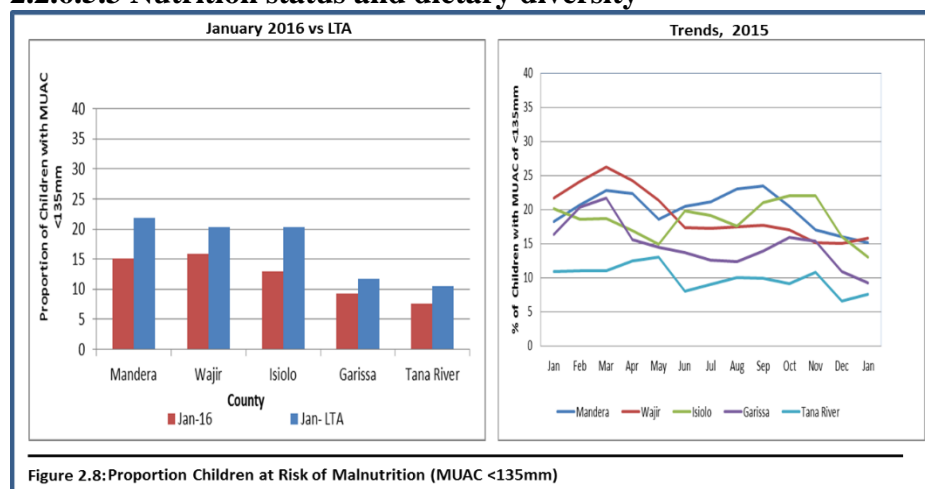
2.2.6.5.3 Nutrition status and dietary diversity

Figure 2.8: Proportion Children at Risk of Malnutrition (MUAC <135mm)

The proportion of children under five at risk of malnutrition in January 2016 was below the LTA across the cluster and ranged between 7.6 and 15.8 percent. The nutrition situation across the cluster is stable. The Standardized Monitoring Assessment for Relief and Transitions (SMART) survey conducted in Isiolo in February 2016 indicated a stable nutrition situation with a GAM of 12.3 percent (9.6-15.8) compared with 13.2 percent (10.8 to 6.0) in 2015.

2.2.6.6 Education

The enrolment rate increased in the cluster for both primary and Early Childhood Development and Education (ECDE) with boys registering higher rates than girls. In Mandera, the enrolment for boys was higher than girls at both the ECDE and primary school levels. Wajir recorded the highest increase in its primary enrolment rate of four percent. Varied drop-out rates for primary and ECDE were recorded, with less than 10 percent in Mandera and Wajir and more than 10 percent in Garissa and Tana River. In Term three 2015, the drop-out rate of boys was high at 21 percent in Tana River while that of girls was nine percent. Both primary and ECDE attendance rate in the cluster was stable at above 90 percent for both boys and girls in 2015 with the exception of Garissa where ECDE attendance rate was 83 percent for both girls and boys attributed to students attending 'duksi' classes.

The transition rate from ECDE to primary was above 90 percent in the cluster with the exception of Garissa which recorded the lowest rate of 80 percent. Primary to secondary transition rate was above 80 percent for both boys and girls in the cluster with the exception of Tana River where the transition rate for boys reduced by 5.3 percent that for girls by 10.5 in 2015. The cluster has two types of school meals programme: the HGSMP operates only in Isiolo while the RSMP is in the other counties. These programmes have led to improved enrolment, attendance, retention and performance rates in the cluster.

2.2.7 Coping Mechanism

The mean Coping Strategy Index (CSI) in the cluster was 31 in December 2015 compared with 27 in December 2014, indicating that households were employing consumption coping strategies more frequently. However in Garissa, the CSI was 12 in December 2015 compared with 16 in December 2014 indicating an improvement in food security.

2.3 The Agro Pastoral Livelihood Cluster Report

2.3.1 Cluster Background

The agro-pastoral cluster consists of six counties, namely Kajiado, Narok, Baringo, Laikipia, West Pokot and Nyeri (Kieni). The cluster covers a total area of 71,757 square km, with a population of 2,945,217 (KNBS 2009 census). The main livelihood zones in the cluster are mixed farming, pastoral, marginal mixed farming and agro-pastoral which have 31, 27, 20 and 11 percent of the population respectively. Other livelihoods include formal employment, tourism and trade/business and irrigated crop production with population proportions of 10.7 and 0.7 percent respectively. Livestock and cash crop production form the main sources of income at 40 and 30 percent respectively.

2.3.2 Current Factors Affecting Food Security

The main factors affecting food security in this cluster include livestock and crop pests and diseases, poor spatial and temporal rainfall distribution, especially in West Pokot, and flash floods and human wildlife conflicts also destroyed crops and livestock especially in Narok, Kajiado and Laikipia.

Figure 2.9: Agro pastoral cluster livelihood zones

2.3.3 Cluster Food Security Situation

2.3.3.1 Current Food Security Situation

The current food security phase classification for the cluster is Minimal (IPC Phase 1) except for the pastoral and agro-pastoral livelihood zones of Baringo County which are in Stressed phase (IPC Phase 2). Production of maize, beans and potatoes increased by 2, 32 and 94 percent of the LTA respectively. Households were consuming between two to three meals of four food groups in Baringo, Nyeri (Kieni), West Pokot and Laikipia which is normal, while in the agro-pastoral and mixed farming zones of Narok most households were consuming four to six food groups compared with the normal number of three to four. Meal frequency in Kajiado was three to four which is normal. Pasture and browse condition were good to fair across the cluster. Average milk production ranged from two to five litres per household per day compared with the normal figure of five to eight litres. Household milk consumption ranged from two to four litres per day except in the mixed farming zone in Narok where it was three to six litres per day. The percentage of children at risk of malnutrition as measured by Mid Upper Arm Circumference (MUAC <135mm) was stable and below the LTA across the cluster except in East Pokot where a poor GAM rate of 18.8 percent was reported due to poor child care practices. There were no reported cases of disease outbreak during the review period. The CMR and the U5MR were below the alert levels of one person per 10,000 persons per day. The CSI for Baringo, West Pokot, Laikipia and Nyeri (Kieni) in December 2015 was 29 compared with 21 in the same period in 2014. Water consumption ranged from 15 to 20 litres in Baringo and
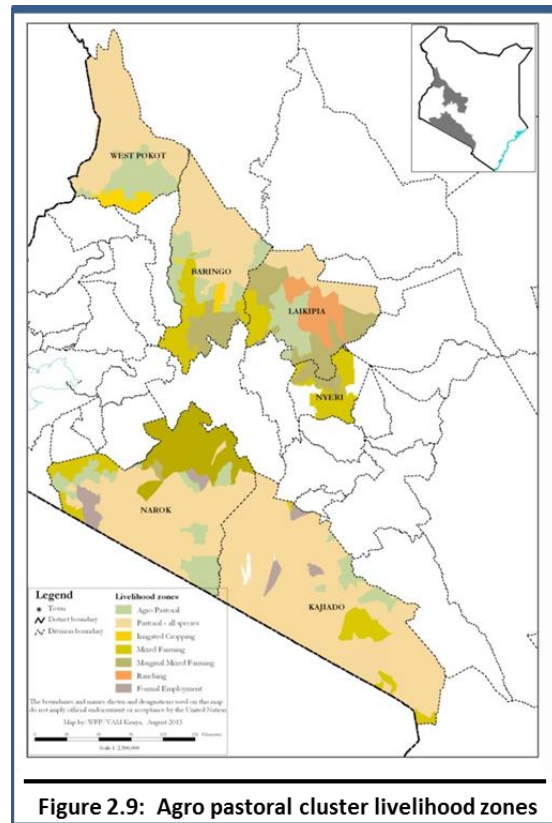
West Pokot and 20 to 30 litres in Laikipia, Nyeri, Kajiado and Narok. However, water consumption in some pastoral areas of West Pokot was only 5 - 10 litres per person per day.
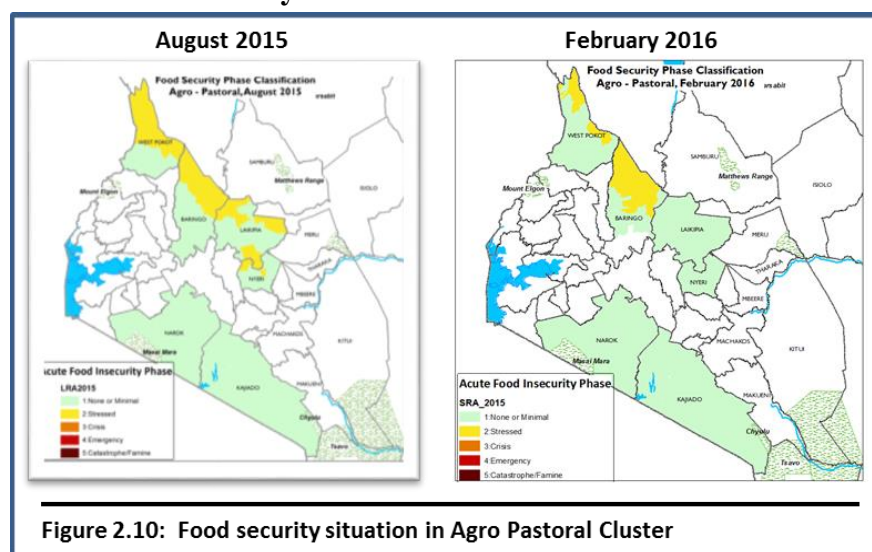
2.3.3.2 Food Security Phase Classification

Figure 2.10: Food security situation in Agro Pastoral Cluster

The food security situation has improved compared with the long rains assessment of August 2015 when the cluster was classified in Minimal (IPC Phase 1) except for the pastoral and agro-pastoral livelihood zones of West Pokot and Baringo and a few pockets in the marginal mixed farming zones of Kieni and in the pastoral and marginal mixed farming livelihood zones of Laikipia which were classified as Stressed (IPC Phase 2). Currently the cluster is classified in Minimal (IPC Phase 1) except for the pastoral and agro-pastoral livelihood zones in Baringo and West Pokot (Figure 2.10).

