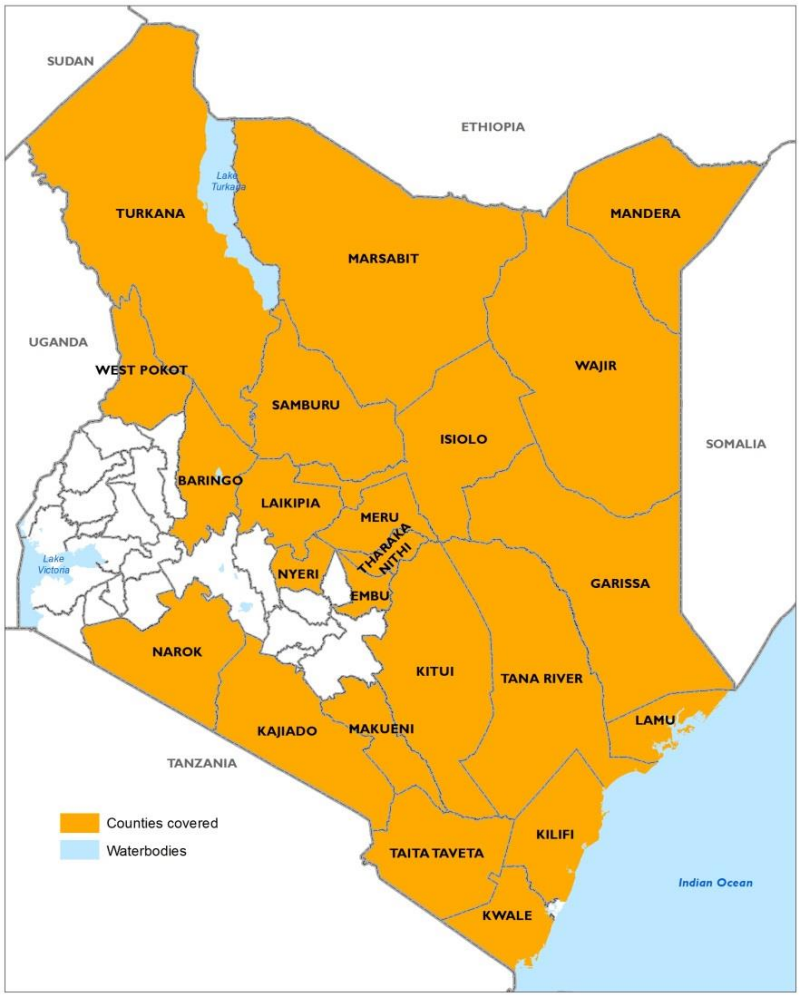
Government of Kenya

THE 2018 LONG RAINS SEASON ASSESSMENT REPORT

Kenya Food Security Steering Group (KFSSG)



Collaborative report of the Kenya Food Security Steering Group (KFSSG): Ministries of Devolution and Planning, Agriculture, Livestock and Fisheries, Water and Irrigation, Health, and Education, Science and Technology, National Drought Management Authority (NDMA), WFP, FEWS NET, FAO, UNICEF, World Vision, ACF, and Arid and Semi-Arid Lands (ASAL) County Steering Groups (CSGs): with financial support from the Government of Kenya (NDMA), WFP and partners.

August 2018

Contents

Acronyms

CBPP	Contagious Bovine Pleuro-pneumonia
CCPP	Contagious Caprine Pleuro-pneumonia
CSG	County Steering Group
CSI	Coping Strategy Index
CSMP	Community School Meals Programme
ECD	Early Childhood Development
ESMP	Expanded School Meals Programme
FAW	Fall Army Worm
FMD	Foot and Mouth Disease
FSOM	Food Security Outcome Monitoring
GAM	Global Acute Malnutrition
HGSMP	Home Grown School Meals Programme
IPC	Integrated Phase Classification
KFSSG	Kenya Food Security Steering Group
KNBS	Kenya National Bureau of Statistics
LSD	Lumpy Skin Disease
LTA	Long-Term Average
MAM	Moderate Acute Malnutrition
MUAC	Mid-Upper Arm Circumference
NDMA	National Drought Management Authority
PPR	Peste des Petits Ruminants
RSMP	Regular School Meals Programme
RVF	Rift Valley Fever
SAM	Severe Acute Malnutrition
SDA	State Department of Agriculture
TLU	Tropical Livestock Unit
ToT	Terms of Trade
URTI	Upper Respiratory Tract Infection
WHZ	Weight for Height Z-score

Executive Summary

Introduction

The 2018 Long Rains Assessment – a government-led exercise through the Kenya Food Security Steering Group (KFSSG) – was conducted from 6th to 17th August 2018 in collaboration with the County Steering Groups (CSGs) in the 23 arid and semi-arid counties covered by the assessment. The KFSSG is a multi-agency body comprising government departments, UN agencies and NGOs with a stake in food and nutrition security. It is chaired by the National Drought Management Authority (NDMA) and co-chaired by the World Food Programme and conducts bi-annual food security assessments in collaboration with the CSGs. The CSGs are also multi-sectoral and multi-agency and coordinate food security activities in the counties.

Objectives

The overall objective of the assessment was to analyse and determine the extent and impact of the 2018 March – May long rains season on food and nutrition security, taking into account the cumulative effects of previous seasons and other shocks and hazards. In particular, the assessment explored the impact of the season on food availability, access, and utilization by looking at the contributing factors and outcomes and the effects on each sector. The assessment also informed interventions that would address the issues arising in each sector: agriculture, livestock, water, health and nutrition, education, peace and security, and markets and trade.

Methodological Approach

The bi-annual seasonal assessments cover the 23 counties that comprise the arid and semi-arid region of the country. They are generally the most food insecure and exhibit high levels of vulnerability. They cover approximately 80 percent of Kenya's landmass, and for the purposes of the assessments are classified into generalized livelihood zones in five clusters: (i) Pastoral North-West (Turkana, Samburu and Marsabit); (ii) Pastoral North-East (Wajir, Garissa, Isiolo, Tana River and Mandera); (iii) South-East Marginal Agriculture (Kitui, Makueni, the lower parts of Tharaka Nithi, part of Embu, and the northern parts of Meru); (iv) Coastal Marginal Agriculture (Kilifi, Kwale, Taita Taveta and Lamu); and (v) Agro-pastoral (Baringo, Narok, Kajiado, West Pokot, Laikipia and the northern part of Nyeri (Kieni)). The main livelihood activities in these clusters are pastoralism, agro-pastoralism, mixed farming, marginal mixed farming and some irrigated cropping, which form the unit of analysis.

This assessment involved the collection of both primary and secondary data. The principal sources were: (i) data from NDMA sentinel sites, collected monthly using questionnaires; (ii) data gathered from the sectors at county and sub-county level using checklists; (iii) data collected in community interviews and market interviews using focus group discussions and trader interviews; (iv) secondary data from nutrition surveys (SMART surveys), food security outcome monitoring (FSOM), and drought early warning bulletins; and (v) field observations during transect drives.

The Acute Integrated Food Security Phase Classification (IPC) was used for the analysis. The IPC is a standard global tool for classifying the severity of food insecurity and ensures that best practice is being applied. IPC Acute Malnutrition analysis was also carried out to understand both the food and non-food causes of malnutrition. Both are described in Box 1.

BOX 1: IPC ACUTE FOOD INSECURITY AND ACUTE MALNUTRITION PHASES

The description of the IPC acute food insecurity for area classification is as follows:
Phase 1 (Minimal): More than four in five households (HHs) 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.
Phase 2 (Stressed): Even with any humanitarian assistance at least one in five HHs in the area have minimally adequate food consumption but are unable to afford some essential non-food expenditures without engaging in irreversible coping strategies.
Phase 3 (Crisis): Even with any humanitarian assistance at least one in five HHs in the area have food consumption gaps with high or above usual acute malnutrition OR Are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps.
Phase 4 (Emergency): Even with any humanitarian assistance at least one in five HHs in the area have: Large food consumption gaps resulting in very high acute malnutrition and excess mortality OR Extreme loss of livelihood assets that will lead to food consumption gaps in the short term.
Phase 5 (Famine): Even with any humanitarian assistance at least one in five HHs in the area have an extreme lack of food and other basic needs where starvation, death, and destitution are evident.

The phases for IPC Acute Malnutrition are as follows:
Phase 1 (Acceptable): GAM WHZ <5 percent and GAM by MUAC <6 percent
Phase 2 (Alert): GAM WHZ ≥ 5 to 9.9 percent
Phase 3 (Serious): GAM WHZ 10.0 -14.9 percent
Phase 4 (Critical): GAM WHZ 15.0 - 29.9 percent
Phase 5 (Very Critical): GAM WHZ ≥30 percent

Drivers of Food and Nutrition Security

Rainfall performance

Total cumulative rainfall during the 2018 March-May long rains was one of the highest in about 70 years and drove significant improvements in range and crop production across the country. The onset of the season was mostly 1-3 dekads early, in March, and was enhanced in quantity; this was contrary to seasonal forecasts that had predicted a late onset and low cumulative amounts for most of the country. However, late onsets of one dekad were observed in localized areas of Lamu, Garissa and Marsabit. In parts of Narok, the rains began 1-3 dekads late.

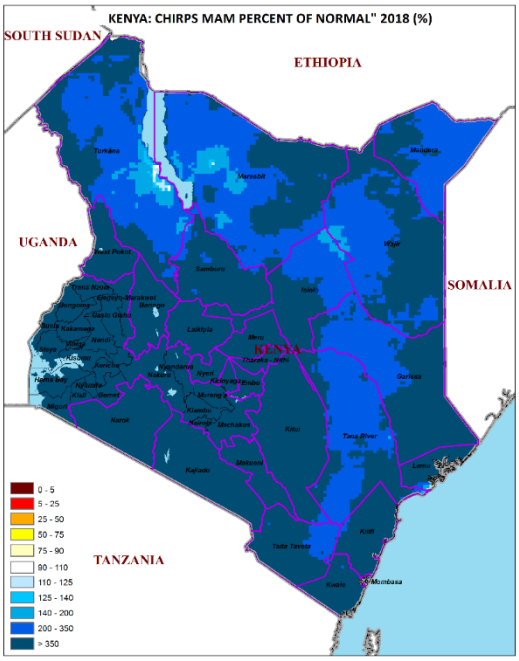


Figure 1.1. Long rains season (March - May 2018) Rainfall Percent of Normal

Rainfall was mostly above 350 percent of normal, except in some parts of the pastoral north-east, pastoral north-west and Taita Taveta where it was 200-350 percent of normal, and in some smaller areas of Turkana, Marsabit, Isiolo and Wajir where it was 140 – 200 percent of normal (Figure 1.1).

The spatial distribution was even across the country while the distribution over time was also good. The rains ceased early in the south-eastern zones and on time in May in the pastoral north-east, but they mostly ended late in Embu (Mbeere) and across the rest of the country (agro-pastoral, coastal and pastoral north-west zones). The exceptionally large amount of rainfall and its intensity led to flooding in several counties, especially along riverine areas. Overall, however, the rains had mostly positive impacts across the country, especially on crop and range production.

Floods

At the peak of the rains in April, flooding was causing widespread damage. By May, approximately 150 people had died and a further 310,000 had been displaced across 40 counties. Cropland and irrigation infrastructure, such as pumps and pipes, were extensively damaged. About 28 percent of the total crop in Turkana was destroyed. In other counties the loss of cropland was as follows: 10,000 acres in Tana River, 12,355 acres in Embu, Kitui and Makueni, 200 acres in Narok, 1,507 acres in Taita Taveta, and about 4,500 acres in Kilifi. Health facilities, schools, markets and roads were destroyed, affecting access to health and education, the supply of food commodities and medical provisions, and food prices. Approximately 3,700 small stock were lost across Wajir, Tana River, Garissa and Marsabit. By late June, the flood waters had receded in most areas and normal livelihood activities such as crop production had resumed.

Rift Valley Fever outbreaks

The increase in stagnant water provided conducive conditions for Rift Valley fever (RVF), a mosquito-borne viral zoonosis that mostly affects animals but can also affect humans. On June 8, the Ministry of Health confirmed an outbreak of RVF after it was first confirmed in a human patient in Wajir. Of the suspected human and animal cases in Wajir, 20 percent and 52 percent respectively were confirmed positive and led to six human deaths and about 25 abortions in livestock. In Tana River (Garsen), RVF caused the deaths of about 70 head of livestock, while in Marsabit its confirmation in two people necessitated the closure of four markets. In Isiolo, the outbreak was county-wide and resulted in livestock abortions, a quarantine across the county, and two rounds of ring vaccinations. In Garissa, two confirmed cases in Bura and Nanighi wards led to a quarantine in those wards which remained in force until mid-August. RVF was also confirmed in Mandera and Kilifi.

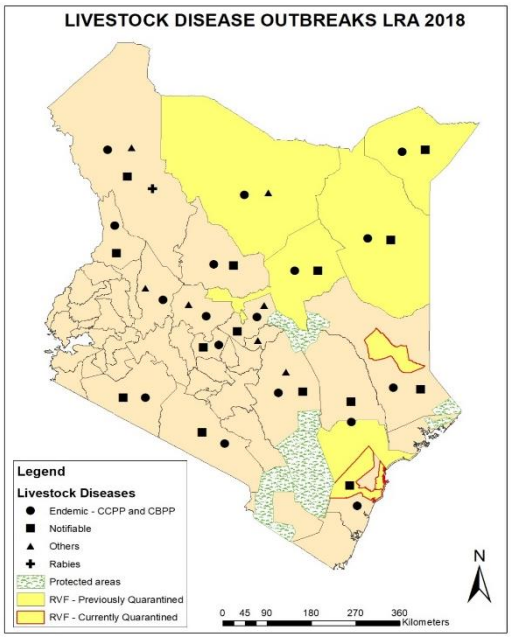


Figure 1.2. Livestock disease outbreaks

In addition to the quarantine measures, the County Departments of Livestock and Health, the County Departments of Veterinary Services and their state and non-state partners took various initiatives to heighten surveillance, create awareness, control vectors, train community disease reporters, and carry out participatory disease surveillance. More than 300,000 head of livestock were vaccinated and more than 120,000 sprayed with acaricides to keep the disease vector at bay. Quarantine measures restricted the trade of livestock and livestock products, affecting household income and consumption; some quarantines are still in place (Figure 1.2). In July, it was confirmed that the vector is still active in Wajir along the Lorian Swamp. It is essential to heighten surveillance, vaccination and awareness creation activities across the country in order to identify and contain the disease.

Summary of key findings

There are now 700,000 people facing acute food insecurity and in need of humanitarian assistance (Figure 1.3), mostly located in the pastoral north-west and pastoral north-east. This is significantly less than the 2.55 million identified by the Short Rains Assessment of February 2018. These 700,000 people are classified in Crisis (IPC Phase 3), and therefore if no assistance is provided, they are likely to engage in irreversible coping strategies, further eroding their livelihood assets.

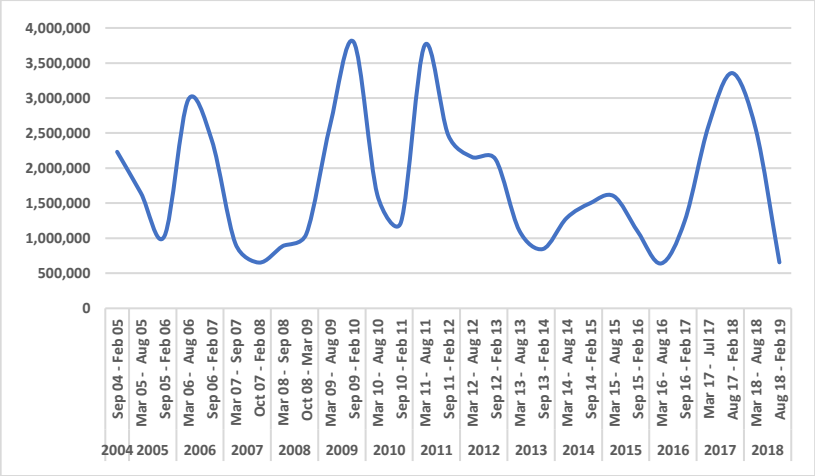


Figure 1. 3 Trend of the food insecure populations

All ASAL counties had good rainfall that was between two and three times higher than normal. The result was good forage regeneration in most pastoral counties and varied crop harvests ranging from above average to below average in the marginal agricultural counties. Trekking distances between forage and water sources in all pastoral counties are now 2-8 km, compared with the normal distance of 10-15 km. Forage and water are expected to last until the onset of the short rains. Watering of most species is taking place on a daily basis; camels are watered weekly.

The livestock body condition of all species is good, compared with the normal situation of fair to good. This has increased milk production, which is currently 1-5 litres per household per day compared with the normal figure of 1-3 litres. However, household milk consumption is unchanged at 0.5-1 litre per day, compared with the normal figure of 1-3 litres. This is due to low calving, kidding and lambing, which are expected in October and November. Milk prices have fallen to Ksh. 50-60 per litre, compared with the normal price of Ksh. 60-80.

Livestock prices of all species have been steadily rising and are now 30-40 percent above average. This, coupled with the decline in staple food prices, has significantly improved the terms of trade for pastoralists and increased their purchasing power (Figure 1.4). The terms of trade are currently 5-150 percent above the five-year average, except in Garissa where they are five percent below.

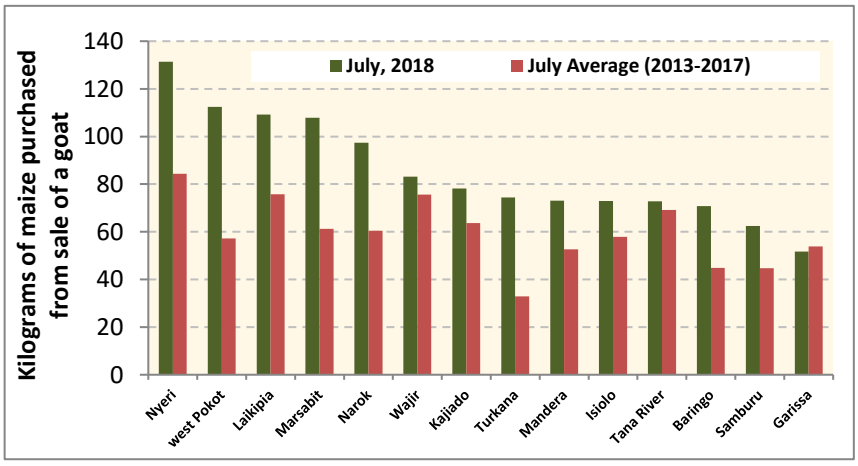


Figure 1.4 Cereals to livestock terms of trade

Categories of food-insecure populations

The above-average performance of the long rains has led to a significant improvement in household food availability and access. All areas in the pastoral north-west and pastoral north-east that were in the Crisis phase of food insecurity in January had moved to the Stressed phase by August (Figure 1.5). Similarly, those parts of the south-east, coast, and agro-pastoral areas that were in Stressed in January are now in the Minimal/None phase.

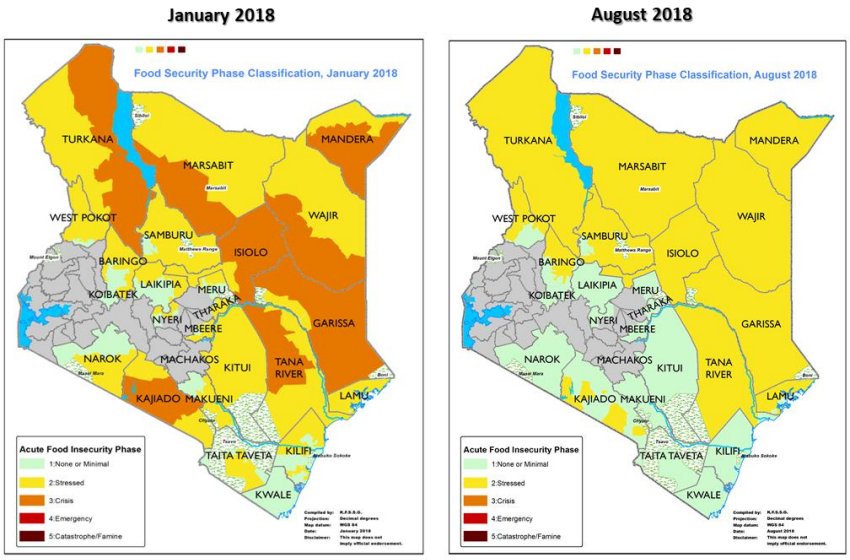


Figure 1.5: National food security phase classification

Of the total population in the ASALs, approximately 9.5 million are in the Minimal/None phase of food insecurity and 3.7 million people in the Stressed phase. Although the pastoral north-east and pastoral north-west are generally classified as Stressed, there are about 700,000 people here in the Crisis phase of food insecurity. After two to three poor seasons, these households have not fully recovered. Most of them lost productive assets during last year's drought and face considerable food gaps. They will need food and non-food transfers to continue supporting their recovery as the situation stabilizes.

Nutrition IPC Classification[1]

The nutrition situation in North Horr and in Turkana South, North and Central sub-counties has improved on the same time last year from Very Critical to Critical. Despite this, levels of acute malnutrition in several counties remain above the emergency threshold (15 percent) for Global Acute Malnutrition (GAM) (Figure 1.6).

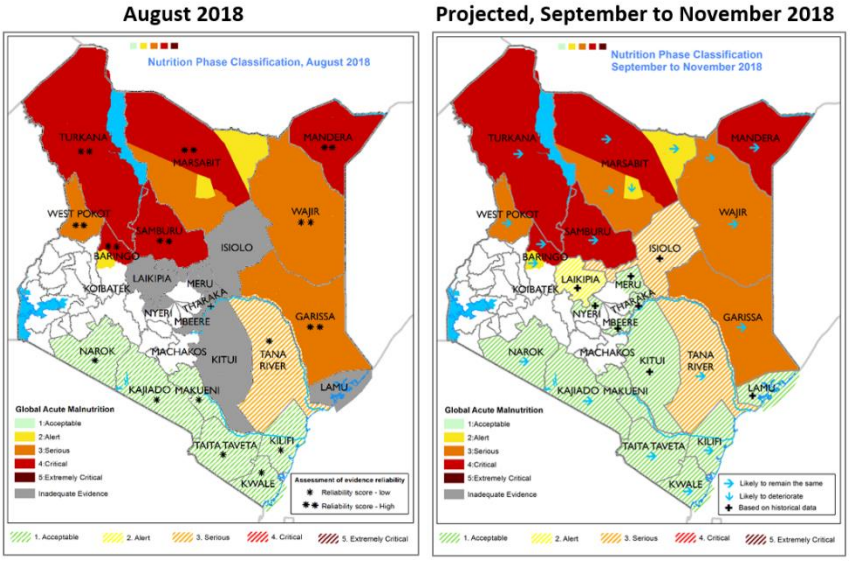


Figure 1.6 National Nutrition situation

The prevalence of acute malnutrition is distributed as follows:

[1] GAM WHZ: Global Acute Malnutrition by Weight for Height: MUAC- Mid Upper Arm Circumference: MAM- Moderate Acute Malnutrition: SAM- Severe Acute Malnutrition. See Box 1 for an explanation of IPC Acute Malnutrition phases.

Critical: Turkana, Samburu, Mandera, East Pokot, North Horr
Serious: West Pokot, Tana River, Garissa, Wajir
Alert: Moyale, Saku, Baringo North/Marigat
Acceptable: Narok, Kajiado, Makueni, Taita Taveta, Kwale, Kilifi.

The overall nutrition situation is projected to remain stable in most areas (Figure 1.6). However, past trends suggest the potential for fast deterioration in highly vulnerable counties such as Turkana and Mandera as households here have not yet fully recovered. In addition, poor child care practices, high morbidity, low literacy, poverty, and limited access to health care are key challenges. Building the resilience of these communities through increased engagement with nutrition-sensitive sectors remains a priority if improvements in nutrition are to be sustained. The overall national food security situation is also projected to remain stable (Figure 1.7).

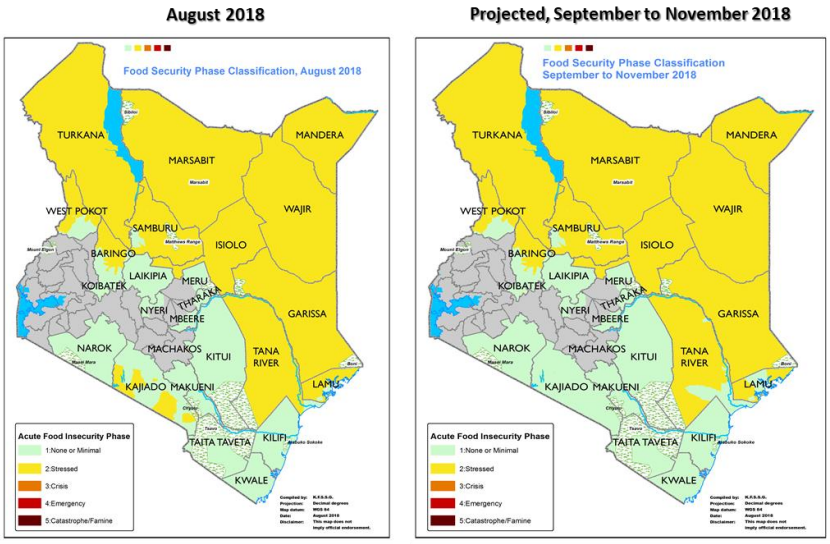


Figure 1.7: Current vs projected national food security phase classification

The total caseload of children aged 6 to 59 months requiring treatment for acute malnutrition in ASAL and urban areas is 510,593 (MAM: 425,488; SAM: 85,105); 31,354 pregnant and lactating women also require treatment, as shown in the following table.

Estimated Number of Children and Women Requiring Treatment

Area	Global Acute Malnutrition (6-59 months)	Severe Acute Malnutrition (6-59 months)	Moderate Acute Malnutrition (6-59 months)	Pregnant and lactating women
ASAL	439,463	62,321	377,142	28,392
Urban	71,130	22,784	48,346	2,962
Total Caseload	510,593	85,105	425,488	31,354

2018 – 2019 crop production and prospects

According to preliminary projections by the State Department of Agriculture, the 2018 – 2019 crop production is projected to be approximately 33 percent above the long-term average. This significant increase in production is credited to enhanced rainfall, increased crop yield and reduced effects of the Fall Armyworm as the heavy rainfall mitigated their growth and reproduction. However, in some of the high and medium rainfall areas, particularly on sloping ground, heavy rains led to the leaching of soil nutrients causing deficiencies in the crop. The County Governments and National Cereals Produce Board (NCPB) supplied fertilisers to farmers late, while low maize prices in 2018 led farmers to opt for other crops.

In the marginal agricultural areas, the cumulative acreage achieved for maize was 33 percent above the long-term average, but production did not match this. Maize production was 14-28 percent below average in Embu (Mbeere), Meru (Meru North), Makueni and Kilifi and 60 percent below average in Nyeri (Kieni) and Lamu. This was attributed to a number of factors, including the anticipation of poor rains in the seasonal forecast which led to late planting once the rains were already underway, as well as crop diseases and pests. However, the long rains season is not the main period for maize production in these areas. In the case of other staple crops like cowpeas and green grams, production was mixed with about half of the counties registering above average production with the other half registering below average production. Kitui and Meru however registered exceptional production and were responsible for 26 and 50 percent of maize and green gram production respectively while Kitui alone produced 48 percent of the marginal areas' cowpeas attributed to increase in acreage driven by favourable rainfall, and county government-led initiatives that involved provision of certified seed and assurances of ready market for green grams in both counties.

Food price trends

In the urban reference markets of Nairobi, Mombasa, Eldoret and Kisumu, food prices are well below those for 2017 (Figure 1.8). This can be attributed to two main factors: an anticipated above average long rains harvest in the high production areas, continued imports from neighbouring Tanzania and Uganda, and high carryover stocks in the high production areas from the 2017/2018 production season leading to an over-supply of maize to the local markets.

Wholesale maize prices in July were 18-20 percent below the five-year average in Nairobi, Mombasa and Kisumu and lowest in Eldoret at 35 percent below average due to high local supply that outstripped demand. With cross-border imports by non-state entities expected to continue driven by the relatively higher prices in Kenya compared to other countries in the region, and above-average long rains harvests from the Rift Valley and Western Kenya due in October, maize prices are expected to stay below average, further improving household food security.

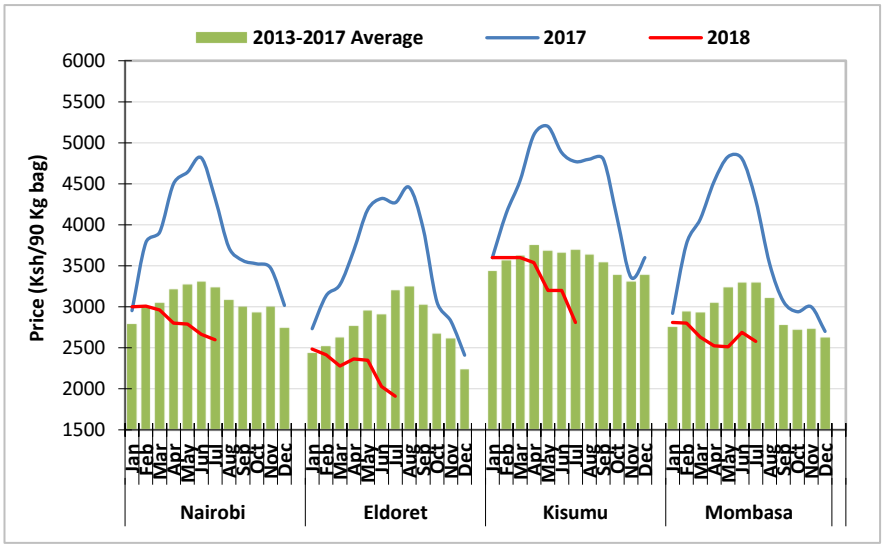


Figure 1.8. Maize price trends in major urban markets

Food Security Prognosis (September 2018 – February 2019)

Pastoral areas

Water and forage are likely to last until October when the short rains begin. Livestock will continue to provide income and milk although this will diminish as the short rains approach. Livestock are expected to remain around the homestead maintain their good body condition, providing milk and income which will maintain acceptable levels of food and below-average

milk consumption which will stabilize malnutrition levels, especially for children under five. Most pastoral areas are expected to remain in Stressed (IPC Phase 2) until October.

The October-December short rains are expected to be on time and above average, recharging water sources and regenerating forage from November. Livestock body condition is expected to improve further, with increased milk production especially in cattle as calving takes place in November. Improved body condition will keep livestock prices high and consequently household purchasing power above average. Livestock migration will occur to dry season grazing areas but may be at a scale less than normal due to above average water and forage around homesteads and households with smaller herds may choose to keep their livestock close by. From January, income from livestock sales will slightly reduce as households seek to obtain school fees and inadvertently over-supply the market. Food and milk consumption will improve but these areas are likely to remain in Stressed (IPC Phase 2).

Marginal agricultural areas
The long rains harvests will continue to improve food security by supporting household food consumption. From September, land preparation will increase in anticipation of the forecasted above-average short rains, increasing the opportunities for income from casual labour and thus household food availability and consumption. Malnutrition levels are expected to remain stable as there will be sufficient household food stocks from the long rains harvest to last until October. These areas will remain in Minimal (IPC Phase 1).

After November, food prices are likely to remain low due to available household stocks and the long rains harvest from high and medium rainfall areas. From December, household food stocks are likely to dwindle but relief will come from harvests of short-cycle crops which are likely to be significant, since this is the main production season in most marginal areas. These short-cycle crops will increase food consumption and dietary diversity while better forage will improve livestock body condition and milk consumption. As a result, malnutrition will continue to fall. In January, more households are expected to improve to None (IPC Phase 1) however, some households in Nyeri, Kilifi, Makueni, Lamu, Meru, Lamu and Embu, where production was below average, may experience food insecurity. In February, as the average short rains crop harvests become available household food security will improve significantly.

The key factors to monitor over the next six months include:
- High malnutrition levels in selected counties
- Fall Armyworm resurgence
- Livestock diseases
- Impacts of programmes and interventions
- Performance of the 2018 October – December short rains

Options for response
The table below sets out the options by sector. All immediate, medium and long-term interventions should be anchored in the Ending Drought Emergencies Common Programme Framework.

SECTOR	INTERVENTION	COST KSH (M)	COST USD (M)
Agriculture	Pests and disease control, Provision of farm inputs, Post-harvest management and preservation, Development of irrigation infrastructure, Value addition and conservation agriculture	**2,523**	**25.23**
Livestock	Creation of awareness, Control of vectors, and participatory disease surveillance for Rift Valley Fever and other livestock diseases. Pasture and fodder establishment and conservation, Livestock restocking/ offtake, Purchase and distribution of supplementary feeds, Breed improvement and Livestock insurance cover.	**2,211**	**22.11**
Water	Water trucking, Water infrastructure maintenance, Construction of new water sources, Hydro-Geological Surveys and Water desalination plants	**2,786**	**27.86**
Health	Integrated health and nutrition outreaches, Upscale of HINI and IMAM, KAPS Survey and SMART survey	**296**	**29.6**
Education	Construction/establishment of new schools, water provision, and Provision of home grown school meal programme (HGSMP)	**1,714**	**17.14**
Food assistance	Build resilience to future shocks through asset creation, safety net programmes and market access programmes; food commodities and cash including associated costs for 700,000 food insecure people in need of assistance for the next six months (September 2018 – February 2019)	**5,250**	**52.5**
Peace and security	Support peace and conflict resolution mechanism over resources.	**8.5**	**0.085**
TOTAL		**14,788.5**	**147.885**

1.0 Introduction

1.1 Assessment Coverage and Objectives

The March to May 2018 long rains assessment was conducted from the 6th to the 17th of August, led by the government of Kenya through the Kenya Food Security Steering Group (KFSSG), in collaboration with the county governments in 23 Arid and Semi-arid counties which were covered by the assessment, through their respective County Steering Groups (CSGs). KFSSG is a multi-agency body comprising of government departments, UN agencies and non-Governmental organizations all with a stake in food and nutrition security in the country. The KFSSG chaired by the National Drought Management Authority (NDMA) and co-chaired by the World Food Programme conducts bi annual food security assessments in collaboration with the CSGs, which is also a multi-sectoral and multi-agency group that coordinates food security related activities in the counties.

Objectives

The overall objective of the assessment was to analyse and determine the extent and impact of the 2018 long rains season on food and nutrition security, taking into account the cumulative effects of previous seasons and other shocks and hazards. In particular, the assessment explored the impact of the season on food availability, access and utilization by looking at the contributing factors and outcomes, and at how each sector has been affected. The assessment also sought to inform on various recommended interventions to address the arising issues in each sector: agriculture, livestock, water, health and nutrition, education, peace and security, and markets and trade. The recommended interventions are presented in this report.

1.2 Methodological Approach

The seasonal assessments cover the arid and semi-arid region of the country comprising of 23 counties, which are generally the most food insecure and exhibit high levels of vulnerability and covers approximately 80 percent of Kenya's landmass. The area covered by these counties is further classified into generalized livelihood zones which comprise of; Pastoral North West Livelihood cluster (Turkana, Samburu and Marsabit counties), Pastoral North East (Wajir, Garissa, Isiolo, Tana River and Mandera Counties), South East Marginal Agriculture Cluster (Kitui, Makueni, lower parts of Tharaka Nithi, and Embu counties and the Northern parts of Meru County). Other clusters include Coastal Marginal Agriculture (Kilifi, Kwale, Taita Taveta and Lamu counties) and Agro Pastoral cluster (Baringo, Narok, Kajiado, West Pokot, Laikipia and northern part of Nyeri county- Kieni). The main livelihood activities across these include pastoralism, agro-pastoralism, mixed farming, marginal mixed farming and some irrigated cropping, which formed the unit of analysis for this assessment.

This assessment included collection of secondary and primary data with varied data sources including; Data from NDMA sentinel sites, which is collected monthly using questionnaires, Data from the various government sectors (livestock, water, agriculture, education, health and nutrition) at the county and sub counties using checklists. Also included was data collected through community interviews and market interviews through focus group discussions and interviewing of traders respectively, Secondary data from nutrition surveys (SMART Surveys), food security outcome monitoring (FSOM), drought early warning bulletins among others and field observations through transect drives. During the analysis, Acute Integrated Food Security Phase Classification (IPC), which is a standard global tool for classifying the severity of food insecurity, was used to analyse the severity, causes as well as reach a technical consensus on the food security situation.

2.0 Food and Nutrition Security Analysis by Livelihood Cluster

2.1 The Pastoral North – West Livelihood Cluster

2.1.1 Cluster Background Information

The cluster consists of Turkana, Marsabit and Samburu Counties covering an area of 173,772 square kilometres with a projected population of 1,683,369 persons (KNBS, 2016). It has three main livelihood zones: pastoral all species (69 percent of the population), agro-pastoral (24%) and fishing/formal employment/business/petty trade (7%) as shown in Figure 2.1.

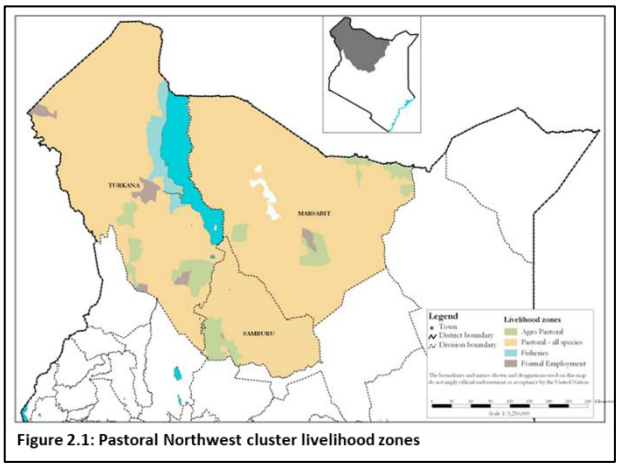


Figure 2.1: Pastoral Northwest cluster livelihood zones

2.1.2 Current Drivers of Food Insecurity

Rainfall Performance

The onset of the long rains was early in the first dekad of March which was normal across the cluster. Most parts of the cluster received between 200-350 percent of the normal rainfall while North Horr and a few pockets of Laisamis in Marsabit County received 110-125 percent of normal rainfall. North Western parts of Samburu County received 140-200 percent of normal rainfall. In Turkana County, the north-western, south-western and northern parts of the county received over 350 percent of normal rainfall while the larger part of the rest of the county received between 140-200 percent of normal rainfall. Spatial distribution was even while temporal distribution good across the cluster. The cessation was late in the first dekad of June compared with the third dekad of May across the cluster.

Conflict/Insecurity

Insecurity was reported in Laisamis sub-county especially Mt. Kulal ecosystem which limited access to pasture and browse. Tribal clashes in Moyale sub-county restricted access to Gorumesa livestock market. Asylum seekers from Southern Ethiopia led to increased cases of insecurity in Moyale which also contributed to high food prices. Human-wildlife conflicts were reported where hyenas and leopards attacked livestock in Saku Sub-County. Destruction of water structures by wildlife had been reported in areas neighbouring the Marsabit National Park hence limiting access to domestic and livestock water sources. In Turkana County, insecurity incidences were reported in Kibish and Todonyang in Turkana North Sub-county and Lomelo and Nadome in Turkana East Sub-county that impeded access to forage. Some pastoralists suspected to be from South Sudan had also moved in to Turkana North Sub-county and locals were therefore keeping off the forage there in order to avoid conflict as incidences of insecurity including one death had been reported prior to the assessment.

Other Shocks and Hazards

Rift Valley Fever outbreak (RVF) and Fall Army Worm (FAW) infestation was reported in Marsabit while flooding and locust invasion was experienced in both Turkana and Marsabit counties. The RVF outbreak led to closure of markets for one month between mid-June and mid-July. The FAW and maize stock borer infestations led to about 40 percent loss in maize production. Flash floods swept away 675 sheep and goats in parts of Marsabit. In Turkana County, floods also affected access to households by health workers during outreaches in

addition to destruction of maize crop. Locust invasion in Turkana and Marsabit (Moyale and North Horr) counties was reported to have affected forage.

2.1.3 Current Food Security Situation

The cluster is classified in Stressed (IPC Phase 2) in all three counties. Household stocks were about 114 and 50.4 percent above the LTA in Samburu and Turkana Counties respectively and 66 percent below the LTA for Marsabit County due to FAW infestation. Water consumption improved to 15-20 litres per person per day across the cluster due to the above-average rains received. The terms of trade were favourable in all the counties across the cluster and above the long-term averages. The average milk consumption ranged between a half a litre to four litres per household per day in both the pastoral and agro-pastoral livelihood zones.

Approximately 70 percent of households in the cluster had acceptable food consumption, while less than 20 percent had poor food consumption in June 2018 according to SMART surveys, compared to January 2018 when less than 50 percent of households were classified under acceptable food consumption. The mean coping strategy index had reduced in Samburu County but remained fairly stable in Turkana and Marsabit Counties. Households were employing consumption-based coping strategies such limiting portion sizes, relying on less preferred food and reducing number of meals. Exceptions include pastoral areas of Marsabit (North Horr El-hadi), where some household employed severe coping strategy of borrowing. Global Acute Malnutrition (GAM) was at 18.1, 14.6 and 12.4 percent in Turkana, Samburu and Marsabit Counties respectively posting an improvement from previous period.

2.1.4 Food Security Trends

Indicator	Short rains assessment Feb. 2018 (Previous season)	Long Rains Assessment Aug. 2018 (Current)
Food security phase	Samburu county and large parts of Turkana and Marsabit county are classified in the "Stressed" phase, parts of Turkana North (Todonyang and Nadapal), and Turkana East (Kapedo and Lomelo), Laisamis and in Marsabit county are in "Crisis" (IPC phase 3)	None/ Minimal (IPC phase 1) in Samburu County and Stressed (IPC Phase 2) in Marsabit and Turkana Counties across all livelihood zones
Maize stocks	Household stocks are 85 % of the LTA	Household stocks are 114 and 50.4% above the LTA (Samburu and Turkana), 66% below LTA in Marsabit
Livestock body condition	Good to fair	Good
Household water consumption	5-10 litres per person per day in Samburu, agro-pastoral areas of Marsabit, pastoral and agro-pastoral areas of Turkana. Agro pastoral areas of Turkana at 15 litres per person per day	15-20 litres per person per day across the cluster
Meal frequency	Households are consuming 1 - 2 meals across the cluster except in the agro pastoral areas of Samburu, where households are having 2 – 3 meals per day.	Households are consuming 2-3 meals across the cluster
Household milk production	Average at 0.5 and 1.5 litres per household per day in both the pastoral and agro pastoral livelihood zones.	Average at 0.5 and 4 litres per household per day in both the pastoral and agro pastoral livelihood zones
Terms of Trade	Above the LTA across the cluster	Above the LTA across the cluster
Coping Strategy Index	21.2 in Turkana County (June 2017) 18.22 in Marsabit County (July 2017) 26 in Samburu County (June 2017)	21.8 in Turkana County (June 2018) 16.47 in Marsabit County (July 2018) 18.6 in Samburu County (June 2018)

Indicator	Short rains assessment Feb. 2018 (Previous season)	Long Rains Assessment Aug. 2018 (Current)
Food Consumption Score	Proportion of households with poor food consumption: Marsabit County, July 2017 (7.6 percent) Samburu County, June 2017 (12.8 percent) Turkana County, July 2017 (23.3 percent)	Proportion of households with poor food consumption in Marsabit, Samburu and Turkana was 10.8, 10.6 and 11 percent respectively.
Children at risk of malnutrition	Remained the same across the cluster at 19.9 – 20.8 percent compared to 20 – 21.4 percent long term average except in Turkana County where the percentage reduced to 15.0 percent compared to the long-term average of 19.8 percent	22, 15.8 and 14.1 percent in Samburu, Turkana and Marsabit Counties.