2.3.4 Rainfall Performance
The onset was normal in most areas of the cluster with rains starting in the first to second dekads of October, except in Kajiado where the rains were late and started in the third dekad of October. The northern parts of the cluster including West Pokot, Baringo and Laikipia received 90 - 125 percent of normal rainfall while the southern parts of the cluster including Narok and Kajiado received 125 - 200 percent of normal rainfall. Some pockets in Central Kajiado received enhanced rainfall of between 200 and 300 percent of normal. The spatial distribution was uneven across the cluster. However, the temporal distribution was fair in Baringo, Kajiado and West Pokot and good in Laikipia and Nyeri. Cessation was timely in Baringo, Laikipia, Nyeri and West Pokot in the third dekad of December, and late in Kajiado and Narok in the first and third dekad of December respectively.

2.3.5 Current Shocks and Hazards
The current shocks and hazards affecting food security in the agro-pastoral cluster include crop pests and diseases, livestock diseases, and flash floods in parts of Narok and West Pokot.

2.3.6 Impact of Rainfall Performance, Shocks and Hazards

2.3.6.1 Crop Production
A larger portion of the cluster is reliant on the long rains season for crop production. The main food crops grown are maize, beans and potatoes. The area under maize and beans increased by seven and three percent of the LTA while that of potato was 86 percent of the LTA. The increase was attributed to an increase in area put under production as a result of sensitization campaigns by line ministry staff in preparation of the anticipated El-Nino rains, good rainfall performance and availability of subsidized fertilizer to farmers. The area under irrigation for banana, tomatoes and pod beans increased by 11, 13 and 26 percent of the LTA respectively

Production of banana, tomato and pod beans increased by 9, 25 and 25 percent of the LTA respectively as a result of increased water availability for irrigation.

The current stocks held by households and millers were 88 and 57 percent of the LTA. In contrast the stocks held by traders and the NCPB were 10 and 7 percent above the LTA respectively. Stocks held were expected to last for 2 to 3 months.

2.3.6.2 Livestock Production

Pasture condition were good to fair across the cluster with the exception of localized pastoral areas in Baringo and West Pokot where they were poor. Browse conditions were good across the cluster. The body condition of all species of livestock was good to fair across the cluster. Birth rates were normal across the cluster except in Kajiado where they were low. The average milk availability ranged from two to five litres per day compared with the normal figure of five to eight litres. Household milk consumption ranged from two to four litres per day, except in the mixed farming livelihood zone in Narok where it was three to six litres per day. The cost of milk ranged from Ksh. 45 - 70 per litre compared with the normal price of Ksh 30 – 35, except in Nyeri where it was lowest at Ksh.30 per litre.

TLUs in the pastoral, agro-pastoral and marginal mixed farming zones were two to six for poor and medium households respectively compared with the normal range of six to ten. In the pastoral and agro-pastoral zones of Kajiado and Narok, households owned between 10 and 50 TLU compared with the normal figure of 120 - 150 TLU. Return trekking distances were less than five km in the agro-pastoral and mixed farming zones which is normal, while in the pastoral zonesthey ranged from five to eight km. However, in pockets of the pastoral zones in West Pokot, the return distances were 10 - 20 km. Watering frequency was daily in the mixed farming and agro-pastoral zones. The notifiable diseases reported in the cluster were Foot and Mouth Disease, Anthrax, Black Quarter and Lumpy Skin Disease. Other diseases experienced include Contagious Caprine Pleuropneumonia (CCPP), Peste Des Petite Ruminants-e (PPR), Sheep and Goat pox, Blue Tongue disease in sheep and Newcastle disease in poultry.

2.3.6.3 Water and Sanitation

The major sources of water in the cluster are rivers, piped water systems, springs, boreholes, shallow wells, lakes, swamps, streams, roof catchments and dams/pans. Most open water sources were recharged to between 80 and 90 percent of their capacity as a result of good rainfall received in the cluster. Return distances to water sources were within normal ranges in all livelihood zones with distances in the mixed farming, agro-pastoral and marginal mixed farming livelihood zones ranging from one to two km. Waiting time at the water source was within the seasonal norm of less than 30 minutes except for some pastoral areas of West Pokot where households are waiting for 40 - 90 minutes.

Although most households rely on surface water which is free, the cost of a 20 litre jerrycan of water is normal at between Ksh. 2 and 5 across the cluster. Water vendors in the urban areas of West Pokot and Kajiado were selling a 20 litre jerrycan at Ksh. 10 - 15 and between Ksh 20 - 30 in Laikipia, Kieni, Kajiado and Narok. Water consumption per person per day averaged between 15 and 20 litres in Baringo and West Pokot. However, in some pastoral areas of West Pokot, low water consumption levels of between 5 and 10 litres per person per day were reported. Latrine coverage varied with the lowest coverage of 20 percent in the rural areas of Kajiado and the highest coverage in Nyeri at 99 percent.

2.3.6.4 Markets and Trade

Market operations in the cluster were normal across all the livelihood zones with only two market disruptions recorded: first, in Ngong market in Kajiado as a result of a cholera outbreak in December 2015, and second in Kapcholua market in Koibatek, Baringo in September 2015 due to the quarantine of livestock occasioned by an outbreak of FMD. The supply volumes for most commodities in the markets were normal. Food commodities sold were maize, beans, irish potatoes, sorghum and finger millet while the major livestock traded were goats, sheep and cattle. The traded volumes for food items in the market were stable mainly due to availability of food crops from the mixed farming and agro-pastoral livelihood zones and supplies from neighbouring counties.

The average price of maize in the cluster in January 2016 was Ksh. 40 per kg with Laikipia recording the

Figure 2.11:   Comparative terms of trade in the cluster

lowest price of Ksh. 36 and Kajiado the highest at Ksh 48. The average medium size goat price in the cluster was Ksh. 3,264 and ranged from Ksh. 2,570 in West Pokot to Ksh 4,345 in Nyeri. The current terms of trade were favourable and average to above-average across the cluster except in West Pokot where the terms of trade were about 11 percent below the January LTA (Figure 2.11).
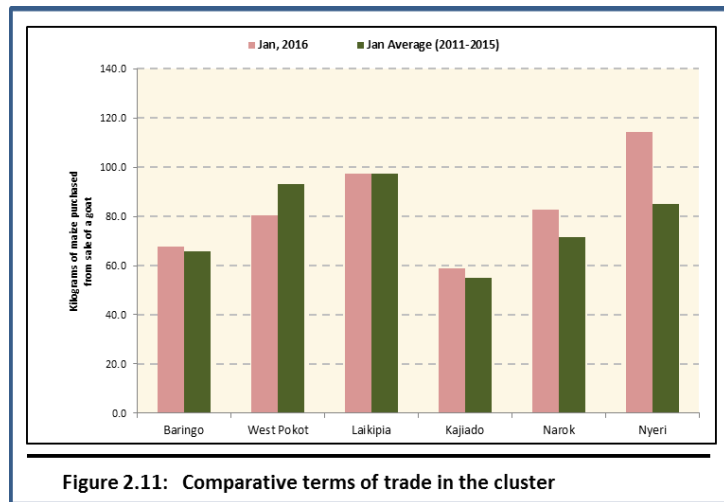
2.3.6.5 Health and Nutrition

Morbidity and Mortality Patterns
The most prevalent diseases reported across the cluster for children below five years were disease of the upper respiratory tract, diarrhea, pneumonia and skin infection. Laikipia and Baringo reported eye infections, while Kajiado, Narok and Nyeri reported pneumonia for children below five years. Diseases reported for the general population were URTI, malaria and diarrhea, except Nyeri where hypertension, urinary tract infection and rheumatism were reported. All counties across the cluster reported increased cases of morbidity, except in Narok where there was a general decline of 2.3 percent in the total reported cases from 2014 to 2015, but a 9 percent increase in cases of URTI. Diseases of the upper respiratory tract increased in all counties due to the rainy season and cold weather. A cholera outbreak was reported in Narok, where 22 cases were detected. However, no deaths were recorded and the outbreak was successfully controlled.

Immunization and Vitamin A coverage
The coverage for fully immunized children in the cluster in December 2015 was low with most counties falling below the national target of 80 percent. Coverage was generally between 60 and 70 percent, with the exception of Narok where it was lowest at 31 percent, and Kajiado and Nyeri which surpassed the national target with coverage of 81 and 95 percent respectively.