2.1.5 Impact of Drivers on Food and Nutrition Security

2.1.5.1 Crop Production

Rain-fed crop production

Maize, sorghum, cowpeas and beans are the main crops grown in the cluster. The area planted with maize, sorghum, cowpeas and beans was 84, 54, 99 and 84 percent of their respective LTAs. The variation of area cultivated was due to late land preparation and earlier advisory of poor rainfall. Seasonal production for maize, sorghum, and cowpeas was 79, 72 and 76 percent of their respective LTA. This was attributed to reduced area cultivated, late land preparation leading to late planting, inadequate certified seeds, poor crop production practices, pest and disease infestation.

Rain-fed crop production in the cluster

Crop	Area planted during 2018 Long rains season (Ha)	Long Term Average area planted during the Long rains seasons (Ha)	2018 Long rains season production (90 kg bags) Projected/Actual	Long Term Average production during Long rains seasons (bags)
Maize	8,440	10,030	49,200	61,395
Sorghum	1589	2940	13508	24990
Cow peas	258	260	1060	2,250
Beans	3,990	4,741	3,025	7,440

Irrigated crop production

Irrigation is mainly done in irrigation schemes, along rivers and in green houses. The main crops grown under irrigation are sorghum, maize and cowpeas. Vegetables such as kales tomatoes and spinach are grown on small-scale. The area cultivated with maize, sorghum, and cowpeas was 110, 86 and 112 percent of LTA respectively. Seasonal production for maize, sorghum, and cowpeas was 79, 72 and 76 percent of the LTA respectively. Variation in seasonal production was attributed to floods, pest infestation, fall army worm, locust invasion, poor crop production practices and inadequate water for irrigation especially in Marsabit County and use of uncertified seeds.

Irrigated crop production in the cluster

Crop	Area planted during the 2018 Long rains season (ha)	Short Term Average (3 years) area planted during Long rains season (ha)	2018 Long rains season production (MT) Actual	Short Term Average (3years) production during 2018 Long rains season (MT)
Maize	2628	2380	39420	49590
Sorghum	1571	1830	9600	13300
Cow peas	118	105	242	315

Cereal stocks

Maize stocks held by households were 123 percent compared to LTA. This was attributed to good seasonal harvests and importation of low-priced maize from Uganda into Turkana County, while in Samburu County there were carry-over stocks from 2017 harvests. In Marsabit County, stocks were below LTA due to interferences of external markets supplies from Moyale Sub-county due to community conflict in Ethiopia and reduced supplies from Meru and Isiolo Counties due to low prices. Stocks held by other actors are normal. The current stocks can last for four months in Turkana County but between one to two months in the rest of the cluster No food safety issues were reported during the season.

Cereal stocks held in the cluster

Commodity	Maize (90kg bags)		Rice (50kg bags)		Sorghum (90kg bags)		Green gram	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	45,250	36,795	140	200	16160	19760	140	180
Traders	21,930	25,300	9,800	9,800	6070	3740	160	240
Millers	6,870	7,000	0	0	1100	0	0	0
Food Assistance/ NCPB	6088	10000	21	516	6810	0	0	0
TOTAL	80,138	79,095	9961	10516	30140	23500	300	420

2.1.5.2 Livestock Production

Livestock production contributes about 85 and 45 percent respectively to cash income in the pastoral and agro-pastoral livelihood zone. The pasture and browse condition was good in all the livelihood zones across the cluster which is above-normal for the season. The improvement was attributed to above-normal long rains. However, in parts of Marsabit, pasture and browse condition was fair due to overgrazing mainly around watering points. Access to pasture and browse in Turkana was limited by locust invasion and insecurity in Kibish, Todonyang, Lomelo and Nadome. The use of crop residues as source of livestock feeds was minimal. In parts of Samburu East and Central Sub-counties, pasture condition was fair attributed to extensive land degradation.

Pasture and browse situation in the cluster

Livelihood	Current	Normally	Duration	Factors affecting accessibility
Pastoral	Good	Fair to Good	3-4 months	Resource-based conflicts and insecurity locusts, Tse Tse Fly infestation
Agro-pastoral	Good	Fair to Good	4-5 months	None
Fishing	Good	Fair to Good	3 months	None

The livestock body condition was good for cattle, sheep and goats in all the livelihood zones across the cluster. Body condition is expected to remain stable for the next three months. Stability of body condition will ensure continuous supply of milk, meat production and livestock prices hence enhanced household food availability and access.

Livestock body condition in the cluster

Livelihood zone	Cattle		Sheep		Goat		Camel	
	Current	Normally	Current	Normally	Current	Normally	Current	Normally
Pastoral	Good	Fair to Good	Good	Fair to Good	Good	Good-Fair	Good	Good
Agro pastoral	Good	Good	Good	Fair	Good	Good-Fair	Good	Good
Fishing	Good	Good	Good	Good	Good	Good	Good	Good

Tropical Livestock Units in cluster declined by 34 percent for both poor and medium-income households compared with normal. The decline was attributed to livestock mortalities experienced in this cluster during the previous drought in late 2016/2017. Livestock birth rates were below-normal but gradually improving following the good forage situation. Average household milk production per day increased by 67 and 33 percent in the pastoral and agro-pastoral livelihood zone respectively compared with the LTA which was above-normal for the season. Household milk consumption increased by between 50 percent of LTA across the cluster. Some milk was sold to generate household income while it remained stable in the fishing zone. The average milk price per litre stabilized at Kshs 40 across the cluster except in Marsabit County where milk prices ranged between Kshs. 60 to 90.

Milk production, consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household		Prices Ksh per/Litre	
	Current	LTA	Current	LTA	Current	LTA
Pastoral	1 -5	2 – 3	0.5 - 3	1 -2	40 - 60	60
Agro-pastoral	1 - 4	2 – 3	0.5- 3	1 - 2	40 - 60	60
Fishing	4	2..5	2	1 - 2	40	40

The return trekking distance from grazing/browsing areas to watering points has decreased by between 50 to 60 percent of normal in the pastoral and agro-pastoral areas across the cluster, which is better than normal for the season. Watering frequency ranged from daily to 5 days per

week for all livestock in all livelihood zones across the cluster; except for camels whose watering frequency was 3-7 times in a week. The available water was expected to last for 2 to 4months across all the livelihood zones which was normal.

Water situation for livestock

Livelihood zone	Return trekking distances-km		Expected duration to last (Months)		Watering frequency (Days per 7 days)	
	Current	Normal	Current	Normal	Current	Normal
Pastoral	2-5	10-15	2-4	3-4	Daily – after every 3 days	5
Agro pastoral	2-4	5-10	3-4	3-4	Daily	daily
Fishing	2-3	4-5	3	3	Daily	Daily

Few cases of in or out migration have been reported in the cluster apart from isolated internal migrations within the counties in search of forage and water which is normal at this time of the season. In Turkana, in-migration of livestock had been witnessed in areas bordering the county and the republic of South Sudan as Toposa livestock keepers had moved in to the North-Western part of the County in search of forage and water. Livestock disease outbreaks reported included: Anthrax, Pestes des Petits Ruminants (PPR), Sheep and Goat pox, rabies, Lumpy Skin Disease (LSD), Rift Valley Fever (RVF), Contagious Caprine Pleuro-Pneumonia (CCPP), mange, anaplasmosis, enterotoxaemia, hemorrhagic septicemia in sheep and goats, Contagious Bovine Pleuropneumonia (CBPP) and Trypanasomiasis. Marsabit County lost a total of 2,875 Goats and sheep, 360 cattle and 208 camels while Turkana lost 167 sheep and goats due to the livestock disease out breaks. Mortality rates remained within minimum threshold.

2.1.5.3 Markets Performance

Market operations was normal for most markets in the cluster except Jirime, Merille and Moyale markets in Marsabit County which were disrupted for a few weeks due to the outbreak of Rift Valley fever. The markets had since resumed normal operation. In Turkana East Sub-county, Nadome and Lomelo markets were disrupted due to banditry attack. Most of the food commodities sold in the markets are supplied from other counties such as Nairobi, Isiolo, Trans Nzoia, Meru, Laikipia and across the border from Uganda.

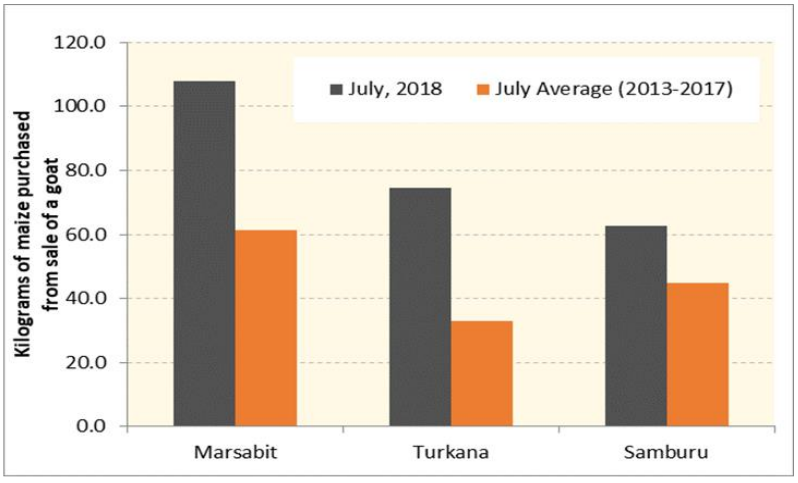


Figure 2.2: Comparative terms of trade in the cluster

Maize prices significantly dropped below the LTA with excess supplies sourced locally. The prices of cereals were low due to high supply volumes to markets. The highest price was recorded in Turkana County where a kilogram of maize retailed at Ksh 50 while Marsabit County recorded the lowest price at Ksh 40 per kilogram. Goat prices were above the LTA across the cluster attributed to good body condition and in some cases limited supply to markets as livestock keepers preferred to hold and increase their herd size. Markets in Marsabit County reported high prices with an

average of Ksh 4,500 in the month of July while the lowest prices were noticed in Samburu County at an average of Ksh 2,938 for a medium sized goat.

The terms of trade were favourable in all the counties across the cluster and above the LTA as shown in Figure 2.2. The favourable terms of trade in the cluster was attributed to low maize prices. Turkana County exhibited a significant improvement in the terms of trade in the month of July at 74 kilogrammes from 45 kilogrammes recorded in June due to the dip in maize prices from Ksh. 83 per kilogramme in June to Ksh. 50 in July. In Samburu, the terms of trade showed a declining trend from May due to a fall in goat prices over the same period. The highest terms of trade was recorded in Marsabit County where households could purchase 107 kilogrammes of maize from the sale of one average-sized goat compared to the LTA for July of 61 kilogrammes. Samburu County recorded the lowest terms of trade at 62 kilogrammes which was still above the LTA of 45 kilogrammes.

2.1.5.4 Water Availability and Access

The main sources of water for domestic use include boreholes, water pans, shallow wells and traditional river wells. All open surface sources were fully recharged due to the above-normal rains. A number of pans in Marsabit and Samburu Counties were breached. Over 80 percent of water pans have water and were expected to last until mid-October while in Moyale and Samburu Central Sub-counties, water may last for six months. Most water pans have silted which has reduced their storage capacity. Between 70 and 80 percent of boreholes in the cluster were operational and were less constrained as households had alternate water sources. Normally at this time of the year, most traditional river wells would have dried up and most households would be relying on boreholes. However, there were some parts of Marsabit and Samburu that were experiencing water shortage.

Distances to water sources have remained 1-2km in the agro-pastoral zone of Samburu and 3-5km in pastoral zone of Samburu. However, distances in Marsabit and Turkana ranged from 1 to 3km which is an improvement from the normal to the 2-6km. However, the highest distance was observed in Mpagas in Marsabit where households were trekking for 12km to shallow wells on the banks of Maglis River due to pipeline breakdown. In the next two weeks, households in Kubi Adi in Marsabit will be trekking for 30km to access the nearest water source in Dukana town once their rainwater storage is depleted. The average waiting time was normal at 20-40 minutes in Turkana but had reduced to less than 10 minutes in Marsabit and Samburu compared to the normal 30-45 minutes. However, households in Qalaliwe in Moyale sub-county were waiting between 60-90 minutes due to damaged shallow wells that silted up during the rainy season and damage of water pans. Marsabit Township continued to experience high waiting time of 2-3 hours since only one solar-powered borehole serves the town.

Most households were relying on open water sources hence don't pay for water. However, households relying on borehole water pay an average of Ksh. 50 per month for domestic use. Few households were paying an average of five shillings per 20-litre jerrycan in Marsabit and in the pastoral and agro-pastoral areas of Turkana. However, cost of water in the fishing livelihood zone remained Ksh. 10 per 20-litre jerrycan while in Samburu, it ranged between 5 and 10 shillings. Water vendors in Karare scheme were paying Ksh. 30 per 20-litre jerrycan. The highest cost was noted in Marsabit town, Moyale town and Goro Rukesa village in Saku where vendors were selling water at Ksh. 40 - 50 per 20litre jerrycan. Water consumption ranged from 15 to 20 litres which was an improvement from the normal 10-15 litres per person per day. However, consumption was 20-25 litres per person per day in the agro-pastoral zones of Samburu. Areas with low water consumption of 10-15 litres compared to the normal 15-20

include Poro, Suguta Marmar and Lodokejek in Samburu and Qatab in Marsabit where piped water was being rationed. In Lekuchala in Laisamis sub-county of Marsabit, households were accessing clean drinking water from a rock catchment after three days while water for other uses was sourced from a water pan.

2.1.5.5 Food consumption

The food consumption patterns remained fairly stable in the three counties across the cluster. In Marsabit County, approximately 10.8 percent of households had poor food consumption in July 2018 compared to 7.6 percent at a similar time last year (SMART survey) while in Samburu County, approximately 10.6 percent had similar consumption patterns in June 2018 compared with 12.8 percent last year (SMART survey). In Turkana County, the nutrition survey results recorded 11 percent of the population with poor food consumption compared with 23.3 in June 2017.

2.1.5.6 Coping Strategies

The coping strategy index in Turkana County remained stable at 21.8 in June 2018 compared with 21.2 in June 2017 (SMART survey) with a similar trend being recorded in Marsabit County from 18.22 in July 2017 compared with 16.47 in July 2018 (SMART survey). Households had therefore not changed the frequency or the severity of consumption-based coping strategies during the period under review. However, in Samburu County, the index improved from 26 in June 2017 to 18.6 in June 2018 (SMART survey) implying that households had slightly reduced the application of the said strategies both in severity and frequency in comparison to a similar time last year.

2.1.5.7 Health and Nutrition

Nutrition Status and Dietary diversity

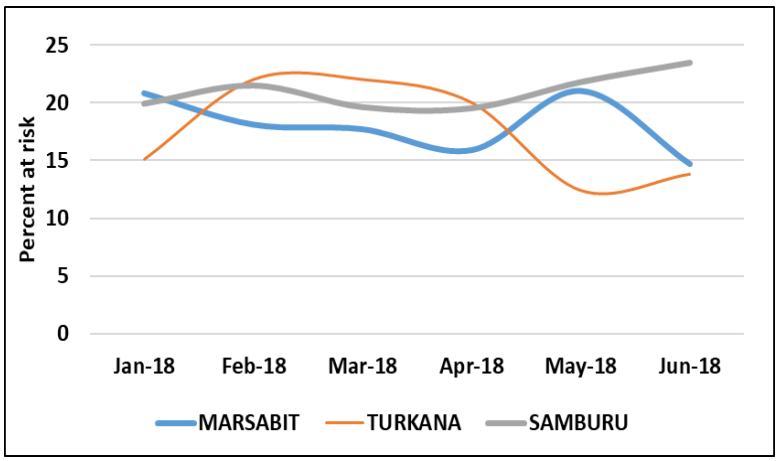


Figure 2.3: Proportion of children at risk of malnutrition (MUAC <135mm)

The nutrition situation in Marsabit according to the current SMART Survey was serious with global acute malnutrition (GAM) of 12.4 percent a significant improvement from critical same season the previous year. Turkana and Samburu Counties were still at Critical levels with GAM rates of 18.1 and 15.7 percent respectively. Turkana had registered a great improvement from Emergency levels the previous year during the same season. Generally, the situation has improved owed to the more than normal rainfall performance across the cluster, which has enhanced food availability and purchasing power of the population. The continuous support response programmes through blanket supplementary feeding Programme (BSFP), general food distribution (GFD), hunger safety net and other cash transfer programmes, asset creation, outreaches, Malezi Bora activities, water and sanitation (WASH) interventions among others has had significant impact on health and nutrition status as well. The proportion of children at risk of malnutrition using Mid Upper Arm Circumference (MUAC) of <13.5mm shows improvements across the cluster (Figure 2.3). Samburu however had proportion of children at risk above the LTA but lower than the previous year same season.

Morbidity trends
The common morbidities remained similar for the season with few reported outbreaks. Turkana reported four cases of measles which is less than the previous year, but cholera cases increased from four to 78 during the same period associated with low hygiene and sanitation practices. There were five cases of Kalaazar were reported in Marsabit. There were no unusual mortalities reported.

Immunization and Vitamin A supplementation
The proportion of fully immunized children improved across the cluster owed to integrated outreaches but still lower than the national target of 80 percent for Samburu which stood at at 37.4 percent. Vitamin A supplementation coverage for children aged 6-59 months improved across the cluster with Marsabit performing better than national targets at 81.6 percent while it was low in Turkana and Samburu Counties at 49.9 and 43 percent respectively. Dietary diversity has had improvements with most households in Marsabit consuming more than five food groups and those in Turkana and Samburu consuming more than four food groups. The most common foods were sugar, milk, cereals, pulses and oils.
Consumption of fruits, vegetables and animal proteins was lacking in the majority of households. Exclusive breast feeding was high across the cluster and stood at 75.7 percent in Marsabit, 76.5 percent in Turkana but slightly below national target of 80percent.

Hygiene and sanitation
Hygiene and sanitation practices remain low with latrine coverage in Marsabit being at 48 percent and 21.5 percent in Turkana. Majority of water sources include piped water in urban areas, boreholes and unprotected open sources in majority of households. Water treatment was still low at less than 30 percent across the cluster with ignorance cited in Marsabit despite water treatment chemicals being available. Lack of treatment chemicals was reported in Samburu and Turkana. Hand-washing during the four critical times stood at 20 percent across the cluster.

2.1.5.8 Education

Access (Enrolment)
The cluster registered a marginal increment in enrolment in second term compared to term one across all levels of education apart from Turkana County where it was relatively stable, although that of girls had increased by 48.7 percent. The increment is attributed to sustained School Meals Program in the three counties and availability of pastures, keeping herders within the reach of the learning facilities. Specifically, for Turkana County, a 33 percent increase in enrolment for girls was attributed to the continued efforts of an out-of-school enrolment drive project funded by UNICEF specifically targeting girls.

Participation and Retention
School attendance was good across the cluster with Turkana County reporting 95 percent attendance rate. Dropout rate also remained low during the period under review. Factors that contributed to regular school attendance and low dropout rate across the cluster include availability of food and water in schools, minimal migration as households have food and water available in close proximity since the long rains season performed well. Others include school fees support from the national government and improved security in previously insecure areas. Incentives to remain in school such as free primary education and provision of sanitary towels to girls in schools by the government of Kenya and UNICEF also contributed to high retention in Turkana County.

School meals programme

The cluster has two main school meals programs: home-grown school meals program (HGSMP) and regular school meals program (RSMP) funded by the World Food Program. These programs have contributed significantly to enrolment, participation and retention across the cluster. In addition to the feeding program in primary schools, the respective county governments were also providing fortified porridge to ECDE centres. The challenges that were experienced across the cluster ranged from delays in transportation of food to schools, inadequate storage facilities in some schools while other schools lacked clean water for cooking due to inadequate water storage facilities.

2.2 Pastoral North – East Livelihood Cluster

2.2.1 Cluster Background Information

The cluster consists of five counties namely: Garissa, Isiolo, Mandera, Tana River and Wajir. The cluster covers an area of 165,970 square kilometres with a projected population of 1,905,014 persons (KNBS, 2016). It is composed of five main livelihood zones namely; pastoral (57%), agro-pastoral (21%), marginal mixed farming (9%), irrigated (7%) and informal/formal employment/business/petty trade (6%) as indicated in Figure 2.4.

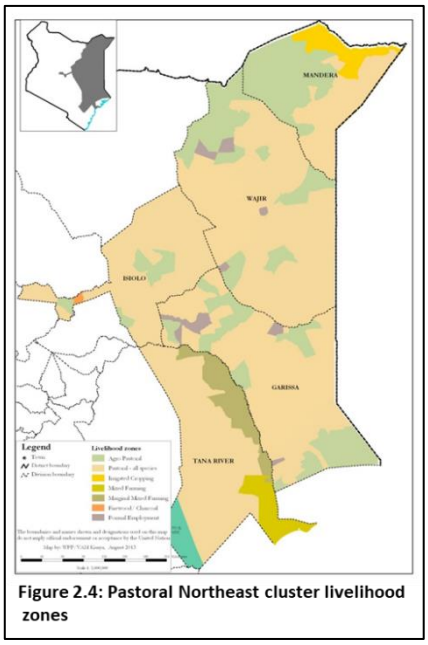


Figure 2.4: Pastoral Northeast cluster livelihood zones

2.2.2 Current Drivers of Food Insecurity

Rainfall performance

The onset of long rains was early in the first dekad of March except in Mandera where the onset of long rains was in third dekad of February compared to third dekad in March normally. The central parts of the cluster received above average rainfall ranging between 140-200 percent of the normal rainfall. The southeastern and western parts of Isiolo received 200-350 percent of the normal rains. The above average rains supported regeneration of pasture and browse and improved water for domestic use and livestock in the pastoral areas. The spatial distribution even while temporal was good. Cessation was normal in the third dekad of May in Mandera, Tana River and Isiolo. In Wajir and Garissa, the cessation was normal in the first and second dekad of May respectively.

Floods

The above average performance of the long rains led to floods which caused crop and livestock losses across the cluster. Tana River, Garissa and Wajir counties recorded the highest losses. An estimated 2,500 herds of livestock were washed away. About 9,976 acres of crops were destroyed and submerged in Tana River County. An estimated 47,646 households (22,699 people) were displaced in Tana River, Wajir and Garissa Counties combined. Road infrastructure, water, schools and health facilities were also destroyed. The destructions resulted in limited access to markets which impacted household food access negatively due to fluctuations of food prices.