Vitamin A coverage across the cluster was also low with all the counties being below the national target of 80 percent. This was attributed to lack of or minimal outreach by health

personnel due to resource constraints, poor health seeking habits among communities, long distances to health facilities averaging 25 km across the cluster, and poor distribution of health facilities.
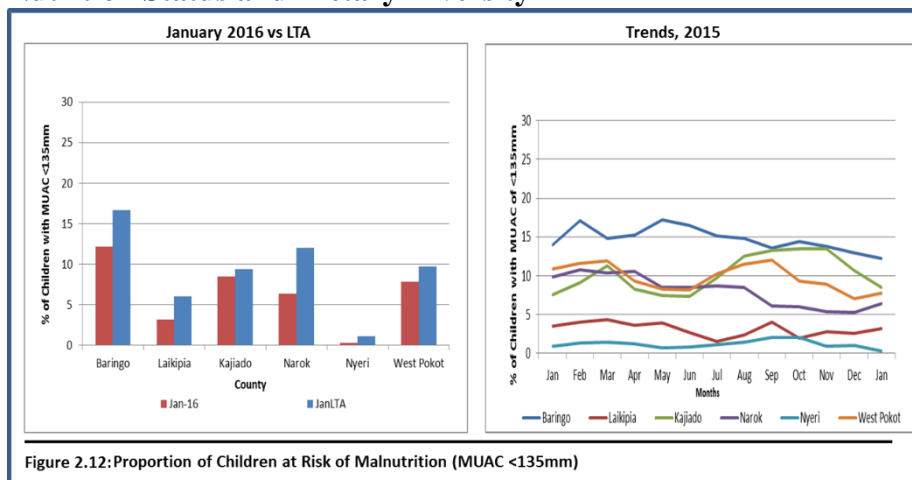
Nutrition Status and Dietary Diversity

Figure 2.12: Proportion of Children at Risk of Malnutrition (MUAC <135mm)

The percentage of children at risk of malnutrition (MUAC <135 mm0 across the cluster was stable and below the LTA. The probable cause of malnutrition in the cluster was high morbidity rates. Household food consumption across the cluster improved with households taking two to three meals daily. Higher consumption was reported in Kajiado and Narok, where the meal frequency for children under five - was two to four meals a day in the mixed farming and agro-pastoral livelihood zones and two to three meals a day in the pastoral livelihood zone.

2.3.6.6 Education

The cluster recorded increased enrolment in primary and ECDE, with the exception of Nyeri where it remained relatively stable for both boys and girls at 51 and 48 percent respectively in 2014. The enrolment of girls was higher than boys at ECDE. The increase in enrolment in the cluster was attributed to increased level of awareness on the importance of girl child education across the cluster and the recruitment of more ECDE teachers by the county governments. Baringo recorded the highest drop-out rate at 3.5 percent and 6.5 percent for boys and girls respectively.

The transition rate between ECDE and Primary was above 90 percent in the cluster with Kajiado and Nyeri recording the highest rates at 99 percent. Primary to secondary transition in the cluster was above 70 percent with the exception of Baringo which recorded a rate of 66 percent. The transition rate in the cluster for boys was higher than that of girls due to high rates of dropouts amongst girls attributed to early marriages. The cluster is implementing the RSMP, the HGSMP and the Expanded School Meals Programme (ESMP).

2.3.7 Coping Mechanisms

The CSI for the agro-pastoral cluster indicates that most households were engaging in less severe coping strategies in December 2015 compared with May 2015. Generally, across the cluster, households applied insurance coping strategies including reduced food diversity, reduced size and number of meals, charcoal burning, borrowing and purchasing food on credit, reliance on remittances, and engagement in casual labour.

2.4 The Southeastern Marginal Agriculture Livelihood Cluster

2.4.1 Cluster background

The cluster has five counties consisting of Kitui, Tharaka-Nithi, Makueni, Meru (Meru North) and Embu (Mbeere). It has an area of 47,348 square km with a population of 3,032,460 according to the 2009 census. The two major livelihood zones are the marginal mixed farming livelihood zone that represents 65 percent of the population and mixed farming livelihood zone that represents 26 percent of the population. Crop production accounts for 40 percent of total household income, livestock production 35 percent, and employment 25 percent.

2.4.2 Current Factors Affecting Food Security

The main factors affecting food security are poor farming methods, livestock and human diseases, human-wildlife conflict, resource based border conflicts and pests and diseases. Poor post-harvest crop management at household level is another factor affecting food security in the cluster.

2.4.3 Cluster Food Security Situation

2.4.3.1 Current Food Security Situation

Figure 2.13: Southeastern marginal agricultural cluster livelihood zones

The cluster is currently classified under the Minimal phase (IPC Phase I) after measured improvements during the short rains season. The nutrition status of children has improved with the proportion of children under five years at risk of malnutrition currently ranging between 4.1 to 6.7 percent, below the LTA of 7.3 to 13.8 percent. Water consumption was above 15 litres per person per day which was above normal for this time of the year. Milk production ranges between 1 and 2 litres per household per day in the mixed farming zone compared with the normal amount of four litres, except in Meru North, where production ranges between 4 and 6 litres per household per day. Average household milk consumption ranges between 1 and 2 litres per household per day which is normal across the cluster. The average cost of milk is Ksh. 50 to 60 per litre compared with the normal price of Ksh. 40 to 45 per litre. Across the cluster there was a general decline in maize prices December. In terms of the food consumption score, 88, 10 and 2 percent of households had acceptable, borderline and poor diets respectively. Communities were consuming 2 to 3 meals a day consisting of four to five food groups (cereals, legumes, dairy, meat and vegetables) mostly from their own production.
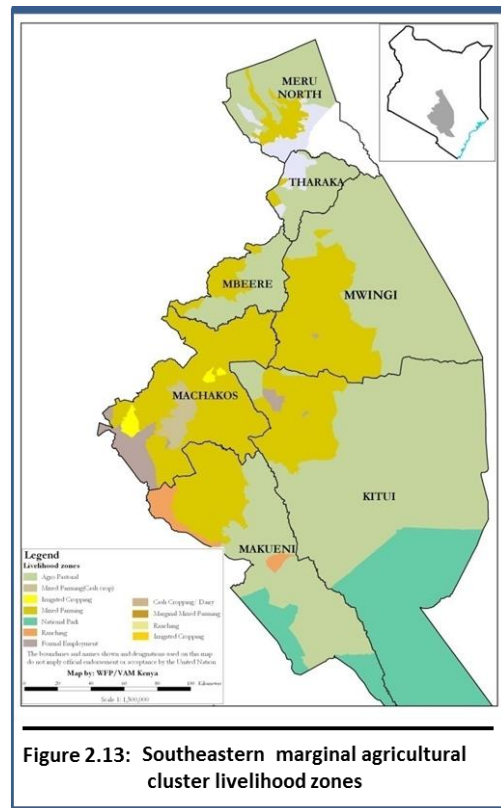
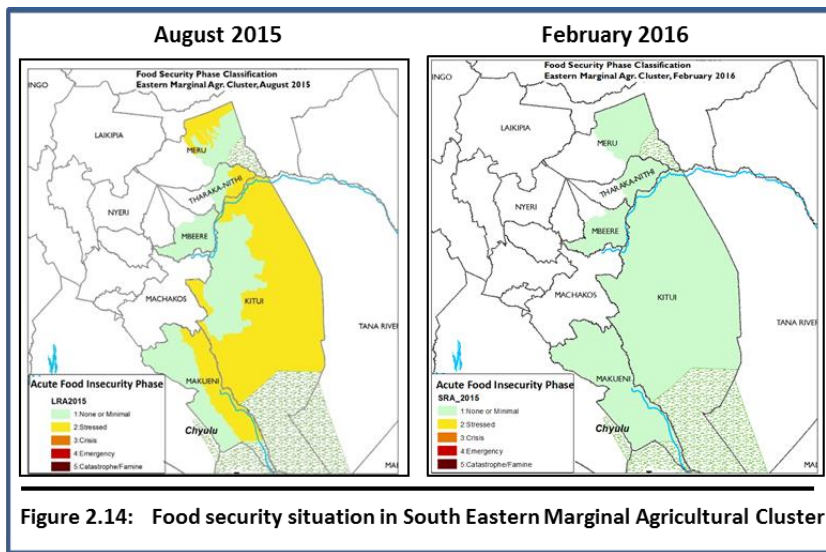## 2.4.3.2 Food Security Phase Classification

Figure 2.14: Food security situation in South Eastern Marginal Agricultural Cluster

In August 2015, the cluster was classified in Minimal (IPC Phase 1) except in Kitui and the marginal mixed farming livelihood zones of Mbeere, Meru North and Makueni which were Stressed (IPC Phase 2). Currently the whole cluster has improved to Minimal phase (IPC Phase I). The above average short rains resulted in above-average crop production and improvements in water and forage for livestock. Water consumption per person per day, in the marginal mixed farming livelihood zones was above 15 litres across the cluster compared with 10 - 15 litres in July 2015. Across the cluster, there was a general decline in maize prices from December due to increased supply from the short rains harvest. Milk production was 1-2 litres per household per day, the same as in July 2015, while 88 percent of the population were having acceptable food consumption compared with 22 percent in May 2015. The coping strategy index declined from 22 in May to 20 in December 2015 implying that communities were applying less severe coping strategies to access food.

2.4.4 Rainfall performance

The onset of the season was timely in the third dekad of October in Makueni and early by a dekad in Tharaka Nithi, Meru North and Mbeere where the rains began in the first dekad of October. In Kitui, the rains were late by three dekads and started in the second dekad of November compared with the second dekad in October normally. All the counties received more than 110 - 125 percent of normal rainfall with the exception of southern parts of Kitui and south-eastern parts of Makueni which received between 75 – 110 percent of their normal rainfall. The spatial distribution was even across the cluster. The temporal distribution was good in Makueni and Mbeere, uneven in Kitui and fair in Meru North and Tharaka Nithi. Rains ceased late in Kitui in the third dekad of January compared with the third dekad of December normally and in Mbeere in the second dekad of January compared with the first dekad of December normally. Cessation was normal in Tharaka Nithi in the third dekad of December. The rains had not ceased in Makueni and Meru North and were on-going until the second dekad of February.

2.4.5 Current Shocks and hazards

The main shocks and hazards in the cluster include included an outbreak of cholera in Tharaka Nithi, mainly around Marimanti, livestock diseases and crop pests in Kitui and Meru North, flash floods and water logging in parts of Mbeere South and the lower parts of Tharaka Nithi and human-wildlife conflict in parts of Kitui.

2.4.6 Impact of rainfall performance, shocks and hazards

2.4.6.1 Crop Production
The short rains account for about 70 percent of total annual crop production in the cluster. The main food crops grown are maize, green grams and cowpeas. Other crops grown include sorghum, millet, pigeon peas and millet. The area under maize, green grams and cowpeas increased by 11, 24 and 16 percent above the LTA respectively. Production of maize, green grams and cowpeas also increased by 17, 24 and 16 percent respectively above the LTA . The increase was attributed to campaigns to open up more land due to the forecasted above normal short rains.

The area under irrigation for banana, tomato and pawpaw increased by two, 19 and 32 percent respectively above the LTA as more land was put under irrigation. Production of tomato was near average, while that of banana and pawpaw was two and 33 percent above the LTA, due to improved agronomic practices and greater stakeholder participation on the various value chains. The current maize stocks held by households, traders and the NCPB were 72, 80 and 35 percent of the LTA respectively, while those held by millers were at 21 percent above the LTA attributed to the enhanced short rains and carryover stocks from the previous season. The stocks in the cluster are 76 percent of the LTA and are expected to last 2 - 3 months.

2.4.6.2 Livestock Production
Livestock production contributes 22 – 35 percent to cash income in mixed farming zones, and 40 - 60 percent in the marginal mixed farming zone. Pasture condition were good across the cluster except in the marginal mixed farming zone in Kitui where they were good to fair. The pasture is expected to last until the next rainy season. Crop residues are also used to supplement as livestock feed. Milk production was 2 – 4 litres per household per day in the mixed farming zone which was normal, except in Meru North where it was 4 - 6 litres per household per day. In the marginal mixed farming and rain-fed cropping livelihood zones, production was two to three litres compared to the normal five litres. Average household milk consumption was 1 - 2 litres per household per day which is normal. The average cost of milk is Ksh. 50 to 60 per litre compared with the normal price of Ksh.40 to 45 per litre.

The birth rate for all species is normal in all livelihood zones in all the cluster. On average the cluster TLUs per household were 1 to 3. In the mixed farming zone, TLUs per household were one to two. In rain-fed zones they were three to five and in agro-pastoral zones they were 5 - 10 with a few households in Meru having more than 20 TLUs. The TLUs were normal in all these livelihood zones for the time of year. Water availability for livestock was expected to last up to two months compared with the normal one and half months. The average trekking return distances to watering points ranged between one and five km and are seasonally increasing across all the livelihood zones. The frequency of watering was daily for all species in all livelihood zones. In-migration of livestock from Tana River to Tseikuru and Damsa corridor in Kitui was reported. Lumpy Skin Disease in cattle was reported and vaccination is being undertaken as a control measure. Other endemic diseases are Contagious Caprine Pleuropneumonia and Trypanosomiasis.

2.4.6.3 Water and sanitation
The main sources of water for domestic use were piped water, boreholes, permanent and seasonal rivers, pans/dams and shallow wells. Open water sources were recharged to over 90 percent of their capacity and are expected to last for three months. Return distances to water reduced, with most parts recording less than 0.5 km. Waiting time at water sources was between

10 to 30 minutes across the cluster and the cost of water was normal at between Ksh. 2 and 5, except in the agro-pastoral zones of Meru North where a 20 litre jerrycan cost between Ksh. 5 and 10. Domestic water consumption was normal across the cluster and ranged from 20 to 30 litres per person per day in all livelihood zones. Water treatment at household level was below 30 percent, with households either boiling or using water treatment chemicals, although many households could not afford to buy treatment chemicals. Water treatment by residents in Mbeere and Tharaka Nithi was expected to increase as a result of enhanced campaigns against cholera infection. Latrine coverage across the cluster ranged from 76 to 89 percent. Cases of cholera and diarrheal diseases were reported in Tharaka Nithi and Mbeere. Water contamination was evident due to open defecation and the sharing of domestic water sources with livestock.

2.4.6.4 Markets and trade

The market operations in this cluster were normal with no disruptions reported. Market supplies were stable and traded volumes normal for both livestock and other commodities across all the livelihood zones. Supplies were expected to increase during the current harvesting season. The most common traded commodities in these markets were food crops such as maize, beans and green grams and livestock such as goats, sheep cattle and poultry.
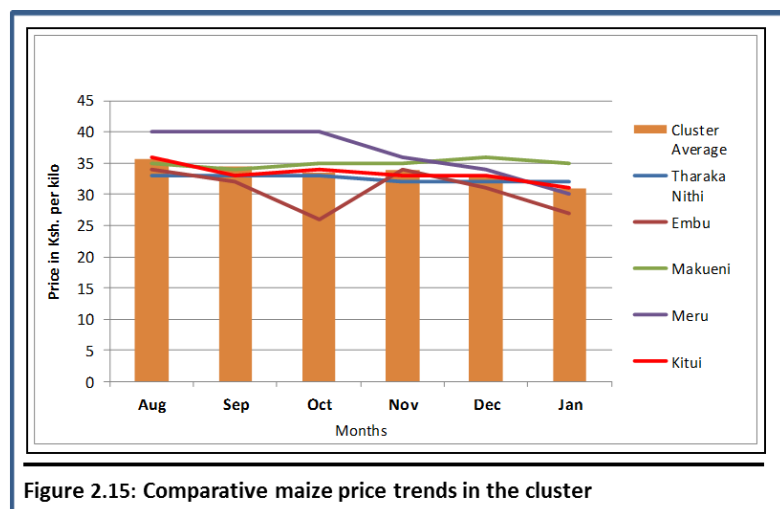
Figure 2.15: Comparative maize price trends in the cluster

Compared with the cluster averages and the prices in other counties, the price of maize was highest between August and October 2015 in Meru North at Ksh. 40 per kg and in December 2015 in Makueni at Ksh. 36. Embu (Mbeere) registered a sharp decline in maize price in October from Ksh. 32 per kg in September to Ksh. 26 in October, thereafter it rose again. The fall was attributed to the harvesting of the long rains crop in Mbeere where harvesting started in August. Across the cluster there was a general decline in maize prices from December (Figure 2.15), attributed to the harvesting of the short rains crops. In Makueni and Tharaka Nithi, the maize prices for January remained above the cluster average.

2.4.6.5 Health and nutrition

2.4.6.5.1 Morbidity and Mortality Patterns

The most prevalent diseases for children under five were diseases of the respiratory system, malaria, diseases of the skin, pneumonia and diarrhea. The major diseases among the general population were diseases of the respiratory system, diseases of the skin, malaria, rheumatism and urinary tract infection. Cholera outbreaks were reported in Mbeere in Embu County, where three deaths occurred out of six cases and in Tharaka Nithi where three deaths were reported from the 176 cholera admitted by the end of January 2016. The outbreak was attributed to low adherence to water safety and poor hygiene practices.

2.4.6.5.2 Immunization and Vitamin A Supplementation

FIC coverage ranged from 35 percent in Meru North to 84 percent in Makueni. Only Makueni and Mbeere Counties had coverage above the 80 percent national target. Coverage had improved compared with the same period in 2014 except in Kitui where it reduced from 72 to 62 percent, attributed to shortage of vaccines and inadequate cold chain facilities. Vitamin A supplementation coverage for children aged six to 59 months improved across all the counties although it was still below the national target of 80 percent. This increase was associated with the *Malezi bora* campaign in November 2015.