Rift Valley Fever

The outbreak of Rift Valley Fever (RVF) was reported in across the cluster. Several cases were reported in Tana Delta (Dida Ade, Hurara villages, Galole-Wenje and Pumwani), Garissa (Bura and Nanighi), Mandera (Mandera South) and Wajir (Habaswein and Arablow in Wajir South).

Quarantine was imposed leading to closure of livestock markets and suspension of slaughter house activities. The disease outbreak resulted in livestock abortions, deaths and hence livestock movements were restricted across the cluster.

Other Shocks and Hazards

Insecurity/Conflict
Resource based conflicts were reported in Isiolo (Garbatulla and Eldera in Sericho) as result of movement of livestock without prior agreement about grazing managements. Livestock theft and cattle rustling in counter raids also led to insecurity that lasted for over two weeks in the area. The conflicts caused displacement of households (300 households Ngare Mara, 47 households Eldera/Sericho) and disruption of learning institutions in the affected areas. Some pastoralist fled to Meru with approximately 1500–1700 camels. In Wajir, conflicts were as result of administrative boundary in Wajir North and Eldas Sub County. Terror incidences were reported in Mandera, Kutulo and in Garissa, parts of Hulugho, Ijara and Dadaab bordering Somalia were inaccessible due to fear of Al Shabaab militia attacks. Cases of human wildlife conflicts were reported especially in the Tana Delta region.

Fall Army Worms (FAW) and Wild fires
Fall army worm infestation was reported in Tana River and Isiolo counties resulting in reduced crop production. In Wajir county, spontaneous and sporadic outbreak of bush fires were reported in Boji in Wajir West, Dela in Eldas and Habaswein in Wajir South and Batalu in Wajir North that burned about 54 square kilometre of the grazing land.

2.2.3 Current Food Security Situation
The cluster is currently classified as Stressed (IPC Phase 2) and mixed farming livelihood zone in Tana River County is classified minimal (IPC Phase 1). The stocks of maize held by various actors were below long term averages (LTA) across the counties. The current terms of trade (ToT) are above those recorded same period last year across the cluster. In July, ToT in Wajir and Tana River counties were near normal compared with LTA but were below in Garissa and declining in Tana River. Household milk consumption was near normal across the counties except in Garissa which showed a decline. In Mandera, average household consumption of milk was 5-6 litres in the pastoral and agro-pastoral livelihood zones. Water consumption was within normal range of 15-20 litres per person per day in Wajir, Mandera, Isiolo and mixed farming zones of Tana River. Garissa County recorded the highest consumption of 30-40 litres while the lowest consumption of 7-10 litres was recorded in the marginal mixed farming zones of Tana River County.

Food consumption significantly improved in the cluster, with increased proportion of households with acceptable food consumption score (FCS) to 88 percent in Mandera, Wajir and Isiolo Counties and 97 percent in Tana River County. The proportion of households with acceptable FCS in Garissa County, declined by 28 percent while households with borderline and poor FCS increased by 9 and 18 percent respectively. The mean reducing coping strategy (rCSI) was within reference ranging between 11.3-16.6 in Garissa, Mandera, Wajir and Isiolo counties. In Tana River, the rCSI improved by 50 percent compared with same period 2017. Most households were engaged in consumption coping strategies less frequently.

Nutrition situation across the cluster improved significantly with Global Acute Malnutrition (GAM) in Wajir, Garissa (13.7%) and Isiolo in serious phase while Mandera (16.6%), and Tana (15.6%) river is in critical phase. The proportion of children at risk of malnutrition using mid upper arm circumference (MUAC) also reduced compared to the previous year same season

with Mandera at 20.5 percent, Wajir at 14.4 percent, Garissa at 8.8 percent, Isiolo at 14.5 percent and Tana River at 14 percent which is slightly higher than LTA of 13.7 percent.

2.2.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2018	Long Rains Assessment, August 2018 (Current)
Food security phase	Stressed (Phase 2) with some parts of Mandera County, Garissa County and Isiolo and few parts in the pastoral and marginal mixed livelihood zones of Tana River which are classified under "Crisis" (IPC Phase 3).	Stressed (IPC Phase 2) with irrigated livelihood in Mandera classified as Crisis (IPC Phase 3) and mixed farming livelihood zone in Tana River County is classified None (IPC Phase 1).
Food stocks	Household stock is below the LTA across the cluster	Stocks of maize held by various actors were below long term averages across the counties
Livestock body condition	Fair to Poor	Good across the cluster
Household water consumption	15-20 litres per person per day in Wajir, Garissa and Agro-pastoral areas of Isiolo while in Mandera, Pastoral areas of Isiolo and Tana River range from 8-15 per person per day.	Garissa County recorded the highest consumption of 30-40 litres while the lowest consumption of 7-10 litres was recorded in the marginal mixed farming zones of Tana River County
Meal frequency	2-3 Meals per day with 1-2 meals per day in Mandera	2-3 meals across the cluster
HH milk production	Milk production was 0-2 litres across the County	Near normal across the counties except in Garissa. average consumption of milk was 5-6 litres in the pastoral and agro-pastoral livelihood zones in Mandera
Terms of Trade	Below the long-term average across the cluster	Above the 2017. Near normal in Wajir and Tana River. Below in Garissa
Coping strategy index	14.1	Within reference ranging 11.3-16.6 in Garissa, Mandera, Wajir and Isiolo counties. rCSI has improved in Tana River
Food Consumption Score (Acceptable)	88.9%	Significant improved in the cluster, with increased proportion of households with acceptable food consumption score (FCS) to 88.1 percent in Mandera, Wajir and Isiolo and 97 percent in Tana River

2.2.5 Impact of drivers on food and nutrition security

2.2.5.1 Crop Production

The cluster relies on the long and short rains season for crop production. Crop production is practiced under rain fed and irrigation systems. Maize, cow peas, green grams and sorghum are the main crops produced across the cluster**.** Fruits such as banana, mango, and pawpaw and vegetable such as onions, tomatoes, and kales are commonly grown. The riverine areas of Tana River and Garissa Counties produce the bulk of food crops.

Rain fed crop production

Area planted with maize, cowpeas and green grams was 79, 56 and 53 percent of the LTA respectively. Seasonal production for maize, cowpeas, and green grams was 83, 43 and 60 percent respectively of the LTA. Sorghum production remained within the LTA production.

The variation in area was due to delayed land preparation in some cluster areas of Mandera and Wajir. Variation in seasonal production was due to delayed planting, which resulted in wilting of crops at grain setting stage, inadequate and unavailability of certified seeds.

Rain fed crop production

Crop	Area planted during the 2018 Long rains season (Ha)	Long Term Average planted (Ha)	2018 Long rains season production (90 kg bags) Projected	Long Term Average (90 kg bags)
Maize	2,656	3,342	39,004	46,702
Sorghum	513	517.2	7,332	8069
Cowpeas	484	871	3,540	8,210
Green grams	638	1,140	6,270	10,316

Irrigated crop production

Maize, bananas, mangoes, green grams, pawpaw and vegetables such as onions, tomatoes and kales are produced under irrigation in the cluster area. Under irrigated crop production, maize and cow peas were 73 and 57 percent respectively of the LTA. The decline was attributed to floods rendering farms inaccessible for land preparation. This was worse in Mandera, Tana River, and Garissa counties. Seasonal production of maize and cowpeas was 70 and 72 percent respectively of LTA. The decrease in production was due to pests and diseases infestation, poor crop husbandry practices, inadequate and unavailability of certified seeds and reduced area under crops occasioned by flooding of farm lands. However, the area under fruits was above the LTA for banana (30%), and mango (11%) in Tana River and Garissa counties respectively. The improvement was attributed to the above normal rainfall and support from county governments but seasonal production remained within the LTA. However the area under tomato was 57 percent of the LTA due to floods, pest and diseases infestation, high day time temperatures resulting in flower abortion, inadequate and unavailability of certified seeds due high prices.

Irrigated crop production

Crop	Area planted during the 2018 Long rains season (Ha)	Long Term Average planted (Ha)	2018 Long rains season production (90 kg bags)/MT Projected	Long Term Average (90 kg bags)/MT
Maize	71.5	97.5	602	850
Cowpeas	63.5	110.3	517	715
Banana	875	670	8170	8750
Mangoes	600	540	7200	7470

Cereal stocks

The total stocks held by the various actors were above the LTA for all the cereals across the cluster, except green grams. Maize stocks held by farmers were 77 percent of the LTA. The stocks held by traders were above average stocks held and much of it was held in Wajir, Tana River and Garissa counties. The variation in maize stocks held was attributed to reduction in the area under production, floods destruction, pests, disease attack and storage loses. The community conflict in Ethiopia interrupted supplies from Moyale to Mandera. The stocks held by house hold currently are projected to last within two months. Rice stocks held in the cluster are above LTA held. Rice stocks held by traders were three percent above the LTA. The

increase was attributed to community preferences for rice during Ramadhan period. Stocks of sorghum held by farmers and traders were 11 and 26 percent above the LTA. The increase was attributed to above normal rainfall, utilization campaigns in Garissa and supplies from other areas.

Cereals stocks held

Commodity	Maize (90kg bags)		Rice (50kg bags)		Sorghum (90kg bags)		Green gram	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	10,735	13,823	780	700	3062	2758	1156	2,537
Traders	29,002	9,390	75,431	72,724	3575	2821	3,497	3,061
Millers	3969	1768	0	0	50	30	0	0
Food Assistance/ NCPB	0	0	2	3	7724	215	6	7
TOTAL	43,706	24,981	76213	73427	14411	5824	4659	5,605

2.2.5.2 Livestock production

Livestock production contributes about 85 and 45 percent to cash income in the pastoral and agro pastoral livelihood zones respectively. Pasture and browse was adequate across all the livelihood zones compared with the normal fair to poor except pockets of the pastoral areas of Wajir due to cumulative effects of the previous droughts. The forage improvement was attributed to good performance of the long rains. However, forage quality was fast declining due to the high day time temperatures coupled with windy conditions resulting in high evapotranspiration. The available forage is projected to last until the onset of the short rains. Available crop residues provided supplementary feed to livestock. Forage and water were accessible across the cluster except in some parts of Garissa and along the Somalia border due to tsetse fly infestation and insecurity; Mandera East, Lafey and Mandera South due to insecurity along the Kenya –Somalia border; Isiolo (Eldera in Sericho ward and parts of Cherab wards) due to insecurity; inadequate water and tsetse fly infestation. Adult men were mainly tasked to look after livestock in the grazing fields with rare cases of young boys and girls.

Pasture and browse condition

Livelihood	Current	Normal	Duration	Factors affecting accessibility
Pastoral	Good	Good and fair	2-3 months	Vector insects, tsetse infestation, Resource based conflicts and insecurity, inadequate
Agro-pastoral	Good	Good and fair	3- 4 months	Resource based conflicts and insecurity

The livestock body condition was good for all livestock species across the cluster except in parts of Wajir west and south where body conditions were fair due to poor regeneration of pasture and browse. The trend is likely to deteriorating further until the next season.

Livestock body condition

Livelihood zone	Cattle		Sheep		Goat		Camel	
	Current	Normal	Current	Normal	Current	Normal	Current	Normal
Pastoral	Good	Fair – Poor	Good-Fair	Fair	Good-Fair	Good-Fair	Good-Fair	Fair
Agro pastoral	Good	Fair – Poor	Good-Fair	Fair	Good-Fair	Good-Fair	Good-Fair	Fair

Near normal birth rates were reported during the season following the good performance of the long rains and improvement in rangelands vegetation conditions. Tropical Livestock Units (TLUs) ranged between 3 and 10 compared with normal 5 to 15 in all livelihood zones. Previous successive droughts resulted in poor breeding cycle and premature abortions. Household milk production and consumption per day increased in the range of 30 and 50 percent of LTA across all livelihood zones, which is normal for the season. Average milk price per litre decreased by 30 percent of the LTA across all livelihood zones. Mandera County registered the highest milk prices of Ksh 90 per litre.

Milk production, consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres)per Household		Prices Ksh per/Litre	
	Current	LTA	Current	LTA	Current	LTA
Pastoral	1	1 -2	1	1 – 2	50 - 60	60 - 80
Agro pastoral	2	3 – 4	1	2 – 3	40 - 50	40 - 50

The range of return trekking distances to watering points decreased about 50 percent of normal across the cluster, which is not normal for the season. However, some parts of the pastoral areas of Wajir West and Wajir South recorded return trekking distances increased up to eight km compared with the normal five Km. The average watering frequency was once and twice per day for all livestock across the cluster; except one day in a week compared to normal seven days for Camel in Wajir County.

Water situation for livestock

Livelihood zone	Return trekking distances-km		Expected duration to last (Months)		Watering frequency (Days per 7 days)	
	Current	Normal	Current	Normal	Current	Normal
Pastoral	6 – 8	10 -15	2-3	3-4	daily	Daily
Agro pastoral	3 – 4	4 - 8	>3	Unlimited	daily	daily

Livestock migration was minimal since pasture, browse and water were available and accessible in all Counties. However, there was influx of livestock to Mandera County from Ethiopia into Banisa and Mandera West following conflict between the Somali and Oromo of Ethiopia. In Isiolo County (camels and cows) moved to Meru North as a result of insecurity reported in Sericho area in the months of June and July. The reported movement was not normal at this time of the year.

Outbreak of Rift Valley Fever (RVF) was reported in: (Garissa County - Bura and Nanighi wards) with two positive cases confirmed; Dida Ade, Galole-Wenje and Pumwani (Tana River County) with 12 confirmed cases which resulted in abortions and approximately 100 deaths of sheep and goats. Cases of RVF outbreak were also reported in all the wards of Isiolo County. The outbreaks occasioned the imposition of quarantine.

Following the outbreak all markets were closed and consumption of livestock products (milk and meat) depressed. In Wajir County RVF outbreak was confirmed leading to quarantine across the county prohibiting the slaughter, sale, and movement of livestock through early month of July. The ban on local market was lifted on 7th July 2018; but export of livestock and livestock products was still restricted. In parts of Lorian swamp in Habaswein and Arablow area of Wajir South, the vector was still active resulting to nine positive samples collected. The outbreak in Wajir resulted to 82 cases with 7.1 percent case fatality. The Department of Veterinary Services heightened surveillance, awareness creation and vector control across the county. Suspected cases of Foot and Mouth Disease (FMD), Lumpy Skin Disease (LSD), Sheep and Goat Pox, Contagious Caprine Pleuropneumonia (CCPP), Contagious Bovine Pleuropneumonia (CBPP) were reported across the cluster. Current livestock deaths were below alarm livestock mortality thresholds.

2.2.5.3 Market Performance

Most markets operated normally except Bura and Nanighi, Garsen and Habaswen due to an outbreak of Rift Valley Fever (RVF) leading to closure of livestock markets. Food commodity and livestock traded in the markets were sourced locally as well as externally from Nairobi, Mombasa, Malindi, Thika, Mpeketoni, Kitui, Meru, and Nanyuki. Cross border food supplies from Somalia and Ethiopia continued. Traded volumes were normal for livestock except in Isiolo County that reported high sales occasioned by demand for other household needs. Supply and volume of food commodities traded were normal across the cluster.

Maize prices varied across all the Counties in the cluster. Maize prices in Mandera and Wajir Counties were below the LTA while in Isiolo and Tana River Counties the prices were normal. However, in Garissa County, maize prices were above the LTA by 13 percent, which was attributed to floods that destroyed a total of 311 irrigated farms covering an estimated 3,384 hectares (Ha). Road to markets were also cut-off thus constraining the physical access to household food supplies. The highest maize prices were recorded in Mandera County at Ksh 63 per kilogramme (kg) but within normal County LTA; while the lowest was recorded in Wajir and Isiolo Counties at Ksh 48 per kg. The decline in prices was attributed to imports from Thika, Meru and Moyale and food assistance distributed by the National Government – particularly in Wajir County.

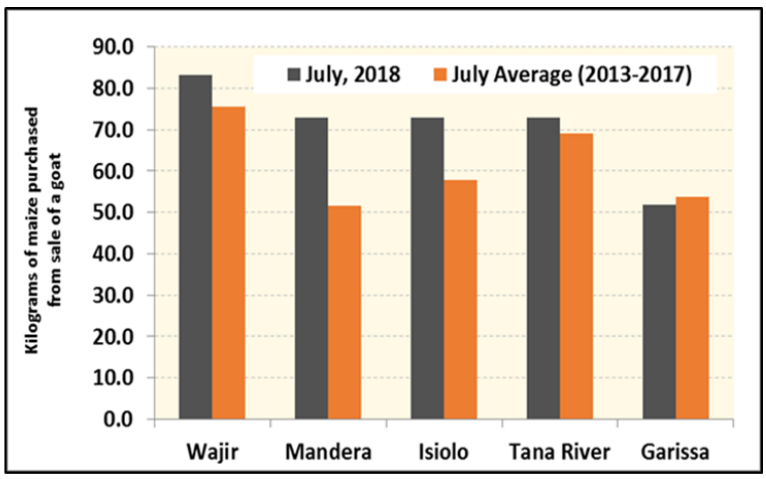


Figure 2.5: Comparative terms of trade in the cluster

Goat prices were above the cluster LTA except in Isiolo County where it was within the LTA. The prices ranged from Ksh 3,105 in Garissa County to

Ksh 4,000 in Mandera County. The high prices within the cluster was attributed the good livestock body conditions as a result of improved forage, restocking to vulnerable households by Regional Pastoral Livelihood Resilience Project (RPLRP) and Iddul-fitri festivity.

The current ToT are above those recorded same period last year across the cluster. Comparison of July ToT showed that Garissa and Tana River Counties remained stable. Wajir recorded the highest ToT where households could purchase 83 kilogrammes of maize from the sale of an average sized goat compared to the LTA of 76 kilogrammes. The lowest ToT was recorded in Garissa County where a sale of goat could purchase 52 kilogrammes of maize compared with the LTA of 54 kilogrammes (Figure 2.5).

2.2.5.4 Water availability and access

The main sources of water for domestic use are rivers, boreholes, water pans, and shallow wells. Recharge of open water sources was 100 percent of their capacity across the cluster. However, poor design, siltation and breaching of banks /embankments affected several pans /dams reducing harvesting to about 60-80 percent of capacity. Open water sources are currently at 50 to 70 percent capacity while rivers have adequate volumes. The recharge impacted positively in terms of water availability and access.

Average return trekking distances to water sources remained within the normal range of less than 1- 4 kilometres. The reported stability in distances was occasioned by the improved water availability. However, in the pastoral zones of Garissa and Mandera the return trekking distances increased to 5-10 kilometres. The distances also increased in the agro pastoral zones of Garissa from the normal 0.5-3 kilometres to 5-10 kilometres due to destruction of water systems by floods.

The waiting time was within the normal range of less than five minutes for households relying on open water sources. However, households relying on boreholes and piped water, waiting time varied from 20-30 minutes in the pastoral zones except in Garissa where waiting time was normal at 10-15 minutes. Longer waiting time of 30-60 minutes were witnessed at Mnazini borehole in Tana River, Lafey in Mandera, Sericho township and Bisan Biliqo in Isiolo County. The increase in waiting time was attributed to breakdown of adjacent boreholes, high concentration of humans and households' preference of piped water from the schemes to pans/dams.

The average cost of a 20 litre jerrican was normal for the cluster ranging between Kshs 2-5 except under special arrangements between the households and water management committees for monthly payments of between Ksh.50 and 100 for water for domestic use and livestock. Water from open sources is however free. Cost from vendors ranges from Ksh. 10-30 per 20 litres jerrycan, though there was a marked reduction in the numbers of vendors due to alternate water sources.

Water consumption in litres per person per day was within the normal range of 15-20 in Wajir, Mandera, Isiolo and mixed farming zones of Tana River. Garissa County recorded the highest consumption of 30-40 litres while the lowest consumption of 7-10 litres per person per day was recorded in the marginal mixed farming zones of Tana River County.

2.2.5.5 Food Consumption

The cluster registered significant improvement in household food access. The proportion of households with acceptable food consumption increased to 88 percent in Mandera, Wajir and Isiolo Counties and to 97 percent in Tana River County compared to the same period last year. The improvement in household consumption was as a result of increased household milk consumption and market access due to favourable ToTs. However, in Garissa County, the proportion of households with acceptable food consumption declined by 28 percent. The deterioration could be as a result of the below normal household milk production and consumption in the county due to the effects of 2017 drought. The situation in Garissa was further compounded by floods that destroyed productive assets and displaced households thus constraining household food access.

2.2.5.6 Coping Strategies

The mean reducing coping strategy index (rCSI) for the cluster remained stable and within reference in Garissa, Mandera, Wajir and Isiolo Counties but improved by 50 percent in Tana River County when compared with the same period last year. The improvement implied that households were engaging in consumption-based coping strategies less frequently. Most of households were employing less severe coping strategies such as reduction in portion size and number of meals eaten per day and reliance on less preferred/less expensive food. Female headed households presented higher rCSI indicating that household food stress was higher in those households than in male headed households.

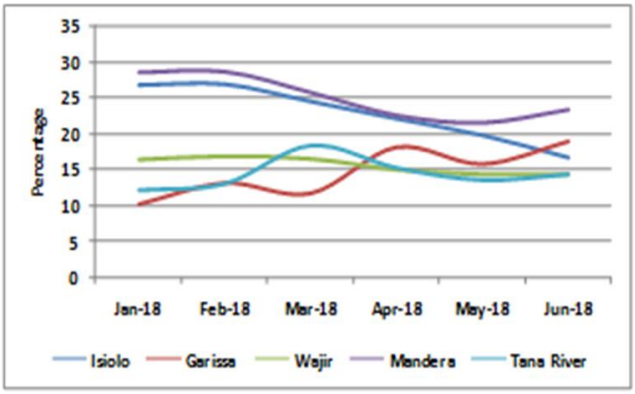
Coping strategy index by livelihood zones

Livelihood Zone	Month of Year	Mean
Eastern Pastoral (Tana River)	May-17	22.1
	May-18	11.3
Grasslands Pastoral (Garissa)	May-17	12.8
	May-18	12.6
North-eastern Pastoral (Mandera, Wajir, Isiolo)	May-17	13.1
	May-18	16.6

In Mandera, Wajir and Isiolo Counties, the number of households not employing any livelihood coping strategy iincreased from 5.5 percent in May 2017 to 29.8 percent in May 2018, which is indicative of significant improvement in food availability and access. Some 43 percent of households in Garissa, and 52.3 percent of households in Mandera, Wajir and Isiolo Counties employed stress livelihood coping strategies. The proportion of households employing crisis and emergency livelihood coping strategies reduced in Mandera, Wajir and Isiolo Counties from 23.4% and 17.9% in May 2017 to 12.3% and 5.6% in May 2018 respectively.