2.4.6.5.3 Nutrition Status and Dietary Diversity

The percentage of children under five at risk of malnutrition (MUAC less than < 135 mm) was stable compared with the LTA, although in January 2016 it was above the LTA in Tharaka Nithi (Figure 2.16).
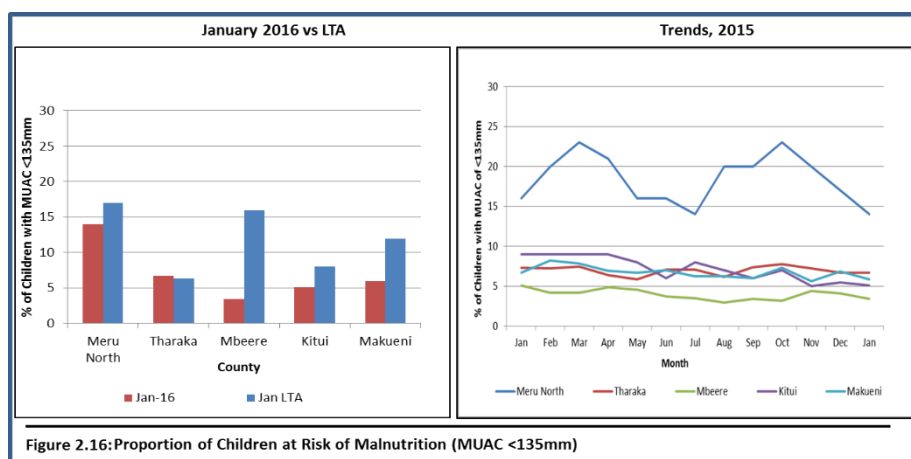

Figure 2.16: Proportion of Children at Risk of Malnutrition (MUAC <135mm)

The number of meals taken per day was three meals for adults and four meals for children. The composition of meals included six food groups namely cereals, vegetables, pulses, fruits, milk and meat. The improved dietary diversity was attributed to good harvests after the short rains.

2.4.6.6 Education

Enrolment increased in Meru North, Tharaka Nithi, Mbeere, and Kitui and was comparable for boys and girls in both the ECD and primary schools. The increase in enrolment was attributed to the on-going campaign to educate the boy child in Meru North, the opening of new schools in Tharaka Nithi and stronger law enforcement on compulsory basic primary school attendance across the cluster. However, a decrease was noted in Makueni where enrolment dropped by 4.2 percent and 5.3 percent for boys and girls respectively. Some of the drop outs were attributed to child labour in 'miraa' (Khat) farms in Mbeere and Meru North and to early pregnancies. Transition rates from ECD to primary school were above 70 percent except in Kitui which the rate was 61 percent. Dropout rates were low across the cluster. The HGSMP is currently on-going across the cluster and has increased enrolment and retention in the targeted schools. However, delays in the disbursement of funds, water shortages and late delivery of stocks were affecting its smooth running.

2.4.7 Coping mechanism

The CSI for most households was 20 in December 2015 compared to 23 in December 2014. The coping strategies employed included casual labour, charcoal burning, livestock sale, petty trade and local migration. The households employing less severe strategies were reducing meals and food portions. The proportion of households that reduced the number of meals eaten per day, the portion sizes of meals and the quantity of food consumed by adults to ensure that children had enough to eat averaged 55.1 percent, 56.1 percent and 34.1 percent respectively.

2.5 The Coastal Marginal Agriculture Livelihood Cluster

2.5.1 Cluster Background

This cluster consists of Kwale, Kilifi, Lamu and Taita Taveta counties and covers an area of 47,861 square k, with a total population of about 2,182,554.The main livelihoods include mixed farming (60 percent of population), trade/business/formal employment/ casual labour (21 percent), and marginal mixed farming (11 percent). Other livelihoods constitute eight percent of the total population. Livestock production contributes 40 percent of total household income, while crop production and waged labour contributes 30 percent each to cash income.
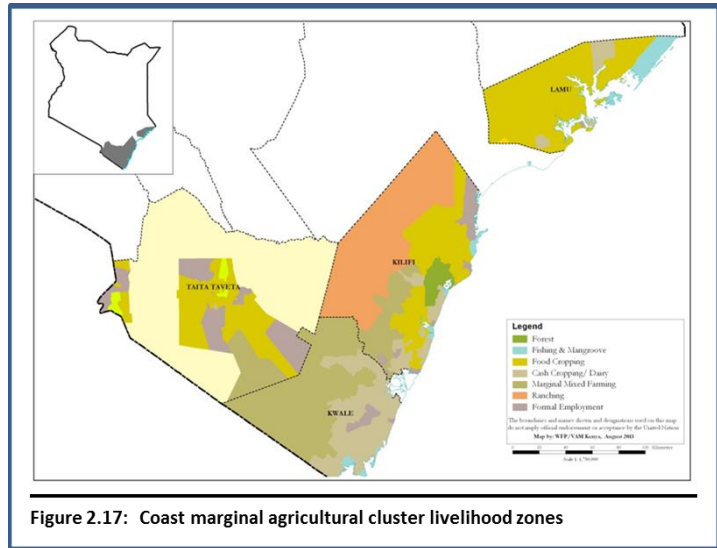

Figure 2.17: Coast marginal agricultural cluster livelihood zones

2.5.2 Factors Affecting Food Security

The main factors affecting food security include the decline in the performance of the tourism sector, poor rainfall performance, limited income diversification, low use of modern farming technologies and inadequate subsidized certified seeds and fertilizer. Other factors include human-wildlife conflict, prevalence of endemic livestock diseases and insecurity especially in Lamu County.

2.5.3 Cluster food security situation

2.5.3.1 Current Food Security Situation

The current food insecurity phase classification for the cluster is Minimal (IPC Phase 1) except localized parts of the ranching and marginal mixed farming livelihood zones of Kilifi which are Stressed (IPC Phase 2). Milk production per household per day was normal ranging from 0.5 to 2 litres in the mixed farming, marginal mixed farming and mixed farming/livestock livelihood zones, while in the cash cropping/dairy zone, it was 5 to 7 litres compared with the normal 7 to 8 litres. The percentage of children at risk of malnutrition (MUAC <135mm) was stable and below the LTA across the cluster. The CMR and the U5MR were below the alert levels of 1/ 10,000 persons per day. The CSI was 16 in December 2015 compared with 18 during the same period in the previous year, implying that the households were engaging in normal insurance coping strategies. Water consumption was above 15 litres per person per day across the cluster except in Kwale where it was 12 litres per person per day compared with the normal figure of 17 litres per person per day.
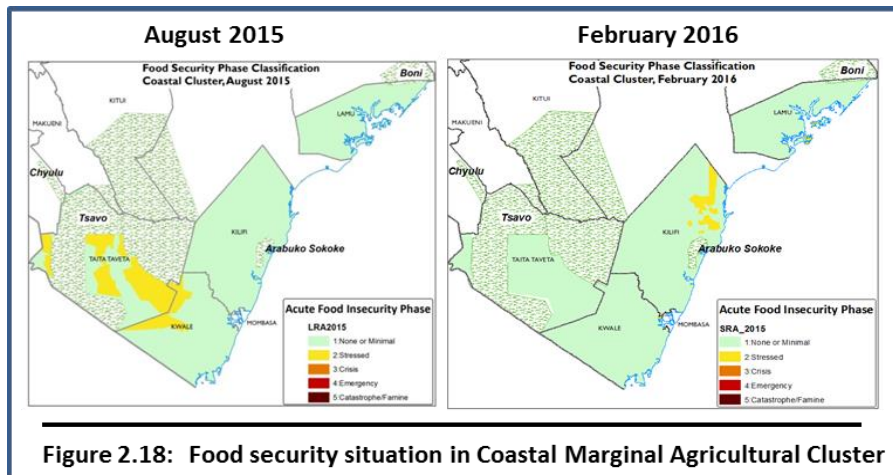
2.5.3.2 Food Security Phase Classification

Figure 2.18: Food security situation in Coastal Marginal Agricultural Cluster

After the 2015 long rains the cluster was classified in the Minimal (IPC Phase 1), except for Taita Taveta and the livestock livelihood zones of Kwale which were in the Stressed (IPC Phase 2). The food security situation improved during the 2015 short rains with most parts of the cluster remaining in the Minimal (IPC Phase 1) except for localized parts of the ranching and marginal mixed farming livelihood zones of Kilifi which were Stressed (IPC Phase 2), as indicated in Figure 2.18. Household meal frequency was 2 - 3 per day coupled with a dietary diversity of 2 - 4 food groups which compared favourably with August 2015. Milk availability has remained stable since August at 1 - 3 litres per household across the cluster. The proportion of children 'at risk' (MUAC<135mm) of malnutrition in January 2016 was within seasonal norms. The under-five mortality rate was below one person per 10,000 persons per day. The food consumption score for the cluster improved and in December 2015, only 8 percent of households had a poor food consumption score compared with 14 percent in May of the same year. Households with acceptable consumption increased to 59 percent in December compared with 25 percent in May.

2.5.4 Rainfall Performance
The onset was timely in the first dekad of October in Taita Taveta and early in Lamu. In Kwale and Kilifi, rains were late and began in the third dekad of October instead of the first dekad normally. The spatial distribution was uneven across the cluster. Most parts of eastern Lamu received between 50 and 75 percent of normal rainfall. The central parts of Lamu, most parts of Kwale and northern parts of Taita Taveta and Kilifi received between 75 and 110 percent of their normal rainfall. The temporal distribution was poor across the cluster. In Kwale most of the rains were received in the second dekad of November followed by a long dry spell. In Taita Taveta, there was a month-long dry spell from mid-October to mid-November. The cessation was earlier than normal in in the second dekad of December in all counties as opposed to the normal third dekad of December. However, in Kilifi the cessation was normal in the third dekad of December. Taita Taveta is currently experiencing off-season showers.