2.2.5.7 Health and Nutrition

The nutrition situation across the cluster improved significantly. According to the July 2018 SMART Survey, global acute malnutrition (GAM) for Garissa was 13.7 percent indicating a serious phase while Mandera and Tana River Counties were in critical Phase with GAM rates of 16.6 and 15.6 percent respectively. The improved nutrition status from the previous year same season, was attributed to enhanced household food availability associated with above normal rainfall, income and support programmes. Isiolo reported increased vegetable availability from irrigated areas. The proportion of children at risk of malnutrition using mid upper arm circumference (MUAC <135mm) as at July 2018 was below the LTA across the cluster. Trends from January to June 2018 indicated a stable nutrition status.



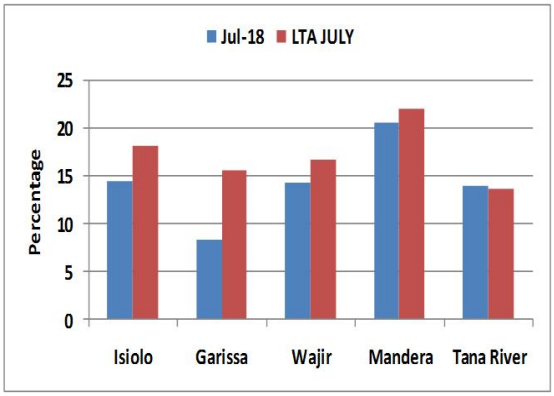


Figure 2.6: Children at Risk of Malnutrition (MUAC <135mm)

Morbidity trends

The common morbidities of upper respiratory tract infections, malaria and diarhoea prevailed with noted increase in reported cases for the period January to June 2018 compared to the same period last year. Urinary tract infections were however reported to be higher in Wajir, while dysentery was higher in Mandera. Malaria cases for children under five reduced in Tana River as attributed to mass provision of mosquito nets especially in camps and flooded areas. Some 82 cases of Rift Valley Fever (RVF) were reported in Wajir. Measles and cholera outbreak with 27 and 14 cases respectively and some 205 cases of dysentery were reported in Tana River County. Community interviews in Wajir cited non communicable diseases as an emerging issue. There were no unusual mortalities and the reported cases were within normal thresholds.

Immunization and Vitamin A supplementation coverage

Immunization coverage improved across the cluster however remained below the national targets except for Tana River at where the proportion of the fully immunized children (FIC) was at 90 percent. Isiolo had the lowest coverage of FIC at 32 percent. Vitamin A supplementation coverage was below the national target across the cluster with Mandera having the lowest at 7.7 percent. The low coverage in Mandera was attributed to insecurity as a hindering factor to accessing health facilities and carrying out outreaches. Wajir County had the highest at 55 percent but still below the National target of 80 percent. Dietary diversity improved with most households consuming 2-3 meals per day comprising 4-5 food groups. Exclusive breast feeding rates in Tana River are 69.9 percent and data was unavailable for the other counties in the cluster.

Hygiene and sanitation

Hygiene and sanitation is a key underlying factor in prevention of morbidities and subsequent improvement in nutrition status. Open water sources remained the main suppliers of the household water needs in the cluster. The use of water from unprotected sources which is closely associated with increased waterborne diseases was common. Garissa reported higher (78%) use of water from protected sources followed by Isiolo (72%). Water treatment was low with households citing inadequate water treatment chemicals as the main cause. Latrine coverage improved significantly with Garissa having the highest at 73.8 percent while Tana River had lowest at 43.1 percent. Hand washing at the four critical times remained low at less than 30 percent across the cluster; with Tana River reporting the lowest at 9.5 percent rate.

2.2.5.8 Education

Boys had a higher enrolment at all school levels representing 54, 57 and 61 percent at ECDE, primary and secondary respectively. Over a period of one year, there was an increase in enrolment of 46, 53 and 61 percent at the ECD, primary and secondary level of education respectively. The improvement was attributed to the increased household food access following the enhanced long rains, establishment of new schools in the numerous emerging settlements as well as availability of school meals.

Enrolment in the Cluster

	Term 1			Term 2		
Enrolment	**Boys**	**Girls**	**Total**	**Boys**	**Girls**	**Total**
ECDE	45432	38823	84255	48008	41196	89204
Primary	159370	120169	279539	165928	125374	291302
Secondary	33245	20999	54244	33942	21594	55536

In Garissa County, there was significant inter-county transfer of students due to flooding in Mwea, Makima and Kiambere wards which caused infrastructural damage in 42 schools, crippling learning.

Participation (Attendance rate)

Attendance was high in most of the region for first and second school terms of 2018. In Wajir County however there was low attendance reported in term one in schools in parts of Buna, Tarbaj and Wajir East that were affected by inter-clan conflicts and al-Shabaab terrorist activities. Boys had higher school attendance compared to girls; which was attributed to cultural beliefs promoting early marriages, house chores as well as menstrual cycle challenges among girl students. In Mandera County, attendance was above 95 percent in term two due to the above-normal rainfall leading to availability of pasture hence livestock were grazing near the homestead thus minimizing migration and enabling children to attend and concentrate in school.

Retention (Dropout rate)

School dropout rates were low apart from Garissa County which stood at 12 percent at the primary school level. The decline in retention was as a result of flooding that caused damage to schools, migration to higher grounds, insecurity, teacher absenteeism, early marriages and parental negative attitude towards education. Dropout rates for boys were higher in primary school as they are engaged in animal husbandry. In secondary schools, dropout rates were higher among girls which was attributed to early marriages and the negative cultural beliefs towards girl child education. Islamic early learning classes locally known as *Duksi*, have largely contributed to late enrolment of pupils to schools as children attend these classes up to thirteen years of age.

School meals programme

In total 298,350 children are beneficiaries of school feeding programmes including; ECDE feeding programme and WFP in-kind school meal programme implemented in Garissa, Regular School Meals Programme (RSMP) implemented in Mandera and Wajir and the Home

Grown School Meal Programme (HGSMP) implemented in Tana River and Isiolo. In Garissa County however, the school meals programme was temporarily interrupted in 45 schools within Hulugho, Balambala, Fafi, Lagdera and Garissa sub counties due to flooding that destroyed schools' infrastructure. In addition, about 60 percent of school stores have no pallets leading to poor storage practices of food and might lead to food spoilage and losses in the county. Other challenges hindering the school meal programmes in the northeast pastoral cluster include; acute water shortages restricting the ability to cook, lack of firewood during the rainy period, lack of food for the ECD's and a cholera outbreak that occurred in Madogo, Tana River County. Nevertheless, the regular supply of food to schools has improved access, participation and retention in the schools. In Mandera and Wajir, the government has gradually been taking over the responsibility of providing meals to schools since 2009.

Inter-sectoral links

In the entire cluster water and hygiene remain a big issue with inadequate latrines and handwashing facilities. In Garissa and Tana River, schools along the riverine areas were affected by floods and some schools hosted internally displaced persons (IDPs) resulting in poor hygiene for both the pupils and IDPs as they had to share the available facilities. In Isiolo, as a result of insecurity, some pupils from Ngare Mara area camped at Catholic Mission in the area. Pupils from Tana Athi primary School migrated to Dida Abakiri primary school in Garbatulla. Similarly, Eldera primary school was closed and pupils relocated to Garbatulla Day school owing to insecurity.

2.3 The Agro - pastoral Livelihood Cluster

2.3.1 Cluster Background Information

The cluster consists of six counties; Baringo, West Pokot, Laikipia, Kajiado, Narok and Nyeri. It covers an estimated area of 71,471 square kilometers with a projected population of 3,983,079 persons (KNBS Projection, 2016). The cluster has six livelihood zones with pastoral livelihood zone accounting for 27 percent of the population while agro-pastoral, mixed farming, marginal mixed farming and formal employment/tourism/trade/business zones accounts for 11, 31, 20 and 10.7 percent respectively (Figure 2.7).

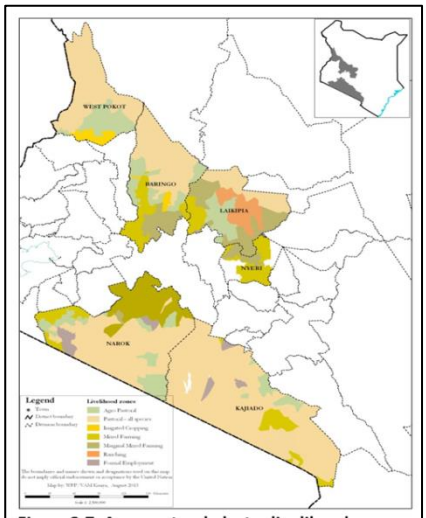


Figure 2.7: Agro pastoral cluster livelihood zones

2.3.2 Current Drivers of Food Insecurity

Rainfall performance

The onset of the long rains season in the cluster was early in the first dekad of March compared to the normal second dekad of March except in Narok where it started earlier in the third dekad of February compared to the normal onset in the second dekad of March. The cumulative amount of rains received during the season ranged between 350 mm and 931 mm which were above 350 percent of the normal rainfall. Baringo received the highest cumulative amounts of rainfall at 931 mm. Temporal and spatial distribution of the rain was good and even across all the livelihood zones in the cluster. The rains ceased in the third dekad of May in Kajiado and West Pokot while in Baringo and Nyeri cessation was late in the third dekad of June as compared to a normal of third dekad of May. In Laikipia, the rains ceased in second dekad of July compared to the normal first dekad of June.

Conflicts/Insecurity

Isolated cases of human–wildlife conflict were reported in the pastoral and agro-pastoral zones of Kajiado and Narok, which resulted to destruction of crop and competition for pasture, browse and water. Wildlife invaded some of the farms destroying crops hence reducing crop yields. There were reported cases of inter-ethnic clashes in parts of Transmara East and West in Narok County that resulted in disarmament exercise by the county and national government. In Nyeri, human-wildlife conflicts in Kabaru Ward hindered access to farmland for households living on the fringes of Tagwa Forest. In addition, there was a likelihood of escalation of conflict as livestock from Laikipia were migrating into Kieni East Sub County. In West Pokot, insecurity incidences were reported that resulted to the closure of Chesegon and Kameli markets.

Other Shocks and Hazards

Rift Valley Fever (RVF) outbreak and Blue Tongue disease were reported in pastoral and agro pastoral livelihood zones of Baringo South. In crops, Fall Army Worm (FAW) infestation was reported across the cluster leading to decreased harvests. Above average rainfall received across the cluster led to flooding which caused crop losses through water logging, washed away irrigation farms and destroyed crops due to damage of water canals. Parts of West Pokot experienced landslides, mudslides and incidents of falling rocks due to the heavy rains that pounded most parts of the county.

2.3.3 Current Food Security Situation

Baringo, Laikipia, West Pokot, Nyeri (Kieni) and Narok are classified in Minimal (IPC Phase 1) across all the livelihood zones while Kajiado County is classified in IPC Phase 1 in the mixed and agro pastoral livelihood zones but the pastoral livelihood zone is in Stressed (IPC Phase 2). The total maize and beans stocks in the cluster are 99 and 21 percent above the LTA. Household water consumption in the mixed farming livelihood zones was above 15 litres per person per day while in the agro pastoral and pastoral livelihood zones consumption was 10 – 30 litres per person per day. In the irrigated cropping and mixed marginal farming water consumption were 25-30 and 16 litres per person per day respectively.

Meal frequency was 2-3 times a day across all livelihood zones in the cluster. Narok County had household's maize stocks at 178 percent above the LTA. More stocks were held by traders and millers across all livelihoods due to lack of produce from the farms. While in Laikipia, maize stocks were 57 percent of the LTA, attributed to poor maize market prices due to imports from neighbouring countries. The current terms of trade are favourable across the cluster ranging from 71 kg to 131 kg of maize exchanged from sale of a goat. Milk consumption was above the long term average in West Pokot and Nyeri. In Kajiado and Laikipia, milk consumption was above and near normal respectively except in the pastoral and marginal mixed farming livelihood zones which recorded below normal consumption. However, milk consumption was below average in Narok.

In July 2018, the proportion of households with acceptable food consumption ranged between 51 and 91 percent, while households with borderline consumption ranged from 8 to 30 percent. Households with poor consumption scores were highest in Kajiado at 19 percent and lowest in West Pokot, Baringo and Laikipia. The mean reduced coping strategy index (rCSI) for Nyeri, Narok and Kajiado were less than 10 while in Baringo Laikipia and West Pokot the rCSI was 14 in July 2018. There was low proportion of children at risk of malnutrition in Baringo (6.9%), Laikipia (1.8 %), Kajiado (10.6%), Narok (6.5%) and West Pokot (4.7%).

The proportion of children under five at risk of malnutrition based on mid upper arm circumference (MUAC<135mm) were below the long-term average across the cluster except in Kajiado where it was above the long term average. In West Pokot significant improvement in the nutrition status was recorded with the current Global Acute Malnutrition (GAM) rate standing at 11 percent a reduction from 20.4 percent reported in the same period last year. In Narok and Kajiado counties GAM prevalence by weight for height (WFH) Z scores were 6.8 and 10 percent respectively.

2.3.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2018	Long Rains Assessment, August 2018 (Current Season)
Food security phase	**Minimal-**Baringo (Mixed farming & Irrigated**)**, W. Pokot (Mixed farming), Narok (mixed farming) and Laikipia (Mixed farming). **Stressed-**Baringo (Pastoral and Agro-pastoral**)**, W. Pokot (Pastoral & Agro-pastoral), Narok (Pastoral and Agro-pastoral) and Laikipia (Pastoral and Agro-pastoral). **Crisis**-Kajiado	Minimal-Baringo, Laikipia, West Pokot, Nyeri- Kieni and Narok across all livelihood zones. Kajiado County is classified as "Minimal" (IPC Phase 1) in mixed and agro pastoral livelihood zones while it is "stressed" (IPC Phase 2) in some pastoral zone.
Percent maize stocks at HH level	40 percent of LTA	The total maize and beans stocks in the cluster are 99 and 21 percent above the LTA
Household water consumption	**Mixed farming zones** (10-15 per person per day) **Agro Pastoral and Pastoral zones** (5-10 per person per day)	Mixed farming livelihood zones was above 15 litres per person per day Agro pastoral and pastoral livelihood zones consumption was 10 – 30 litres per person per day Irrigated cropping and mixed marginal farming water consumption was 25-30 and 16 litres per person per day
Meal frequency	**Mixed farming zone**s (Baringo, W. Pokot, Narok & Laikipia) 2-3 meals per day, **Pastoral & Agro-pastoral** (Baringo, W. Pokot, Narok, Laikipia) 1-2 meals per day	2-3 meals across the cluster.
Terms of trade	**Below LTA** (Baringo, Kajiado, Narok and Kieni) **Above LTA** (W. Pokot and Laikipia)	Above LTA in W. Pokot, Laikipia, Baringo, Kajiado, Narok and Nyeri-Kieni
Coping strategy index	15.74 Baringo, 9.1 W. Pokot 6.93 Kajiado, 4.91 Kieni 3.74 Laikipia, 3.40 Narok	Baringo-14.1 W. Pokot 14.1 Kajiado-7.1 Nyeri-Kieni 3.6 Laikipia 14 Narok 3.5
Food consumption score	Poor: 5.5 percent Borderline: 18.2 percent Acceptable: 76.4 percent	Poor: 1.1 Borderline: 8 Acceptable: 90.9
Children at risk of malnutrition	**Reduction**-Laikipia (1.9 percent), Nyeri-Kieni, Narok (8.3 percent) and West Pokot (5.8 percent) **Increased-** Kajiado (17.6 percent) and Baringo (18.0 percent)	MUAC (<135mm) data were below the long-term average across the cluster except in Kajiado where it was above the long term average

2.3.5 Impact of Drivers on Food and Nutrition security

2.3.5.1 Crop Production

Rain fed crop production

The cluster is mainly dependent on the long rains season for crop production. Crop production contributes 30 percent to food and about 40 percent to cash income for households. The main crops grown in the cluster include maize, beans and irish potatoes. Other crops grown include sorghum, and finger millet. Area under maize and potatoes was within normal while that of beans was 10 percent above the LTA. Production for maize and beans was 24 and 13 percent above the LTA while that of potatoes was within normal.

Farmers delayed planting because most of the farms were inaccessible with machinery in the low lying areas of Kerio valley and Churo Amaya in Baringo County due to the heavy rains. In Baringo there was increase in production of maize which was attributed to timely and above normal rains and massive campaigns by the county government aimed at increasing food production through provision of inputs. Further, despite the attack of maize crop by Fall Army Worm (FAW), production is expected to be above the LTA, since farmers controlled the worm and also the continuous rains reduced the effects of the pest. Efficient advisory services and enhanced use of certified seeds led to the above LTA production of irish potatoes.

Rain-fed Crop Production compared to LTA

Crop	Area planted during 2018 Long rains season (Ha)	Long Term Average area planted during the Long rains season (Ha)	2018 Long rains season production (90 kg bags) Projected/Actual	Long Term Average production during the Long rains season (90 kg bags)
1. Maize	207,578	204,807	5,746,430	4,633,232
2. Beans	95,086	86,428	821,822	724,585
3. Potatoes	17,892	17,723	1,820,150	1,797,049

Irrigated crop production

Irrigation is mainly done in irrigation schemes, along rivers. The area under irrigation for cabbage and beans was 60 and 99 percent of the LTA while that of tomatoes was 15 percent above the LTA. Production of cabbage was 26 percent of the LTA while tomatoes and beans were normal. Notably, irrigation of high value crops is managed by men for commercial purposes while the women and youth provide the labour on the farms.

Irrigated Crop Production

Crop	Area planted during 2018 Long rains season (Ha)	Long Term Average area planted during the Long rains season (Ha)	2018 Long rains season production (Tones) Projected/Actual	Long Term Average production during the Long rains season (Tones)
Cabbages and Kales	591	982	18,070	67,784
Tomato	848	734	15,012	14,762
Beans	427	430	40,088	40,107
Onion	212	120	5,600	4,000

Cereal stocks

The current maize and green gram stocks held by households was 61 and 47 percent respectively above the LTA attributed to above normal long rains. The total maize and beans stocks in the cluster are 99 and 21 percent respectively above the LTA and are expected to last for three months. The above LTA maize stocks held by farmers and traders is attributed to low maize prices in the markets making farmers to hold their maize stocks while traders do not have outlet for their stocks and because they purchase at lower prices from farmers. In addition, NCPB did not absorb most of the maize as anticipated. However, the households without stocks will rely on markets for their provisions.

Cereal stocks

	Maize		Sorghum		Green gram		Wheat		Beans	
Commodity	Current	LTA	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	347,360	215,910	18,104	18,903	4,448	3,020	1,507	15,000	56,175	42,600
Traders	367,097	80,863	346	930	2,018	1,500	1,212	22,100	10,926	14,250
Millers	70,921	34,707	78	100	0	0	3,809	30,600	19,531	15,050
Food Assistance/ NCPB	1,832,490	982,636	0	0	0	0	100	12,000	109,983	91,025
Total	2,617,868	1,314,116	18,528	19,933	6,466	4,520	6,628	79,700	196,615	162,925

2.3.5.2 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, pastoral and agro pastoral. The pasture and browse condition is good across all livelihood zones in the cluster which is normal for the season. Forage is limited in the pastoral livelihood zone of North Pokot due to the encroachment of forbs and Acacia species, which have hindered growth. In some parts of Kieni East (Thegu) and in Kieni West (Karemeno and Lamuria) in Nyeri County; Shompole and Pakase areas in Kajiado County there were reported cases of Tsetse infestation. The forage condition is projected to deteriorate fast due to frost attacks and strong winds in parts of Kieni – Nyeri County.

Pasture and browse condition

Livelihood zone	Pasture condition			Browse condition		
	Current	Normal	Projected Duration to last (Months)	Current	Normal	Projected Duration to last (Months)
Mixed farming zones	Good	Good	3	Good	3	5
Marginal mixed farming	Good	Good	3	Good	3	5
Pastoral	Good	Good to Fair	3	Good to fair	2	4-5
Agro pastoral	Good	Good	3	Good	3	5

Livestock body condition was good to fair which was above normal for all species in both mixed farming and agro pastoral livelihood zones attributed to availability of adequate pasture and browse, water and minimal livestock migration. The situation has further been improved by availability of crop residue that formed part of the livestock feeds.

Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normally	Current	Normally	Current	Normally
Mixed farming zones	Good	Good to fair	Good	Good	Good	Good
Marginal mixed farming/Mixed farming	Good	Good to fair	Good	Good	Good	Good
Pastoral	Good	Fair –good	Good	Good	Good	Fair to good
Agro pastoral	Good	Good to fair	Good	Good	Good	Good

The tropical livestock units (TLUs) in the mixed farming and marginal mixed farming zones across the cluster remained stable with two to six for poor and six to ten for medium income households. In the pastoral and agro-pastoral zones of Kajiado and Narok, households owned between 10 and 15 TLUs from an average of 20-25. The TLUs have declined by 50 percent when compared to LTA. The decline is attributed to high mortalities during the drought of 2015 to 2017. Milk production and consumption at household levels were normal at 2.5 litres to 5 litres due to the good body condition across all the livelihood zones in the cluster. Milk retailed at an average Kshs 30 per litre in the mixed farming livelihood zones which is below the LTA of Kshs 40 due to an increase in production attributed to availability of pasture and crop residues, and Kshs 40 per litre in the agro pastoral and pastoral livelihood zones which was normal.

Milk production, consumption and pricing

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household		Prices (Ksh)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Mixed farming zones	5	5	3	3	30	40
Marginal mixed farming/Mixed farming	3.5	3	2	2	30	40
Pastoral	2	1	0.5	1	40	40
Agro pastoral	3	2	1	1	40	40

The return trekking distances remained normal across all livelihood zones in the cluster. Available water is expected to last 2-3 months in the pastoral and 5-6 months in the agro pastoral and mixed farming livelihood zones. Watering frequency was daily or twice for all livestock except in the pastoral which was 3 days per week; which is normal for the season.

Water situation for livestock

Livelihood zone	Return trekking distances-km		Expected duration to last (Months)		Watering frequency (Days per 7 days)	
	Current	Normal	Current	Normal	Current	Normal
Mixed farming zones	Less than 1km	<1	6	6	7	7
Marginal mixed farming	Less than 1 km	<1	6	6	7	7
Pastoral	3-5	5	3		3	3
Agro pastoral	1-2	3	4		4	4

There were limited livestock migrations in the cluster in the period under review, largely attributed to absence of conflicts and availability of water, pasture and browse across the counties. However, it was reported that herds of about 200 heads of cattle migrated into Kieni East Sub County, Nyeri County from neighboring Laikipia County and are grazing around Naromoru area. There was an upsurge of livestock diseases such as Contagious Caprine Pleuro Pneumonia (CCPP), Peste des Petits Ruminants (PPR), Enterotoxaemia and Heart Water which mostly affected sheep and goats. Cases of Lumpy Skin Disease (LSD) were reported in parts of Naromoru/Kiamathaga in Nyeri County, and Kajiado County. There were no unusual mortalities reported across the cluster.

2.3.5.3 Market Performance

Market operations remained normal for most markets across the cluster with exception of Kamelei and Chesegon markets in West Pokot County that remained closed due to insecurity and also Barwessa market in Baringo County which was closed due to imposition of quarantine as a result of outbreak of Lumpy Skin Disease (LSD). The main livestock sold in the markets included cattle, goats, sheep, camels and poultry while food commodities included maize, millet, sorghum, rice, beans, beans, kales, cabbages and irish potatoes among others.

Supply of food stuffs and other livestock product come from within the cluster and from other counties like Elgeyo Marakwet, Nakuru, Uasin Gishu, and Isiolo; and terminal markets in Nairobi, Kiambu, Nakuru, Nyandarua, Kisii, and Bomet counties. Other supply sources include the neighbouring countries of Tanzania and Uganda. There were high volumes of food commodity traded in the cluster as traders held above their long term average stocks especially cereals.

However, demand was currently low especially for food commodities as only 35 percent of the households were sourcing food from the local markets due to increased household stocks. There was low livestock volumes traded in the market as famers were not willing to sell their livestock due to availability of forage and the upward trend in livestock body condition. However, demand for small stock increased due to rise in the number of livestock keepers who were eager to build their herds.

Maize prices in the cluster have been on a downward trend due to on-farm maize harvest that replenished household stocks. Maize prices were below the long term average with prices ranging from Kshs 30 per kg recorded in West Pokot and to Kshs 43 per kg recorded in Kajiado County. The low price recorded in West Pokot County was attributed to availability of stocks from previous season and external supply of surplus maize from the neighbouring Trans Nzoia County and Uganda. Maize prices are projected to continue declining further as farmers continue harvesting. There was a significant improvement in the goat prices due to the good

bod condition for goats with highest price reported in Laikipia at Ksh 3,820 while Baringo County had lowest average price at Ksh 2,972 although remained above the long term average by 41 percent.

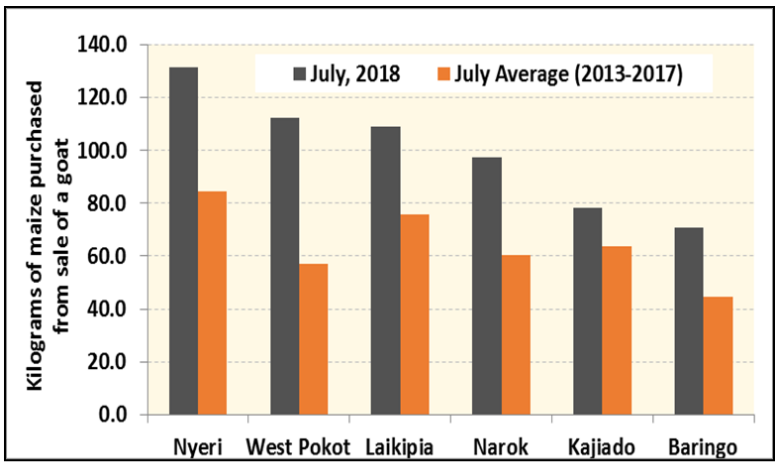


Figure 2.8: Comparative terms of trade in the cluster

There was a general improvement in the terms of trade across the cluster for the season under assessment. Terms of trade are currently above the long term average and those recorded at similar period last year which is mainly attributed to below long term average maize prices. Comparatively, Nyeri County recorded the highest terms of trade where households were able to purchase 131 kg of maize from the sale of one average sized goat against the long term average 84 kg of maize. Baringo county had the least terms of trade within the cluster at 71 kg of maize from the sale of an average sized goat but which was still above the July long term average of 45 kilogrammes as shown in Figure 2.8.

2.3.5.4 Water Availability and Access

The main sources of water for domestic use are rivers, shallow wells, pans, dams, boreholes, springs and roof-water harvesting. All open water sources were fully recharged due to the above normal rains and are currently holding about 70 percent of their water capacities except Kajiado which had about 60 percent full. 10 dams in Kieni were not operational due to siltation and broken embankments. About 40 percent of newly excavated water pans in Laikipia and Nyeri did not hold water after rains due to poor workmanship. Most boreholes are operational except 12 out of 31 boreholes in Kieni and 55 out of 165 boreholes in Kajiado due to high cost of electricity and fuel, lack of pumping equipment and vandalism. In Baringo, water intakes in Sandai, Kamuskoi, Endao, and Salabani were destroyed and some silted by floods. The current water sources are expected to last until November. Normally, open water sources in the pastoral areas of Kajiado, Narok and Baringo get depleted towards end of September.

Return distances to water sources have remained normal at 1-2 km in Laikipia, Kieni, mixed farming and agro-pastoral areas of West Pokot and mixed farming and irrigated zones of Baringo. Return distance to water sources have reduced to 3-5km in the pastoral areas of Kajiado, Narok, West Pokot and Baringo from the normal 5-10km in Kajiado and Narok. Normal return distance in Baringo and West Pokot is 4-5km. The average waiting time is normal at less than 5 minutes in Baringo and Kieni and between 10-30 minutes in Laikipia, Kajiado and Narok. Waiting time in the agro-pastoral and mixed farming zones of West Pokot reduced to 30 minutes while in the pastoral zone; it had reduced to 60 minutes from the normal 1-2 hours.

Most households are relying on open water sources hence do not pay for water. However, few households are buying at Kshs 2-5 per 20 litres jerry can across the cluster except Muthingira, Mwihoko, Kiawara and Lachuta in Kieni where cost per 20 litres jerry can is Kshs 10-20. Dependency on vendors has reduced and the few vendors available are selling at Kshs 15-20

in Baringo and West Pokot. Water consumption has improved to 20-30 litres per person per day in most parts of the cluster. However, consumption is 10-20 litres per person per day in the pastoral areas of Kajiado and pastoral and agro-pastoral areas of West Pokot. Normal consumption per person per day is usually 15-20 litres in the pastoral and agro-pastoral areas of Baringo and 5-10 litres in West Pokot.

2.3.5.5 Food Consumption

Food consumption generally increased in all counties within the cluster during the assessment period compared to a similar time last year. The mean food consumption score for the Laikipia, Nyeri, and West Pokot and Baringo counties was 65.4 in May 2018 compared with 43.3 in May last year. Food consumption had improved evidenced by the increase in the proportion of households with acceptable food consumption. In addition, the proportion of households with poor food consumption had decreased from 14 percent in May 2017 to 1.1 percent in May 2018 Implying reduced food consumption gaps. In West Pokot County, the results from the SMART survey also displayed a similar trend as the proportion of households in the same cohort reduced from 6.7 percent in June 2017 to 2.8 percent in June 2018.

Food consumption was slightly better in male headed households compared with female headed households as no male headed had poor food consumption compared with 3.6 percent in female headed households. Additionally, approximately 92.7 percent of male headed had acceptable food consumption compared with 86.9 percent of female headed households. In Kajiado County, food consumption gaps decreased in July 2018 compared with a similar time last year as only approximately 3.5 percent of households had poor consumption compared to 20.7 percent in July 2017. A similar trend was displayed in Narok County where the proportion of households with poor food consumption reduced from 22.7 percent to one percent during the same period. The improved food consumption across the cluster was owed to improved crop and livestock production that increased food availability and access.

2.3.5.6 Coping Strategy Index (rCSI)

The current coping strategy index for Baringo, Laikipia, Nyeri and West Pokot counties, was 14.1 in May 2018 an improvement from 18.6 in May 2017. The improvement implied a reduction in the frequency and severity of employing consumption-based coping strategies currently compared to a similar time last year. However, the index was higher for female headed at 17.5 compared with that of male headed households at 12.6 implying that the former had more food stress to a larger extent than the latter and also with slightly increased severity.

In Kajiado County, the index decreased from 6.5 in July 2017 to 5.5 in July this year. Narok County followed a similar trend where the rCSI decreased from 7.5 to 3.1 during the same period. The reduction in rCSI across the cluster implied a reduction in the application of consumption-based coping strategies attributed largely to the increased food availability and access as the above-average rains had resulted in positive and significant improvements in both crop and livestock production which are the major income earners in the cluster.

2.3.5.7 Health and Nutrition

Nutritional Status and Dietary Diversity

SMART Survey conducted in West Pokot County based on weight for height (WFH) Z scores indicate a significant improvement in the nutrition status as Global Acute Malnutrition Rate (GAM) was 11 percent a reduction from 20.4 percent reported in the same period last year. The nutrition situation is currently at “Serious” an improvement from “Critical” levels recorded in the previous survey done in 2017. The decrease in malnutrition rate was associated with

accelerated health and nutrition response carried out in the county coupled with increased outreaches where Integrated Management of Acute Malnutrition (IMAM) was up scaled and provision of a protection ration through Linda Lishe Bora (LLB) program. The improvement in the nutrition status among the children was also attributed to the availability of milk at the household which consequently led to increased milk consumption. In Narok and Kajiado counties, SMART survey found GAM prevalence rate by weight for height (WFH) Z scores were 6.8 and 10 percent respectively.

In July 2018, the proportion of children under five at risk of malnutrition based on Mid Upper Arm Circumference (MUAC <135mm) data were below the long-term average across the cluster (Figure 2.9), except in Kajiado where it was above the long term average. Trends from January to June, 2018 indicate that the nutrition status was stable across the cluster and improving in Baringo, Kajiado and Narok counties where it was on a downward trend since April this year. The improving nutrition status was attributed to the current availability of food across the cluster. Availability of milk led to improved milk consumption. Meal frequency was

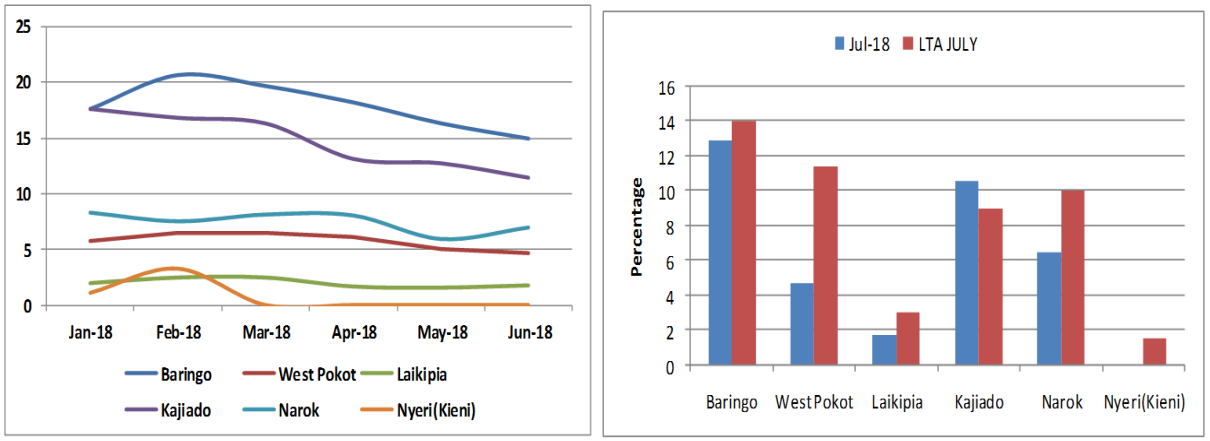


Figure 2.9: Children at Risk of Malnutrition (MUAC <135mm)

normal across the cluster as majority of the households consumed three meals. The meal frequency had improved when compared to the short rains season largely due to the current availability of food. Dietary diversity was equally good as majority (90%) of the households consumed at least 4-5 food groups in across the cluster.

Morbidity and Mortality Pattern

The three most common diseases reported were Upper Respiratory Tract Infections (URTI), malaria and diarrheoa across the cluster. In the period January to July, 2018, URTI and malaria cases were on the increase across the cluster except in West Pokot where they reduced as a result of campaigns against malaria and also up scaled distribution of long lasting insecticide treated nets (LLITNs). Trends of diarrhea from January to June this year also increased compared to the same period last year which was attributed to contamination of water sources and poor sanitation and hygiene practices. There was a cholera outbreak in West Pokot where a total of 327 cases were reported. The outbreak was related to the contamination of water source with human faecal matter following the heavy rains considering that the proportion of people doing open defecation at the county was high (46.8%) coupled by low water treatment practices.

Immunization and Vitamin A supplementation

The proportion of fully immunized child across the cluster was below the national target of above 80 percent except for Laikipia and Kajiado counties which reported 80.3 and 108 percent

respectively. In Nyeri (Kieni) County, the proportion was slightly below 80 percent at 79.3 percent. The lowest percentage was reported in West Pokot County at 48.2 percent. Even though the immunization coverage in January to June this year was still low, there was notable increase compared to the same period last year across the cluster. The general increase was attributed to integrated outreaches in the various counties which were supported by various organizations and the county governments. Vitamin A supplementation for children aged 6-59 months was below the national target of 80 percent across the cluster and ranged between 40-60 percent with the lowest being reported by Narok and West Pokot counties at 18 and 24.8 percent respectively. There is need to upscale Malezi Bora activities and supplementation through ECDE centres as this was seen to increase the coverage this year when compared to last year.

Hygiene and Sanitation

Water is largely available across the cluster however sanitation and hygiene practices still remained wanting. Hand washing practices was practiced by less than 50 percent of the population except in Nyeri (Kieni) where 60 percent practiced hand washing. The proportion of households treating their drinking water in January to June 2018 was less than 40 percent across the cluster and the lowest was in West Pokot at nine percent. Latrine coverage was low across the cluster except in Nyeri (Kieni) County where it was 84 percent. Open defecation was reportedly practiced at 47 percent in West Pokot County. The poor sanitation and hygiene practices increased the risk of contamination of water sources and cases of water borne diseases and outbreaks.

2.3.5.8 Education

Access (Enrolment)

Enrolment across the three levels of education, i.e. ECDE, Primary and Secondary recorded marked improvement for the entire period under review. There was significant increase in the counties across the cluster. There was a significant increase in enrolment in secondary schools across the cluster. Baringo County for example recorded an increase enrolment in term II as compared to term I of the same year. Kajiado recorded a 10 and a marginal two percent increase in enrollment in secondary and primary schools respectively. A number of factors which contributed to the increase include; government policy to offer free KCSE registration for all form four candidates, 100 percent transition to secondary school and increase in allocation for free day secondary education.

Participation and Retention

There was remarkable sustained stable attendance of both boys and girls at all levels of education in the agro pastoral livelihood zone. In Nyeri (Kieni), the drop-out rates across all levels: ECDE, Primary Secondary levels was at zero attributed to presence of a number of initiatives which includes, School Meals Programme (SMP), Free Primary Education and Free Day Secondary School Education programmes. Similar scenario was reported in Baringo and Kajiado apart from a few cases of absenteeism from time to time. The general reasons for absenteeism for learners at ECDE, Primary and Secondary were due to lack of food occasioned by late deliveries. The few boys who dropped out of schools were generally due to search of money through 'bodaboda' operations across the entire cluster. Girls who dropped out of school were associated with early pregnancies and/or early marriages.

School meals programme (SMP)

There are two types of school meals program in the cluster. The Home Grown Schools Meals Programme (HGSMP) that is supported by Government of Kenya and World food programme

in Baringo. The HGSMP expanded from 44 to 50 schools in Nyeri for term I and II respectively. Expanded Schools Meals program (ESMP) is in operation in Nyeri, Kajiado, West Pokot and Baringo. In Nyeri the ESMP was operational in six schools. The major challenges experienced by implementation of the school meals programmes included lack of insufficient firewood, occasional delay in delivery of food to institutions due to slow procurement processes and water related challenges.

2.4 The South-eastern Marginal Agricultural Livelihood Cluster

2.4.1 Cluster Background Information

The cluster consists of five counties: Embu (Mbeere), Kitui, Makueni, Meru (Meru North) and Tharaka Nithi (Tharaka). It has a projected population of 3,448,026 (KNBS, 2016) and covers an estimated area of 46,255 square kilometres. The two major livelihood zones are mixed farming (26 percent of the population) and marginal mixed farming (65 percent of the population). Rain-fed cropping and formal employment make the remaining nine percent (Figure 1).

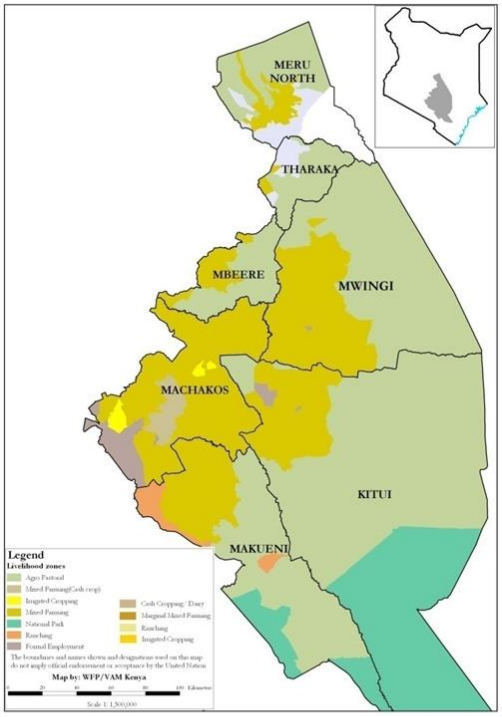


Figure 2.10: Southeastern marginal agricultural cluster livelihood zones

2.4.2 Current Drivers of Food Insecurity

Rainfall Performance

The onset of the long rains was two dekads early across the cluster compared to third dekad of March normally. The amount of rainfall received across the cluster cumulatively was above normal at 350 percent of the normal across the cluster and 200 – 350 percent of normal in the southern part of Kitui. Temporal distribution was good through the season while spatial distribution was even across the cluster. Rainfall cessation was early in all parts of the cluster except Embu (Mbeere) where the cessation was late in the third dekad of June compared to first dekad of June. In Kitui and Makueni the cessation was in the second dekad of May compared to normal in the third dekad of May, In Meru North and Tharaka, the cessation was in the third dekad of May comapared to first dekad of June

Floods

The enhanced rainfall caused heavy surface run-off that resulted in flooding in some areas in the counties in this cluster. Some of these affected areas include parts of Embu, Kitui and Makueni counties where flooding led to loss of life, destruction of houses and market structures, displacement of households and destruction of over 5,000 hectares of cropland. Water conservation structures and sanitation facilities were destroyed in Makueni and school infrastructure mostly latrines were destroyed in Embu and Makueni. The flooding put a large number of households at risk of waterborne diseases.

Conflict/Insecurity

There were minimal cases of conflict/ insecurity reported in the cluster with land ownership conflicts reported in some parts of Embu while human - wildlife conflicts were reported in both Embu and Kitui counties hindering crop production activities.

2.4.3 Cluster Food Security Situation

The cluster is currently classified as None (IPC Phase 1) except in pockets of the Marginal Mixed Farming livelihood zone in Makueni, Mixed Farming and Marginal Mixed Farming livelihood zone in Kitui and with localized parts of the Marginal Mixed Farming zone in in Embu County which are currently in 'Stressed' (IPC Phase 2). Pasture and browse conditions were good and the livestock body condition was also good across the cluster. Milk production ranged from 4-8 litres per household per day.

Distance to water sources were within the normal range of less than a kilometre to a maximum of three in all the Mixed Farming and Rainfed livelihood zones across the cluster. However, the distances were 3-6 kilometres in the Marginal Mixed Farming zones of Meru North, Tharaka and Kitui which were still within the normal range. The current maize stocks held by households and traders are 43 and 33 percent above LTA while that of green gram stocks held by households and traders is 560 and 56 percent above the LTA respectively. Water consumption was within the normal range across the cluster at 20-30 litres per person per day except in the Marginal Mixed Farming zones of Meru North and Tharaka where consumption is 10-15 litres per person per day.

From May onwards maize prices were considerably below the long-term average and the 2017 prices. Lower maize prices were recorded in the cluster due to previous season harvests, available long rains season harvests and cross border imports from Tanzania for instance, in Embu at Ksh. 25 per kilogram while Makueni County reported the highest maize price at Ksh. 33 per kilogram. Terms of trade (ToT) were favorable and above long-term average across the cluster.

Food consumption shown by the food consumption score (FCS) improved significantly across the cluster with above 80 percent of the households in the cluster having acceptable food consumption except in Meru North and Makueni counties which were at 63.7 and 77.5 percent respectively. The reduced coping strategy index (rCSI) reduced across the cluster with all the counties at less than eight, Kitui and Makueni at less than four while Meru North highest at 7.2. In July, the proportions of children under five years of age at risk of malnutrition based on mid upper arm circumference (MUAC <135mm) were below the LTA except in Embu and Makueni counties where they were above the long-term average. Trends from January to June 2018 indicate stability at depressed levels except in Makueni and Kitui where they were elevated but on a downward trend.