2.5.5 Other Shocks and hazards
The current shocks and hazards in the cluster include in-migration of livestock from neighboring counties, livestock diseases human-wildlife conflicts and poor hygiene and sanitation.

2.5.6 Impact of Rainfall performance, Shocks and Hazards

2.5.6.1 Crop production

The major crops grown in the cluster are maize, cowpeas and green grams. Overall, the area put under maize was near the LTA. The area put under green grams increased by 16 percent of the LTA while that put under cowpeas decreased by 10 percent. In terms of production, the yields of maize and peas were 80 and 78 percent respectively of the LTA while the yield of green grams was 6 percent above the LTA.

The area under irrigation for tomato, maize and kales was 89, 88, and 56 percent of the LTA respectively. Production for the same crops was 89, 88 and 53 percent of the LTA respectively, attributed to farmers preferring to minimize the cost of irrigation by engaging more in rain fed crop production.

The total maize stocks increased by 34 percent of the LTA. The stocks held by households, traders, and the NCPB increased by 33, 32.6 and 53.6 percent respectively of the LTA. The increase in stocks was attributed to the reluctance of farmers to dispose of their harvest due to the low prices offered and anticipation by the NCPB to release maize to areas in need of maize in northern Kenya.

2.5.6.2 Livestock production

Pasture and browse conditions were good across all livelihood zones and estimated to last for the next 2 to 3 months up to May which is normal for the season. However, conditions were fair to poor in the mixed farming zones of Lamu where livestock were feeding on crop residues from failed crops. Forage and water were accessible across the cluster except in Lamu due to insecurity. The body condition of livestock was good to fair across the livelihood zones in the cluster. The return trekking distances to watering points were normal and ranged from 2 to 5 km in the mixed farming zone. However, distances range from 5 to 15 km compared with the normal 3 to 5 km in the marginal mixed farming livelihood zones. The average watering frequency was once per day for all livestock in all livelihood zones across the cluster. Milk production per household per day ranged between 0.5 and 2 litres in the mixed farming, marginal mixed farming and mixed farming/livestock livelihood zones, which was normal, while in the cash cropping/dairy zone, it was 5 to 7 litres compared with the normal 7 to 8 litres. Average milk consumption per household per day was normal at one litre across all livelihood zones. Much of the household milk was retailed to generate household income. The price of milk per litre ranged between Ksh. 30 to 50 across all the livelihood zones, which was normal.

TLUs were normal across the cluster and ranged between 2 and 5 for poor households, 6 and 19 for middle income households and above 20 for wealthy households. The migration patterns in the cluster were normal except in Lamu where the seasonal in-migration from the neighbouring Tana River was minimal due to the on-going security operations. Livestock movements were normal within the cluster. Several unconfirmed cases of Foot and Mouth Disease, Lumpy Skin Diseases, Peste des Petits Ruminants, Contagious Bovine Pleuropneumonia, and Contagious Caprine Pleuropneumonia in cattle, sheep and goats were reported across the cluster.

2.5.6.3 Water and sanitation

The main sources of domestic water across the cluster were boreholes, springs, pans/dams, shallow wells, piped water, roof and rock catchments. *Djabias* were also a major water source in Lamu as is the River Sabaki in Kilifi. Open water sources were recharged to over 80 percent

of their carrying capacity across the cluster, except in Lamu County where it was 50 – 60 percent of their capacity. Most pans were expected to last for 1 to 3 months up to May 2016, although some pans were already dry. Parts of Lamu and Taita Taveta were facing water scarcity and were dependent on water trucking as return distances to water sources were up to six km. Return distances across the cluster ranged from 1 to 3 km except in a few areas in Magarini in Kilifi where distance increased from two km to 10 km due to the drying of pans and failure of community boreholes. Waiting time at water sources was 15 to 30 minutes across the cluster. The cost of water ranged between Ksh. 1 and 5 per 20 litre jerrycan in most parts of the cluster except in Lamu where it was Ksh. 5 to 10. Domestic water consumption ranged from 20 to 30 litres in the mixed farming zones and 10 to 20 litres in the livestock zones. Water treatment with chemicals at household level was below 30 percent, with some households rejecting the treatment due to the taste and smell. In Kwale most households could not afford it. Latrine coverage was between 50 and 65 percent except in Lamu where it was over 80 percent. Low latrine coverage was mainly in parts of Kilifi and Kwale and attributed to poor construction, ignorance, cultural beliefs, and high poverty levels hence preference for open defecation. Though no water borne disease outbreaks were reported, a few cases of malaria, dysentery and diarrhea were reported in most parts of the cluster. Bilharzia remains a major challenge in the irrigated zones of Taita Taveta. Awareness of hand washing at critical times was high with over 90 percent coverage with most households using soap.

2.5.6.4 Markets and Trade
Most markets in the cluster were accessible and functioning normally across all livelihood zones both for food and livestock. However in Lamu, four markets were disrupted due to the curfew. The cluster is a net importer of food commodities with significant cross border inflows from Tanzania. The main food commodities traded across the markets include maize, beans, cassava, cowpeas, green grams, while the livestock include goat, sheep, poultry and fish.

The cluster average price of maize in January 2016 was Ksh. 36 per kg with variations across the counties. Taita Taveta consistently recorded the highest price in the cluster of Ksh. 39 - 40 per kg. The price in Lamu was below the cluster average while in the rest of the counties, prices were average to slightly above average. Generally the trend in maize prices across the cluster remained stable up to January 2016 (Figure 2.19).

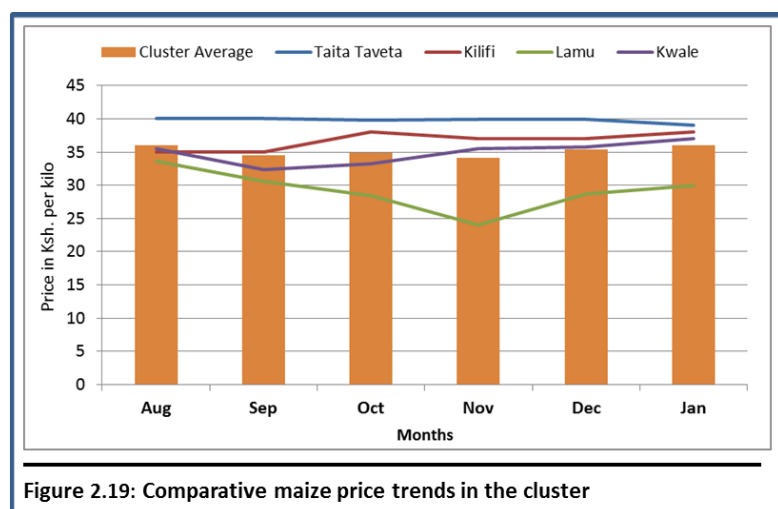Figure 2.19: Comparative maize price trends in the cluster

2.5.6.5 Health and Nutrition

2.5.6.5.1 Morbidity and mortality patterns
The top five common diseases for the under-five and general population were, upper respiratory tract infections, malaria, skin infections, diarrhoea and pneumonia. There were no disease outbreaks reported across the clusters. Diarrhoea cases were attributed to low latrine

coverage. Malaria diagnosis improved due to the introduction of malaria diagnostic kits across the cluster. In general there was a decline in morbidity trends in Taita Taveta, while in the other counties morbidity trends were normal. CMR for Kilifi was 0.074/10,000/day, below the WHO alert levels of 0.5/10,000/day.

2.5.6.5.2 Immunization and Vitamin A supplementation

The percentage of fully immunized children was above the national average of 80 percent in Taita Taveta, Lamu and Kwale, and slightly below Kilifi at 72 percent. Vitamin A supplementation was equally low in the entire cluster particularly for children aged 12 to 59 months, and ranged from 14 percent to 53 percent. Low coverage of children aged one to two years was attributed to them not being in school and not attending child welfare clinic, while those aged between three and five in ECDs were not captured due to poor coordination and links between the pre-school management and the providers of the vitamin. As a result there is poor data capture and documentation of children receiving vitamin A.