2.4.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2018	Long Rain Assessment, August 2018 (Current season)
Food security phase	Stressed (IPC Phase 2) Meru is in Phase 1	Classified as None (IPC Phase 1) except in pockets of the Marginal Mixed Farming livelihood zone in Makueni, Mixed Farming and Marginal Mixed Farming in Kitui and with localized parts of Marginal Mixed Farming in Kiambere, and Muminji wards in Embu which are currently in 'Stressed' (IPC Phase 2).
Household food stocks (90 kg bags)	202,850 bags (33% of LTA)	258,055 bags (43% above LTA)

Indicator	Short Rains Assessment, Feb 2018	Long Rain Assessment, August 2018 (Current season)
Livestock body condition	Good to fair	Good
Household water consumption	15-30 litres per person per day; except part of Kitui and Makueni (8-10 litres per person per day)	20-30 litres per person per day except in the Marginal Mixed Farming zones of Meru North and Tharaka where consumption is 10-15 litres per person per day.
Coping strategy index	rCSI 16	rCSI 5.7
Food consumption score	Poor – 3.6%, Borderline – 18.6% Acceptable – 77.8%	Poor – 0%, Borderline – 6.7% Acceptable – 93.3%
Children at risk of malnutrition (MUAC <135mm)	Ranging between 6% - 9% except Meru North at 20%	As at July, Below the long-term average across the cluster except in Embu and Makueni counties where it was above the long-term average

2.4.5 Impact of Drivers on Food and Nutrition Security

2.4.5.1 Crop production

Rain-fed Crop

The cluster is dependent on the short rains for most of the crop production which accounts for 70 percent of total annual production. The main food crops are maize, green grams and cowpeas with other crops grown being sorghum, and millet. The area under maize, green grams and cowpeas was 79, 50 and 25 percent above the LTA respectively. Production for maize, green grams and cowpeas was 21, 27 and 23 percent above the LTA respectively. The increases in area and production were attributed to above average long rains, use of certified seeds and fertilizer provided under different initiatives in Tharaka Nithi. All the crops performed better in terms of yields than the last three seasons in all the livelihood zones in the cluster.

Rain-fed Crop Production Compared to LTA

Crop	Area planted during 2018 Long rains season (Ha)	Long Term Average area planted during the Long rains season (Ha)	2018 Long rains season production (90 kg bags) Projected/Actual	Long Term Average production during the Long rains season (90 kg bags)
Maize	136,494	76,396	850,936	703,560
Green gram	135,760	90,281	553,052	433,780
Cowpeas	90,053	71,820	552,068	447,740

Irrigated crop production

The area under irrigation for tomato and kales was 22 and 34 percent above the LTA while that of bananas was 95 percent of LTA. Production of tomato, kales and bananas was 84, 60 and 59 percent of the LTA respectively due to improved agronomic practices and the above normal rains. The increase in production is also attributed to the use of certified seed and fertilizer that was provided Kenya Cereal Enhancement Programme (KCEP). The farmers also practiced conservation agriculture that played a key role in increasing the yields of the maize. The irrigation schemes are all in Meru County and in terms of gender, men, women and some youths are all involved in horticultural production.

Irrigated Crop Production

Crop	Area planted during 2018 Long rains season (Ha)	Long Term Average area planted during the Long rains season (Ha)	2018 Long rains season production (Tonnes) Projected/Actual	Long Term Average production during the Long rains season (Tonnes)
Tomatoes	1,196	980	20,952	24,973
Kales	923	687	7,732	12,917
Banana	582	612	2,087	3,551

Cereal stocks

The current maize stocks held by households and traders are 43 and 33 percent above the LTA while the green gram stocks held by households and traders is 560 and 56 percent above the LTA attributed to improved production following the above normal long rains. The availability of the staple stocks is at 97 percent of the LTA and has greatly contributed to food security in the cluster which is expected to remain stable for the next three months through October.

Cereal stocks

Commodity	Maize		Rice		Sorghum		Green gram	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	291,235	203,675	212	418	83,375	18,688	258,055	39,015
Traders	204,120	272,603	223,463	160,625	17,750	14,479	122,588	78,083
Millers	17,560	18,570	0	0	0	0	0	0
NCPB/ Food Assistance	95,210	127,220	5,821	6,016	0	0	172	100
Total	**608,125**	**622,068**	**229,496**	**167,059**	**101,125**	**33,167**	**380,815**	**117,198**

2.4.5.2 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 and browse condition were good to fair and expected to last for 1-3 and 2-4 months respectively across the cluster. The improvement was attributed to good performance of the long rains. Pastures are likely to decline to fair conditions in the livelihood zones. Access to forage was limited by the invasive weed, Ipomoea spp. in all livelihood zones but more pronounced in the marginal mixed farming livelihood zone of Kibwezi East Sub County of Makueni County.

Pasture and browse situation

Livelihood zone	Pasture condition			Browse condition		
	Current	Normally	Projected Duration to last (Months)	Current	Normally	Projected Duration to last (Months)
Mixed Farming	Good	Good	2-3 months	Good	Good	2-4 months
Marginal Mixed Farming	Fair to Good	Fair	1-3 months	Good	Fair to Good	2-4 months
Mixed Farming Coffee/ Dairy	Good	Good	2 – 3 months	Good	Good	2-4 months
Mixed Farming Crops/Livestock	Good	Good	2-3 months	Good	Good	2-4 months
Rain fed Agriculture	Good	Good	2-3	Good	Good	2-4 months

The livestock body condition was good for all species and is expected to remain stable for the next two to three months (September - October) also boosted by available crop residue. However, cattle body condition in parts of the Marginal Mixed Farming and Agro Pastoral zones is likely to deteriorate as forage diminishes by September. The tropical livestock units (TLUs) per household remained stable across all the livelihood zones in the cluster. Birth rates reported were normal across all livelihood zones in the cluster but were projected to increase gradually in the next 3 – 5 and 7 – 11 months for goats and cattle respectively.

Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normally	Current	Normally	Current	Normally
Mixed Farming	Good	Good	Good	Good	Good	Good
Marginal Mixed Faring	Good to Fair	Fair	Good to fair	Good	Good	Good to fair
Mixed Farming Coffee/ Dairy	Good	Good	Good	Good	Good	Good
Mixed farming Crops/ Livestock	Good	Good	Good	Good	Good	Good
Rain fed Agriculture	Good	Good	Good	Good	Good	Good
Agro Pastoral	Good to fair	Good to fair	Good to fair	Good to fair	Good	Good to fair

Due to improved forage and reduced distances to water sources, livestock body condition across all species has improved from fair to good across all livelihood zones increasing milk production and consumption at household level subsequently contributing to the improved nutrition status in the households. The current average household milk production and consumption has relatively improved across all livelihood zones but milk consumption remains below average as households were selling milk to cater for other non-food needs. Prices have however remained stable across all the livelihoods in the cluster.

Milk production, consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household		Prices (Ksh)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Mixed Farming	3-9	3	1-2.5	2	50-60	60-80
Marginal Mixed Farming	0.5 -2	2	0.5 -2	1	40-60	50
Mixed Farming Coffee/Dairy	4	1	1	1	50	40-60
Mixed Crop Livestock	2.5	0.5	0.75	2	50-60	60
Rain Fed Agriculture	2-7	4	0.5 -2	2.5	50	50
Agro pastoral	3-4	3	1-1.5	2	30-50	50

The return trekking distance to watering points have reduced in all livelihood zones as a result of full recharge of open water sources and increased forage regeneration and availability. Watering frequency has improved for all livestock species with the water available expected to last for the next 2-3 months until October across the cluster.

Water for Livestock

Livelihood zone	Return trekking distances (Km)		Expected duration to last (Months)		Watering frequency (days)	
	Current	Normal	Current	Normal	Current	Normal
Mixed Farming	0.5 – 2	1 - 2	2-3	3	7	7
Marginal Mixed Farming	3-10	3-10	2 -2.5	3	7	7
Mixed farming coffee/dairy	1	1.5	2.5	3	7	7
Mixed farming crop/livestock	1-2	2	3	2	7	7
Rain-fed	0-1	2-5	2	2.5	7	7
Agro-pastoral Zones	3-5	5-10	1-2	2	7	2

There was no livestock out-migration apart from usual internal movements in search of water and forage however, unusually early livestock in-migration was noted in late July where 200 sheep and 600 heads of cattle from Tana River moved into Kitui. There were no outbreaks of notifiable diseases. There were suspected cases of Anthrax, Lumpy Skin Disease (LSD), Foot and Mouth Disease (FMD), Rabies, Contagious Bovine Pleuro-pneumonia (CBPP), Anaplasmosis, East Coast Fever, Black Quarter and Anthrax in cattle, sheep and goats' pox, Contagious Caprine Pleuro Pneumonia (CCPP), Newcastle disease and Fowl pox in poultry and abortions in sheep and goats were reported. Rift Valley Fever (RVF) was also reported in Buuri Sub County (Meru County) which was an extension from the neighboring Isiolo County resulting in the imposition of quarantine.

2.4.5.3 Market Performance

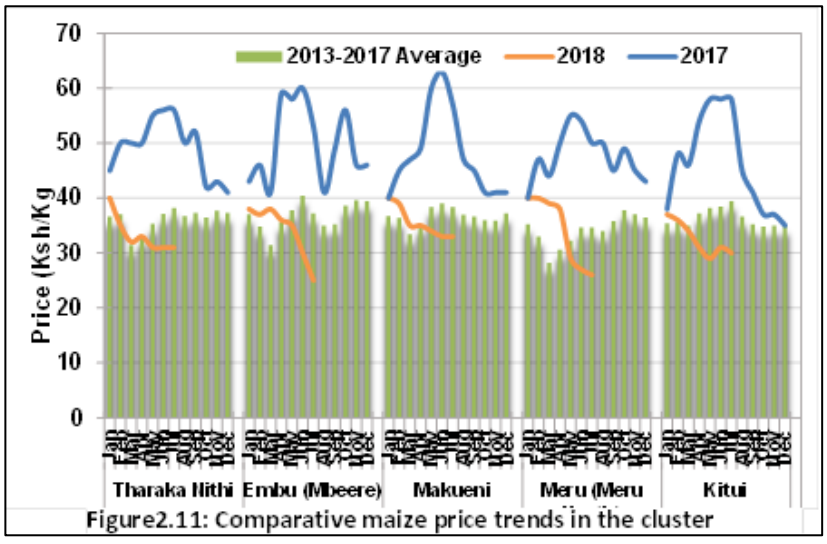


Figure2.11: Comparative maize price trends in the cluster

The main livestock and food commodity markets in the cluster include: Wote, Kitise, Makindu, Kiaoni, Machinery, Kambu, Kathonzweni, Matiliku, Mumbai, Kilala, Kikima, Nunguni, Tawa, Kalawa, Kolwezi, Kitise and Mbooni, Ngundune, Maua, Kianjai Laare, Mulika, Mikinduri and Timau. Market operations were normal for most markets except Buuri livestock market in Meru County which was closed due to an outbreak of Rift Valley Fever. Livestock traded includes cattle, sheep, goats and poultry while food commodities traded in the market include legumes and cereals such as green grams, pigeon peas, beans, maize, (whole and polished), cassava, vegetables-kales, cabbages, tomatoes and onions; and other household items such as sugar, salt and cooking oil or fat that are mostly from local supply or sourced from counties such as Nyandarua and Narok. Markets were well provisioned with high traded livestock volumes in Embu and Tharaka Nithi counties attributed to better prices. From May maize prices were considerably below the long-term average and the 2017 prices as shown in Figure 2.11 mainly due to previous season harvests coupled with long rains season harvests and importation from

Tanzania. In Embu maize retailed at Ksh. 25 per kilogram while in Makueni it was Ksh. 33 per kilogram.

2.4.5.4 Water Availability and Access

The major sources of water in the cluster are rivers, earth dams/pans, boreholes, shallow wells, springs, rock catchments and piped water. Recharge to open water sources was 100 percent improving water availability and access however, due to poor structural designs, breaching of embankments and siltation, a significant amount of water pans could not retain all the impounded water, for instance 51 water pans in Makueni County were breached. Open water sources are projected to last until October - November apart from the damaged pans which will last until September - October due to high concentration of users.

Distances to water sources ranged from less than a kilometre to a maximum of three in all the Mixed Farming and Rain Fed livelihood zones across the cluster, a normal 3-6 kilometres in the Marginal Mixed Farming zones of Meru North, Tharaka and Kitui. The longest distance of 6-12 kilometres was recorded in the Marginal Mixed Farming zones of Makueni County, compared to the normal 5-10 kilometres occasioned by breaching of water pans and breakdown of boreholes. Increased distance was attributed to the high human and livestock population sharing same water points, which are also low in concentration. Waiting time at sources has remained within normal of 10-30 minutes with the longest waiting times recorded in the Marginal Mixed livelihood zones of Makueni, where waiting times are 120 minutes compared to 40 minutes normally.

Water consumption was 20-30 litres per person per day and was within the normal range for this season except for some areas in Marginal Mixed Farming zones of Meru North and Tharaka where consumption was 10-15 litres per person per day. The cost of a 20 litre jerrican of water remained normal at Ksh. 2-5 across the cluster except in Kitui County where water currently costs the normal Ksh. 5-10. Water vendors were selling the commodity at Ksh.15-30 depending on the distance to the water source.

2.4.5.5 Food Consumption Score

The food consumption score (FCS) improved significantly in all livelihood zones across the cluster during the period. Only 1.1 percent of households had poor food consumption, eight percent borderline, while 90.9 percent acceptable food consumption score in May 2018. This is a significant improvement in comparison to May 2017 when 73.9 percent of households had acceptable FCS, borderline were 18.3 percent, and poor were 7.9 percent. The improvement is attributed to better crop production and livestock productivity in all the counties. There are no appreciable differences noted between males and females in the food consumption scores.

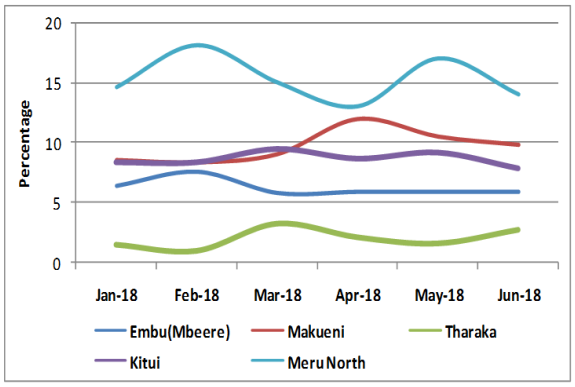
2.4.5.6 Coping Strategy Index

The current coping strategy index is 5.7 in May 2018 compared to 21 in May 2017 indicating that currently only a small proportion of households are employing consumption based coping strategies compared to the same period last year. The lowest coping strategy index was reported in Kitui county at 2.7 while the highest was recorded in Meru North at 7.2. The significant improvement was attributed to the good rainfall performance that facilitated improvement in crop production and livestock production across the counties in the cluster. Majority of households hold sufficient stocks to ensure adequate income as well as using the same for household consumption. The main strategies employed by households during the period are normal consumption based coping strategies and include: reliance on less preferred and/or less

expensive food, reducing the portion size of meals, reducing the number of meals eaten per day, borrowing food, or relying on help from a friend or relative.

2.4.5.7 Nutritional status

In July 2018, the percent of children under five at risk of malnutrition based on mid upper arm circumference (MUAC <135mm) data were below the long-term average across the cluster except in Embu (Mbeere) and Makueni counties where it was above the long-term average (Figure 2.12).



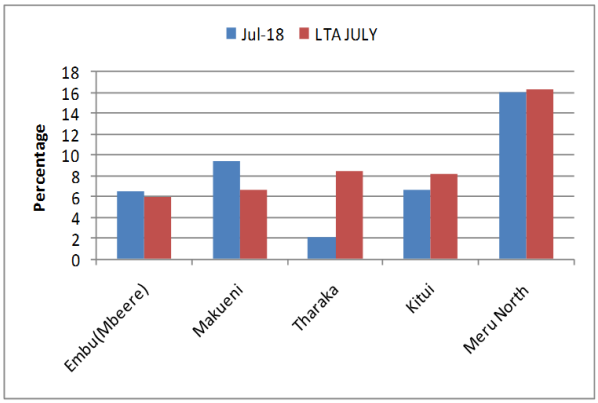


Figure 2.12: Children at Risk of Malnutrition (MUAC <135mm)

Trends from January to June 2018 were stable and below the LTA except in Makueni and Kitui where it was above average but on a downward trend. The stability was attributed to improved food availability across the cluster where there is increased milk and food consumption especially for children under five. Compared to the short rains season, meal frequency improved to three meals in a majority of the households. Dietary diversity was equally good as majority of the households consumed at least 4-5 food groups in this cluster.

Morbidity Patterns

Morbidity patterns for both under five children and the general population were relatively similar across the cluster upper respiratory tract infections (URTI), Malaria and diarrhea being the most reported illnesses. From January to June 2018, malaria cases reported were lower compared to a similar period in 2017. The decrease in cases was attributed to the change in the diagnostic procedures for malaria and as such only confirmed cases were reported unlike previously when both confirmed and clinical malaria cases would be reported. More diarrhoea cases were reported in the cluster from January to June 2018 compared to the same period in the previous year and this was attributed to high amount of rains received that resulted in cases of water contamination. The increasing trend for upper respiratory tract infections was as the result of colder conditions that prevailed following the heavy rains in this season. A cholera outbreak was reported in Tharaka Nithi County where there were seven confirmed cases in April however, the situation was contained. A measles outbreak was reported in Meru North Sub County of Meru County with a total of 18 cases. Crude mortality and under five years mortality rates across the cluster were below the threshold of one per 10,000 persons per day and two per 10,000 persons per day respectively.

Immunization and vitamin A supplementation

The percentage of fully immunized children across the cluster remains below the national target of 80 percent, except for Kitui and Makueni counties which had above average coverage of 85

and 86 percent respectively. The lowest coverage was in Meru and Tharaka Nithi counties at 67 percent. Vitamin A supplementation for children aged 6-59 months was below the national target across the cluster and except in Kitui and Makueni counties which reported 137 and 91.7 percent respectively. There was a general increase in immunization coverage across the cluster attributed to integrated outreaches in the various counties in this cluster.

Hygiene and sanitation

Latrine coverage had improved across the cluster and was above 80 percent except in Tharaka Nithi County where the coverage was lowest at 67 percent. The highest coverage of 93 and 94 percent were reported in Embu (Mbeere) and Meru (Meru North) Counties respectively. In Makueni County the latrine coverage reduced to 82 percent from the 92 percent reported in the 2017 due to destruction of latrines by flooding in the long rains season. Hand washing at the four critical times was low across the cluster with Tharaka Nithi and Meru counties reporting 45 and 65 percent respectively. Water treatment is generally low (20-30 percent) at household level across the cluster as most of the households perceived that the sources of the water for domestic consumption was safe and thus there was no need to do treatment.

2.4.5.8 Education

Access (Enrolment)

The number of pupils enrolled at ECDE remained stable across the cluster with an exception of Tharaka Nithi County where an increase of five percent was recorded. At primary level, enrolment was stable with only marginal increment of four and two percent in Embu and Makueni respectively while a drop in the number of girls enrolled at primary was recorded overall. The highest increment in enrolment was observed at secondary level with Tharaka Nithi, Makueni and Embu recording a nine, five and two percent. The increase in enrolment at secondary level in Term 2 was attributed to the increase on amount of money subsidized by the government towards Free Day Secondary Education (FDSE).The new Ministry of Education (MOE) regulations on fees payable by parents in both day and boarding secondary schools coupled with the '100 percent transition' measures implemented in Term 1 by MOE in collaboration with the Ministry of Interior also contributed to the increase in enrolment.

Participation (Attendance)

Attendance was stable across the clusters both in first term and second term with no significant difference in terms of gender across all levels. Makueni and Embu recorded above 98 percent attendance rate while the remaining counties had attendance above 80 percent. Follow up by education officers in Makueni and availability of FPE, FDSE across the counties and school feeding programmes are identified as factors enhancing participation. However, there were few cases of absenteeism attributed to; flooding of seasonal rivers impeding access, lack of school fees for secondary students and lack of food in some primary schools. In Tharaka Nithi it was noted that some girls would still miss school despite the provision if sanitary towels as an ongoing intervention, because the sanitary towels are shared with the other relatives at home hence still not enough for use.

Retention

Drop out cases were minimal across all clusters and across the three levels, however, secondary school boys had higher dropout rates compared to girls in Embu, Makueni and Tharaka Nithi. The scenario was attributed to peer pressure, engagement in gainful labor *('Bodaboda'* business, *'Miraa'* and sand harvesting). At ECDE level, special needs learners in regular schools in Embu were dropping out due to lack of suitable placement in special needs facilities attributed to a shortage of special needs units. The number of teachers in Term II was constant

in primary schools due to prompt replacements after retirement while there was an increase in numbers in secondary schools due to new recruitment in May 2018. In Makueni and Meru North, dropout rates among girls were attributed to early marriages, teenage pregnancies and employment as house helps and attendants in hotels. In some areas of Kitui County, lack of food and water at household, levies toward paying BOM/ PA employed teachers are identified as reasons curtailing retention.

School meals programmes

School feeding interventions have greatly contributed to high enrollment, retention, increased transition rate from ECDE to primary, improved academic performance and good health in schools where they are available. Home Grown School Meals Programme (HGSMP) Expanded School Meals Programme (ESMP) and Regular School School Meals Programme (RSMP) at primary level and County government-supported feeding initiatives at ECDE level are the main school feeding interventions. Apart from Meru County which has no school feeding programme, some primary schools in the other counties benefit from HGSMP. A total of 857 primary schools in the cluster primary schools in Tharaka, Nithi (69), Embu (32), Kitui (525) and Makueni (231) benefit from the programme. Nevertheless, implementation of the programme is hampered by shortage of water and lack of kitchen facilities in some schools. In addition, some primary schools not under the programme lost learners in large numbers to their neighboring schools covered by the programme especially during the previous prolonged drought creating congestion in some schools. The County Governments of Meru and Embu have initiated school milk at ECDE level.