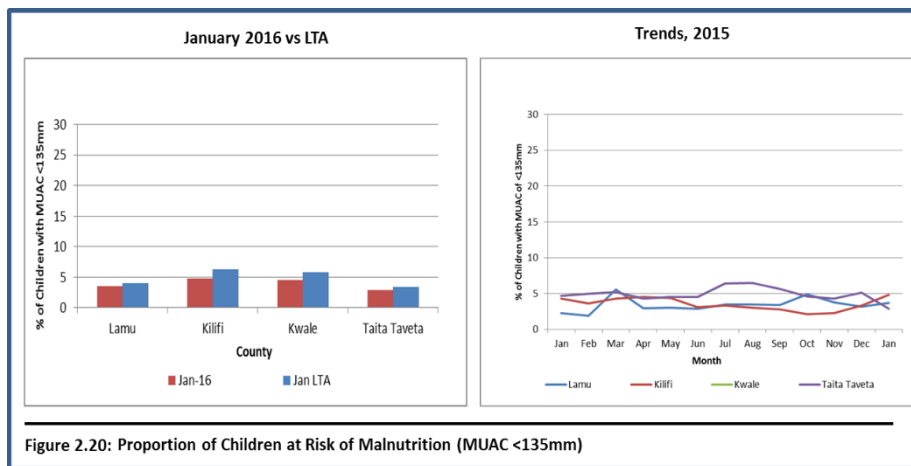### 2.5.6.5.3 Nutrition status and dietary diversity

Figure 2.20: Proportion of Children at Risk of Malnutrition (MUAC <135mm)

The proportion of children (6-59 months) at risk of malnutrition remained stable at 2.9 percent in Taita Taveta, 3.6 percent in Lamu, 4.8 percent in Kwale and 4.8 percent in Kilifi. All these percentages were below the LTA (Figure 2.20). Most households in Lamu, Kwale and Taita Taveta were consuming 2 to 3 meals per day while in Kilifi they were consuming 1 to 2 meals per day. In December 2015, 59 and 34 percent of the population had acceptable and borderline food consumption.Food consumption has stabilized compared with September 2015 when the same scores were 51 and 38 percent respectively.

2.5.6.6 Education

The enrolment for primary and ECDE increased for both boys and girls, with Kwale and Lamu recording the highest increase in enrolment by 9 and 10 percent respectively mostly in favour of boys. Increased enrolment was attributed to the establishment of new ECDE centres making them more accessible. There was also an improvement in attendance with Lamu recording the highest rate of 98 percent for both boys and girls. Minimal drop-out rate across the cluster was observed for both boys and girls in primary and ECDE centres. Middle-level classes in Lamu recorded slightly higher drop-out rates than the ECDE, lower and upper-level classes because most pupils have come of age when some boys drop out to engage in casual labour and girls end up in early marriages.

There was an increase in the transition rate from ECDE to primary for both boys and girls, while the transition from primary to secondary was low for both boys and girls. Kilifi recorded the lowest transition rate of 45 percent from primary to secondary which is below the national

average of 75 percent. Two types of schools meals programme are implemented in the cluster: the HGSMP and the Community School Meals Programme (CSMP). Only Taita Taveta is implementing both types with the rest of the counties implementing only the HGSMP. These programmes have contributed to improved retention, attendance and performance but face challenges including the late disbursement of funds to schools, lengthy procurement processes, rapid growth in enrolment, and increased food prices.

2.5.7 Coping Mechanisms
The mean CSI was 16 in December 2015 compared with 18 in December 2014. The decrease in the CSI shows an improvement in the food security situation. It indicates that communities employed consumption based coping strategies less frequently in December 2015 compared with the same period in December 2014.

3.0 Food Security Prognosis

3.1 Prognosis Assumptions

Over the next six months (February – July), food security outcomes will mainly be influenced by several drivers. This section summarizes the assumptions about the key food security drivers.

- The 2016 March to May long rains are expected to have a late onset, but have typical spatial and temporal distribution, and be near average in cumulative amounts.

- Rangeland resources in most pastoral areas are expected to remain unusually fair to good, though deteriorating, during the January to March dry season, supported by above-average short rains.

- Maize imports from Uganda and Tanzania to continue, though projected to reduce by around nine percent (425,000 and 400,000MT, respectively) between July 2015 and June 2016, attributed to increased supplies in the country following two good consecutive production seasons, which has lowered demand, and also a below-average in Tanzania.

- Maize prices are expected to seasonally and gradually increase through July, although imports and the short rains harvest will ensure prices are not unseasonably high. However, in the southeast marginal areas, maize prices will remain stable and/or decline through April, due to good harvest experienced, and would only start increasing from May onwards. From July prices are expected to stabilize or gradually decline, as early long rains crop harvest becomes available.

- Land surface temperatures are expected to be above average in eastern Kenya from February to April and from June to September. During these periods, deterioration of rangeland resources will be heightened.

- Humanitarian assistance by the national government, county governments, and international agencies is expected to continue through June, though at reducing levels due to reduced needs. From July onwards humanitarian assistance is expected to increase as agencies respond to increasing needs during the lean season.

3.2 Food Security Prognosis through July 2016

Household food security will typically deteriorate between February and April as the short dry season continues, especially in the pastoral livelihood zones. Although the current land surface temperatures are higher than normal and will accelerate the deterioration of rangeland resources, the condition of these resources will still remain fair due to their above normal regeneration during the short rains. They will continue to support livestock productivity until the onset of the long rains in late March. However, localized areas that received below average rainfall are already experiencing more degraded rangeland conditions, and food security in these areas is declining at a faster rate. Even so, a significant decline in household food security is not expected between now and May in most pastoral areas as the long rains are expected to start by the end of March/early April. The long rains forecast indicates average to below average cumulative amounts. This is likely to result in the regeneration of rangeland resources, albeit at below normal levels, but this will still be adequate to support some livestock productivity through June.

Between April and June, household food consumption is expected to improve, as milk and other livestock-related income become available. Pastoral areas currently in Stressed (IPC Phase 2) and Minimal (IPC Phase 1) are expected to remain so through June. However, from July, food security is expected to deteriorate as rangeland resources which only partially regenerated become depleted faster, exacerbated by the hotter than normal temperatures expected during the June – August period. Household food security is expected to wane from July, as livestock migrate to dry season grazing areas, resulting in reduced consumption of livestock products and reduced income from livestock-related activities. While most households are expected to remain in Stressed (IPC Phase 2) during the July-September lean season, some localized areas where rainfall has been significantly depressed are likely to slide into Crisis (IPC Phase 3).

In the marginal agricultural areas, the good cropping conditions experienced during the short rains are expected to continue supporting household food security through July, as available food stocks coupled with income from wage-earning activities support household food consumption. Labour demand for land preparation and planting for the long rains season will boost household income, further supporting market purchase. Crop production during the long rains, although likely to be below average, is expected to further strengthen food security. Most areas are expected to remain in Minimal (IPC Phase 1) through at least July. However, after July, as the lean season sets in, household food stocks are expected to diminish, while there are typically fewer casual labour opportunities at this time to provide income for food purchase. Food security is therefore expected to diminish with some households moving into Stressed (IPC Phase 2).

The key factors to monitor over the next six months include:
- Hotter than normal land surface temperatures
- La Nina conditions- later in the year
- Cholera and measles outbreaks
- Livestock diseases, especially camel disease in pastoral areas
- Post-harvest management (southeast marginal areas)
- Insecurity – particularly along the Somali borders
- Political environment.

4.0 Proposed Sectoral Interventions

4.1 Agriculture Sector: Priority interventions, March 2016 – August 2016

The short rains season in general performed favourably in most of the areas which resulted in good harvests and provided an opportunity for the farmers to gain in terms of production. There was a remarkable improvement in productivity in the south-eastern marginal, coastal marginal and large parts of the agro-pastoral areas. However, there is a need to support these gains with various technologies to enhance productivity and ensure that the coming season builds the communities' ability to sustain the improved situation. The forecast for the March to May rainfall is expected to be normal to above normal in the areas which had a bumper harvest. However in the agro-pastoral and pastoral areas the situation requires close monitoring as they are likely to have average to below average rainfall. The recommendations below are proposed for the sector for the next six months.

Intervention	Counties	Cost Ksh (Million)
Provision of inputs at subsidized rates	Turkana, Samburu, Marsabit, Laikipia, Meru North, Baringo, Kilifi, Tharaka and Kitui , Makueni	425
Establishment and rehabilitation of water harvesting structures	Makueni, Kitui, Tana River, Meru North, Mbeere, west pokot, smaburu	232
Support for irrigation activities and support for small holder horticulture	Meru North, Baringo, West Pokot, Kwale, Tharaka, Taita, Baringo, Isiolo, TanaRiver, Samburu, Turkana, Mandera	1,196
Post-harvest management	Meru Tharaka, Kitui, Tanariver, west pokot , samburu, Turkana	246
Cereal Banking	Baringo and West Pokot , Tana River, Nyeri	372
Conservation Agriculture	Nyeri ,	290
Water harvesting and construction of zai pits	Taita Taveta and Kilifi	225
Total		**2,986**

4.2 Livestock Sector: Priority interventions, March 2016 – August 2016

Livestock production is the main source of income and food within the pastoral areas and also contributes a significant amount to the same in the agro-pastoral areas. The El Nino enhanced 2015 short rains resulted in widespread improvements in forage and water availability for livestock. Pasture and browse is enough to last between one and four months. However, in localized areas where the rainfall was poor, the dry season reserve grasslands are being depleted necessitating both in and out-migration resulting in competition for resources sparking conflicts. Livestock diseases are a major constraint on the sector affecting the production significantly, with insecurity and cattle rustling also affecting herd dynamics and access to pasture. To mitigate these conditions, the assessment recommends the following interventions:

Interventions	Counties	Cost in Ksh (Million)
Upgrading of breeding stock and introduction of resistant breeds	Baringo, Laikipia, West Pokot	281
Disease surveillance, mass vaccination and deworming	Baringo, Narok, Taita Taveta, Lamu, Garissa, Mandera, Wajir, Tana River, Isiolo, Samburu,Marsabit, Turkana, Embu, Meru North, Tharaka - Nithi	282
Pasture improvement, rehabilitation, reseeding, harvesting and eradication of invasive species	Narok, Taita Taveta, Lamu, Garissa, Tana River, Baringo, Narok, Nyeri, West Pokot, Samburu, Marsabit, Turkana, Embu (Mbeere), Kitui, Meru North	436

Improve livestock market infrastructure, marketing capacity and livestock value chain development	Nyeri, Narok, Kwale, Lamu	61
Re-stocking of goat and sheep	Taita Taveta	10
Excavation of Water Pans and expansion of old water pans for Livestock	Kilifi, Taita Taveta	34
Diversification of livelihood sources(Poultry, rabbit, bee and goat keeping, camel rearing, fish farming)	Lamu, Kitui, Meru North, Tharaka- Nithi	198
Promotion of market based offtake and destocking	Garissa, Wajir, Marsabit, Turkana,	91
Upscaling of livestock Insurance	Marsabit	22
Fodder production and purchase of hay and supplementation feeding	Samburu, Marsabit, Turkana	11
Total		**1,426**

4.3 Water Sector: Priority interventions, March 2016 – August 2016

The average to above average short rains resulted in substantial improvements in water sources, with recharge levels of 60 to100 percent being reported. However, the prevailing hotter than normal land surface temperatures have heightened deterioration of water points, with some being dry by the time of the assessment. Livestock and people have started seasonally trekking longer distances in search of water, with per capita household water consumption per day declining, especially in the pastoral and agro-pastoral areas. To avert any critical water stress to both communities and livestock, the recommendations below are proposed for the next six months before the long dry season spell sets in.

Intervention	Counties	Cost in Ksh (Million)
Fuel subsidy for community boreholes	Samburu, Marsabit, Turkana, Kajiado	26.9
Water trucking, water treatment for communities and storage equipment purchase	Kitui, Baringo, West Pokot, Samburu, Marsabit, Turkana, Tana River, Wajir, Kilifi	289
Construction, rehabilitation, repair and management of water structures including boreholes, shallow wells, pipeline and water pans	Baringo, Kajiado, Narok, Nyeri, Embu(Mbeere), Kitui, ,Meru North, Tharaka- Nithi, Makueni, Samburu, Marsabit, Turkana, Kilifi, Kwale	4,600
Community sensitization and training water conservation and on irrigation technologies	Baringo, Kajiado, Nyeri	64
Total		**4,981**

4.4 Health and Nutrition Sector: Priority interventions, March 2016 – August 2016

Although the acute nutrition situation in ASAL counties in February 2016 was stable, attributed to improved food security, there is need to sustain ongoing efforts to ensure that services reach the target population and prevent further deterioration. The causes of malnutrition are morbidity, limited access to health and sanitation services, and sub-optimal child feeding and child care practices. This necessitates sustaining and scaling up High impact Nutrition interventions and improving water hygiene and sanitation. In Turkana, Marsabit, Mandera and Wajir counties where malnutrition is still high, there is need to conduct active surveillance, and carry out SMART surveys to determine the nutrition situation.

Intervention	Counties	Cost in Ksh (Million)
Strengthen linkages with ECD and school health programs	Baringo, Laikipia, Meru North, West Pokot and Makueni	11
Scale up of HINI specifically IMAM to new health facilities	Isiolo, Kajiado, kitui, Laikipia, Meru North, Kwale, Taita Taveta, Samburu, Turkana, West Pokot	83
Capacity building of new/untrained health workers on IMAM, IYCN	Baringo, Taita-Taveta, West Pokot, Makueni	4
Improved outreach services in hard to reach areas	Garissa, Kitui, Marsabit, Kwale	23
Improve water storage and water harvesting, extension of piped water connections, Water Purification, Water Testing and Community led total sanitation	Kieni, West Pokot	15
Health Education	Garissa	1
Nutrition Surveys	Garissa, Laikipia, Taita Taveta, Samburu, Tana River	15
Zinc, Iron Folate ,Vitamin A Supplementation, Deworming	Isiolo, Kajiado, Laikipia and Meru North	15
Home fortification with micronutrient powders	Isiolo, Marsabit, Tana River	10
Screening for Malnutrition, rapid assessment and disease surveillance	Marsabit, Kwale, Taita Taveta, Samburu, Mandera, Wajir	3
Strengthen Nutrition advocacy	West Pokot	1
Total		**181**

4.5 Education Sector: Priority interventions, March 2016 – August 2016

The general good performance of the short rains resulted in improved household food security. There was a notable increase in enrolment in both ECDE centres and primary schools. School meals programmes, awareness creation and the expansion of ECDE centres are some of the reasons for increased enrolment. To sustain the momentum, there is need to expand the school meal programme to cover all ECDE centres and primary schools not reached previously. In addition, provision of water is critical through provision of water storage facilities and water trucking to selected schools in pastoral counties. Others include construction of classrooms, and expansion of HDSMP in the semi-arid counties. The following are the costed proposed interventions across the counties.

Intervention	Counties	Cost in Ksh (million)
Strengthen school meal program	Narok, West Pokot, Tana River, Wajir, Garissa, Isiolo	22
Provision of water storage facilities and water trucking to schools	Laikipia, West Pokot, Isiolo, Wajir, Mandera, Garissa, Tana River, Samburu, Marsabit, Turkana	162
Support home grown school meal program (HGSMP)	Laikipia, West Pokot, Embu, Makueni, Meru North, Tharaka	305
Construction of classrooms and latrines	Baringo, Narok, Embu, Tharaka	21
Construction of modern kitchen	Samburu, Marsabit, Turkana	20
Total		**530**

4.6 Peace and Security: Priority interventions, March 2016 – August 2016

Although the performance of the short rains was generally good, resource-based conflicts and livestock raids are critical hazards particularly in pastoral and parts of the agro-pastoral areas. The reciprocal characteristics of pastoral conflicts means that it has continued even as rains have improved grazing resources. The unresolved conflicts and insecurity continues to exacerbate food insecurity through loss of lives, loss of livelihood productive capacities, lack of access to grazing resources and markets, and interruptions in the delivery of interventions. The timing of incidences has become increasingly unpredictable, tending not to follow any discernable pattern. In order to consolidate gains made in food security, there is need to support pastoral communities in establishing conflict resolution mechanisms and peace committees and monitoring of conflict hot-spots and facilitating early response.

Intervention	Counties	Cost in Ksh (million)
Formation and support to peace committees	Turkana, Marsabit, Samburu, Baringo, West Pokot, Mandera, Isiolo, Wajir, Garissa, Tana River, Laikipia	22
Development of peace and conflict resolution mechanisms	Turkana, Marsabit, Samburu, Baringo, West Pokot, Mandera, Isiolo, Wajir, Garissa, Tana River, Laikipia	45
Monitoring of conflict areas and support to response	Turkana, Marsabit, Samburu, Baringo, West Pokot, Mandera, Isiolo, Wajir, Garissa, Tana River, Laikipia	86
Total		**153**

4.7 Food Assistance Sector: Priority interventions, March 2016 – August 2016

The food security situation has markedly improved in the pastoral, agro-pastoral and marginal agriculture livelihoods following the average to above average performance of the short rains season. However, localized areas within the arid and semi-arid lands that received below average rains coupled with previous poor seasons still remain food insecure. In order to consolidate the gains made thus far and to mitigate against adverse impacts in areas that remain food insecure, it is necessary to focus on response options and resilience building of vulnerable communities through appropriate food assistance programs that run concurrently with other non-food interventions. The following table shows the locations and populations that are in immediate need of food assistance, until August 2016.

County	Total County Population	Population in need of assistance after the 2015 LRA	March 2016 – August 2016	
			Population in need of assistance after the 2015 SRA	% of population that is in need of food assistance
Turkana	539,264	128,100	123,800	23
Wajir	619,220	170,900	62,700	10
Mandera	337,800	133,400	95,200	28
Garissa	504,391	44,700	22,500	4
Marsabit	291,166	74,800	58,400	20
Samburu	223,947	80,500	74,500	33
Laikipia	399,227	13,800	4,000	1
West Pokot	512,690	19,600	8,000	2
Tana River	240,075	22,600	8,600	4
Isiolo	143,294	88,100	56,600	40
Kajiado	687,312	0	0	0
Baringo	555,561	6,500	5,700	1
Narok	576,388	0	0	0
Subtotal Pastoral	**5,630,335**	**783,000**	**520,000**	**9**

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Makueni	884,527	12,400	8,000	1
Kwale	649,931	48,800	43,600	7
Kilifi	1,109,735	17,900	14,000	1
Kitui	1,012,709	89,300	18,100	2
Taita Taveta	284,657	52,900	33,100	12
Mbeere	219,220	3,700	0	0
Tharaka	130,098	15,500	0	0
Meru North	775,982	39,600	0	0
Kieni	324,659	11,800	0	0
Lamu	101,539	0	2,800	3
Marginal Agriculture	**5,493,057**	**291,900**	**119,600**	**2**
Total	**11,123,392**	**1,074,900**	**639,600**	**6**