Cross-Sectoral Links

The above normal rains received in counties across the cluster led to flooding and landslides thus affecting school infrastructure. In Makueni County, classrooms and toilets were destroyed across the county in Makindu sub-county alone, latrines in 24 schools were damaged. In Embu County, there were 69 schools whose toilets were damaged by the heavy rains. Majority of schools are not employing any water treatment methods and therefore increasing the risk of disease outbreaks. Health and nutrition interventions (Vitamin A, deworming and Iron supplement) are currently implemented within schools and this has impacted positively not only on the health of the pupils but has also on enrolment, participation and retention.

2.5 The Coastal Marginal Agricultural Livelihood Cluster

2.5.1 Cluster Background Information

The cluster consists of Kwale, Kilifi, Lamu and Taita Taveta counties and covering an estimated area of 47,861 square kilometers with a projected population of 2,406,491 (KNBS, 2016). It has three major livelihood zones; mixed farming (60% of the population), trade/ business/ formal employment/casual labour (21%) and marginal mixed farming with 11 percent of the population (Figure 2.13).

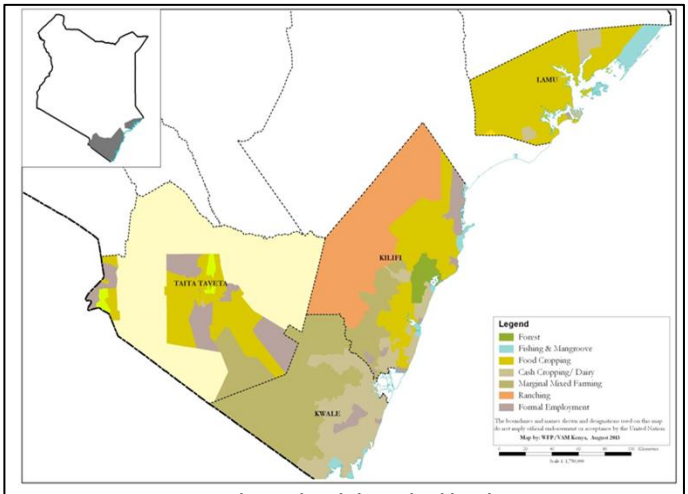


Figure 2.13: Coast marginal agricultural cluster livelihood zones

2.5.2 Current Drivers of Food Insecurity

Rainfall performance
The onset of long rains was early in the first dekad of March which was normal across the cluster. Most parts of the cluster received above average rains of between 200 and above 350 percent of the normal rainfall with a few pockets in Lamu County (Bahari ward) which received 5-25 percent of the normal rainfall. Spatial distribution was even while temporal distribution good across the cluster. The cessation was late in the first dekad of June compared with the third dekad of May across the cluster.

Floods
The above average long rains performance in the cluster resulted to flooding especially in Kilifi, Taita Taveta and Lamu counties leading to displacement of about 3,366 households. Kilifi County was the worst hit accounting for approximately 75 percent of the total households affected. An estimated 5,105 hectares of land under crop was destroyed and irrigation infrastructure washed or damaged by the floods. Livestock affected included sheep, goats, cattle, chicken and ducks which were washed away.

Rift Valley Fever (RVF)
Confirmed cases of RVF in livestock were reported RVF in livestock was reported in the marginal mixed farming and parts of the livestock ranching in Kilifi County. The outbreak resulted in imposed quarantine and closure of all livestock markets and suspension of slaughter houses activities since end of July to date. About 20 deaths and 73 abortions were reported in the different livestock species with goats and cattle being the worst affected.

Conflicts/Insecurity
Human wildlife conflicts were reported across the cluster especially farms bordering the Tsavo Game Park destroying crop and killing livestock. A resurgence of suspected militant activities during the month of July by suspected Al-Shabaab along Hindi - Mpeketoni road in Lamu County affected market supplies since traders cannot access the market freely and also supply from Mombasa was affected. Movement of livestock from the markets was also affected leading to low trading volumes. Resource based conflicts over rangeland resources in parts of Lamu county between crop and pastoral farmers were reported.

Other Shocks and Hazards
Fall Army worm infestation led to destruction of maize crop resulting to reduced production across the cluster.

2.5.3 Current Food Security Situation
The cluster is classified Minimal (IPC Phase 1) in Kilifi, Kwale and Taita Taveta while Lamu County is classified under "Stressed" (IPC Phase 2). The cluster's maize prices were generally above the LTA and varied trends were noted. Terms of trade were favorable and above the LTA across the cluster. Pasture and browse condition was good across the cluster resulting to good body condition for cattle and small stock across the cluster, except in Taita Taveta where cattle had fair body condition. Milk production and consumption was near average across the cluster. Water consumption improved to above normal for all counties was more than 15 litres per person per day. Household food access has improved significantly across the cluster resulting in increased proportion of households with acceptable food consumption score (FCS) from 40.6 percent in May 2017 to 53.9 percent in May 2018. Households in borderline and

poor FCS have reduced to 30.4 percent and 16.8 percent respectively. The mean consumption based coping strategy index (rCSI) has remained relatively stable at 21 in all the counties within the cluster. The percentage of children at risk of malnutrition as measured by MUAC <135mm has improved and is stable across the cluster.

2.5.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2017	Long Rains Assessment, August 2018 (Current Season)
Food Insecurity Phase	**Minimal** (Kilifi, Kwale and Irrigated/Livestock zone of Taita Taveta County) and **Stressed** (Lamu County and crops/livestock and horticulture/livestock livelihood zones of Taita Taveta County)	**Minimal** (IPC Phase 1) in Kilifi, Kwale and Taita Taveta while Lamu County is classified under "**Stressed**" (IPC Phase 2).
Livestock body condition	Fair for cattle and good for shoats except in Lamu (Good to Fair)	Good for cattle and goats but fair for cattle in Taita Taveta
Water Consumption (litres per person per day)	15-40 in Kwale (normal) 10-20 in Kilifi (Reduced) 10-20 in Taita Taveta (Reduced) 5-15 in Lamu (reduced)	Normal and above normal across the cluster-ranging between 15-20 litres per person per day
Meal Frequency	2-3 meals per day across the cluster (Most households)	2-3 meals per day across the cluster (Most households)
Terms of Trade	ToT between 69 and 114kg and above except in Kwale (below)	ToT above the LTA across the cluster
Coping Strategy index	6.8 (Lamu), 10.75 (Kwale), 3 (Kilifi) and 4.56 (Taita Taveta)	21 (Lamu), 10.3 (Kwale), 20.75 (Kilifi) and 2.68 (Taita Taveta
Food Consumption score	Poor: 25.3% Borderline: 34.9% Acceptable: 39.8%	Poor-15.8% Borderline-30.4% Acceptable-53.9%
MUAC	Above in Kilifi and Lamu and Below in Taita Taveta and Kwale	Improved and stable across the cluster

2.5.5 Impact of Drivers on Food and nutrition Security

2.5.5.1 Crop Production

The cluster is dependent on the long rains season for crop production except Taita Taveta County and the hinterland of Kilifi County which depend on the short rain season. Maize, cowpeas and green grams are the main crops grown in the cluster. Other important crops are cassava and beans. Irrigation is mainly carried out in small irrigation schemes along the rivers. The main crops grown under irrigation are bananas and maize. Other minor crops are tomatoes, rice, kales, onions, capsicums and French beans. The area under irrigation increased slightly from 4,012 hectares to about 4,508 hectares attributed to development of new irrigation schemes and support from counties with micro irrigation kits.

Rain fed crop production

The area planted under maize was five percent above the long term average for the same period while cowpeas and green grams was 15 and 18 percent respectively below the LTA. The increase in area planted for maize was due to subsidized and free tractor services in some counties in the cluster (Kwale and Taita Taveta) that opened up new land for production. The production of maize was nine percent below the long term average. Productivity reduced from 10 bags/ha to nine bags/ha due to damage by floods in Taita Taveta, Lamu and Kilifi. Other

factors leading to low productivity included Fall Army Worm infestations, leaching of soil nutrients and water logging of farms and poor crop management practices across the cluster. Damage of maize by wildlife in Taita Taveta affected the communities bordering Tsavo Game Park especially in the Crop/Livestock livelihood Zone. Production for cow peas and green grams was 36 and six percent respectively below the LTA attributed to reduced acreage planted and heavy rains leading to poor pod formation. There was increased adoption of conservation agriculture practices in some parts of the cluster such as Taita Taveta and Kilifi counties which has improved productivity.

Rain - fed crop production

Crop	Area planted during 2018 long rains season (Ha)	Long Term Average area planted during the long rains season (Ha)	2018 Long rains season production (90 kg bags/MT) Projected/Actual	Long Term Average production during the long rains season(90kgbags/M)
Maize	134,765	128,251	1,215,734	1,334,984
Cowpeas	12,583	14,708	65,387	101,633
Green Grams	12,256	10,309	63,174	66,771

Irrigated crop production

The area under green maize production was within the LTA. The projected production was expected to increase slightly due to above normal rains. Beans acreage increased by 58 percent resulting to marginal increase in production due to floods experienced especially in Taita Taveta county. Area under banana also 10 percent above the LTA attributed to increased interest by farmers due to high cash returns and incentives from development stakeholders and the county governments. The projected seasonal production was seven percent above the LTA due to improved agriculture practices by the farmers such application of manure, pest control and management. Other crops like tomatoes, rice, kales, onions and capsicums were grown mainly under micro-irrigation covered a total area of 247 ha which was 13 percent above the LTA of 217 ha.

Irrigated crop production

Crop	Area planted during 2018 long rains season (Ha)	Long Term Average area planted during the long rains season (Ha)	2018 long rains season production (90 kg bags/MT) Projected/Actual	Long Term Average production during the long rains season(90kgbags/M)
Green maize	1,176	1,151	25,284	24,566
Beans	625	395	7,500	7,110
Bananas	2,200	1,989	75,186	69,800

Commodity Stocks

The maize stocks held by households were about 67 percent above the long term averages which was attributed to good harvests and farmers did not dispose their harvests due to low prices. Stocks of maize held by traders was 10 percent above the LTA while millers held 29 percent below the LTA. Stocks of rice held by farmers were 39 percent of the LTA while traders had 18 percent below LTA. Stocks of sorghum held by farmers were significantly above LTA as a result of promotion of the crop and provision of eight tonnes of seed by the National Government in Taita Taveta to farmers for planting. Kenya Breweries interest in the crop has contributed to renewed interest in sorghum production. The maize stock held by NCPB was 28 percent above the LTA. About 42,948 maize bags from Galana Kulalu, Eldoret and Moi Bridge were food relief stored at the NCPB stores. The available stocks at household level can last between three to five months across the cluster.

Table 3 Cereal stock (90 kg bags)

Commodity	Maize		Rice		Sorghum		Green Gram	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	413,453	247,403	3,131	7,853	2,123	218	2,659	3,900
Traders	143,627	130,045	47,860	57,846	5,116	2,404	12,993	14,300
Millers	21,643	30,250	-	-	-	-	-	-
NCPB /Food AID	45,153	35,202	-	-	-	-	-	-
Total	**623,876**	**442,900**	**50,991**	**65,769**	**7,239**	**2,622**	**15,652**	**18,200**

2.5.5.2 Livestock Production

The main livestock types are cattle, sheep, goats and poultry. Livestock production contributes 70 - 80 percent to cash income in livestock farming and ranching zones and 25 - 50 percent in mixed farming, marginal mixed farming and cash cropping and dairy zones in the cluster**.** The pasture and browse condition was good across the cluster in all the livelihood zones, except in the ranching livelihood zones of Kilifi County where it was fair. Thorny bushes and wildlife conflicts were limiting access to pastures and browse in parts of the ranching livelihood zones in Kilifi County. Makwasinyi and Bughuta communities in Taita Taveta have been denied access to the Rukinga ranch limiting access to pasture and browse. The pasture and browse is expected to last for five months in all the livelihood zones except in ranching zone where it's expected to deteriorate after three months. Plenty of crop residues are expected in the mixed farming livelihood zone.

Pasture and Browse condition

Livelihood zone	Pasture condition			Browse condition		
	Current	Normally	Projected Duration to last (Months)	Current	Normally	Projected Duration to last (Months)
Ranching/Livestock Farming	Good	Good	2	Fair	Good to fair	3
Marginal mixed farming/Mixed farming	Good	Good	5	Good	Good	5
Mixed farming livelihood zone	Good	Good	5	Good	Good	5
Cash cropping/dairy	Good	Good	5	Good	Good	5

Livestock body condition was good across all the livelihood zones in the cluster which was normal at this time of the year due to adequate pasture and browse as well as availability of water. A few herds in the ranching livelihood zone were good to fair compared to good at this time of the year.

Livestock body condition

Livelihood zone	Cattle		Sheep		Goat		Camel	
	Current	Normally	Current	Normally	Current	Normally	Current	Normally
Ranching/Livestock Farming	Good	Good to fair	Good	Good to fair	Good	Good to fair	Good	Good
Marginal mixed farming/Mixed farming	Good	Good	Good	Good	Good	Good	Good	Good
Mixed farming livelihood zone	Good	Good	Good	Good	Good	Good	Good	Good
Cash cropping/dairy	Good	Good	Good	Good	Good	Good	Good	Good

Current tropical livestock units (TLUs) remained stable compared with the LTA for poor and medium income households. The livestock are recovering from the drought of 2016/17 which resulted in loss of livestock. The birth rates are normal across all the livelihood zones. Milk production was normal across all the livelihood zones which was attributed to presence of pasture, browse and crop residues from the mixed farming livelihood zone. Milk price declined to between Ksh 30-60 per litre from Ksh 50-80 per litre due to increased production except in Lamu fishing zone which registered a price of Ksh 100 due to increase in demand but low supplies.

Milk production and consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household	Milk consumption (Litres) per Household	Prices (Ksh)/Litre	Prices (Ksh)/Litre
	Current	LTA	Current	LTA	Current	LTA
Ranching/Livestock Farming	1-2	1	1	1	40	60-80
Marginal mixed farming/Mixed farming	2-3	2	2	2	30-40	40
Mixed farming livelihood zone	5	5	2	2	30-40	40-60
Cash cropping/dairy	5	5	2	2	30-40	40-50

The return trekking distance for livestock has also reduced by half across the cluster except in a few parts of Taita Taveta County where the distance increased to 6-8 km due to drying up of the available water sources. This was due to siltation of the surface rain water harvesting structures.

Water situation for livestock

Livelihood zone	Return trekking distances-km		Expected duration to last (Months)		Watering frequency (Days per 7 days)	
	Current	Normal	Current	Normal	Current	Normal
Ranching/Livestock Farming	2-5	5-10	2	2-3	3	2
Marginal mixed farming/Mixed farming	1-3	2-4	5	4	3	3
Mixed farming livelihood zone	1-2	2-4	5	4	7	7
Cash cropping/dairy	<1	1	5	4	7	7

Limited migration was reported throughout the cluster. In migration was reported from Tana River to Kilifi and from Ijara to Lamu. Minor resource-based conflicts were reported in small sections in Lamu. CPPP and FMD was reported across all the counties in the cluster while Rift Valley Fever was reported in parts of Magarini and Malindi Sub Counties in Kilifi.

2.5.5.3 Market Performance

All markets were operation in this cluster except areas in Malindi and Magarini sub counties in Kilifi, where the slaughter houses were closed due to RVF outbreak. Food commodities traded in the market include maize, cowpeas, green grams, cassava, vegetables and rice. Supply sources for food commodities were mainly from local supplies and cross border inflows from Tanzania. Traded volumes of livestock were below normal as farmers held their livestock due to good body condition. There was low demand for goats in the markets mainly due to high prices.

Maize prices were below the long term average for all counties in the cluster attributed to the availability of the commodity at households and markets as a result of surplus harvest. Highest price was recorded in Kilifi County at Ksh 40 per kilogram while Taita Taveta had the lowest at Ksh 33 per kilogram due to on-farm harvest and imports from Tanzania. Maize prices since March have relatively been lower than the previous year price as shown in (Figure 2.14). The prices are likely to decline further as harvest continues.

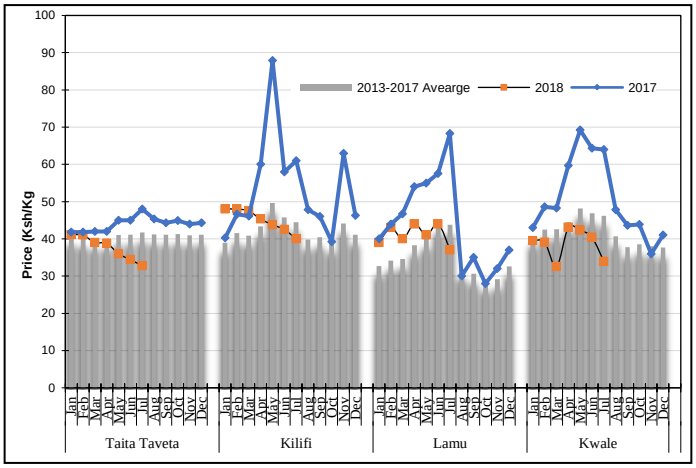


Figure 2.14: Comparative maize price trends in the cluster

2.5.5.4 Water Availability and Access

The main water sources for domestic use are rivers, water pans/dams, shallow wells, boreholes, springs, natural ponds, and piped water systems. Recharge of open water sources was 100 percent across the cluster. However, in Kwale County majority of water pans are holding about 60-75 percent of their capacity due to continued siltation over time, breaching of embankment and leaching. Available water in open sources is likely to last through to the October to December rainfall season.

Improved water availability also led to reduced trekking distances. Average return distance is 1-6 km with the exception of parts of Taita Taveta where distances increased from the normal of 6 km to 8 km due to breakdowns and the cash crop faming livelihood zone of Kilifi county from the normal of 1-2 km to 3 km. Waiting time at watering point has remained stable to less than 10 minutes. However, parts of the mixed farming (food crop and livestock) livelihood zone of Taita Taveta, waiting time has increased from a normal of 20 minutes to 30 minutes due to breakdown of boreholes and pipeline outages due to vandalism hence high concentration of humans at water points.

Water consumption was generally normal across livelihoods at an average of 15-40 litres per person per day. However, water consumption in a few areas in Lamu was 5-10 litres per person per day compared to the normal 10-15 litres, which has been attributed to salinity in the available water sources. Cost of water was within the normal range of Ksh. 3-5 per 20 litres jerrycan across the livelihood zones. However, in the livestock ranching livelihood zone of Kilifi, the cost at source increased from a normal of Ksh. 5 to Ksh. 10. Cost of water in Lamu has remained higher at Ksh. 5-10 per 20 litres jerrycan. Water vendors are charging between Ksh. 20-30 depending on the mode of transport chosen, which was normal.

2.5.5.5 Food Consumption

Household food access has improved significantly across the cluster resulting in increased proportion of households with acceptable food consumption from 40.6 percent in May 2017 to 53.9 percent in May 2018. Households with borderline and poor food consumption have reduced to 30.4 percent and 16.8 percent respectively. The improved food consumption patterns is indicative of improved household dietary diversity and meal frequency, resulting from the enhanced crop production and increased household milk consumption. The favourable livestock-to-cereals terms of trade (TOT) has improved the purchasing power and market

access for the livestock keeping households. About 20 percent of female headed households had poor food consumption compared to 14 percent of the male headed households as result of social and gender inequalities that affect access and control of food and cash resources.

2.5.5.6 Coping Strategy Index

According to WFP food security outcome monitoring, the mean food consumption coping strategy index (rCSI) has remained relatively stable at 20.75 in all the counties within the cluster. This implies that most households in the cluster are typically employing consumption-based coping strategies less frequently such as reducing the quantity of food consumed by adults/mothers to ensure that children had enough to eat, reduction in portion size and reliance on less preferred/less expensive food. Female headed households were likely to engage in coping strategies more frequently as depicted in their higher rCSI of 23 compared to the male headed households with rCSI of 19.

2.5.5.7 Health and Nutrition

Nutritional status and dietary diversity

As at July 2018, the percent of children at risk of malnutrition based on mid upper arm circumference (MUAC <135mm) across the cluster was above the long term average except in Taita Taveta county. Trends from January to June 2018, the proportion of children under five at risk of malnutrition was stable in the cluster and were below the long-term average except in Kwale and Kilifi counties where it was above the long term average (Figure 2.15). The stability of the nutrition status was attributed to the current availability of food across the cluster and as such meals were more frequent and also the availability of milk which has led to improved milk consumption. Exclusive breastfeeding rates were 68.1 and 73.4 percent in Kilifi and Kwale counties respectively. Meal frequency for the adults was normal across the cluster as majority of the households consumed three meals. The meal frequency had improved when compared to the short rains season largely due to the current availability of food. Dietary diversity was equally good as majority of the households consumed at least 4-5 food groups in this cluster.

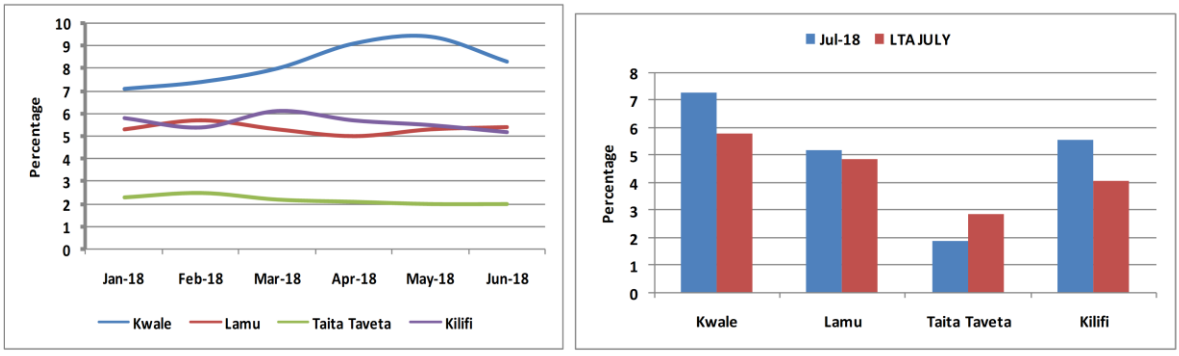


Figure 2.15: Children at Risk of Malnutrition based on MUAC <135mm

Morbidity Trends

For the period January to June 2018, the three most common diseases in the cluster for both under five children and the general population were relatively similar and were upper respiratory tract infections, malaria and diarrhea. Malaria cases reported were generally higher compared to a similar period in 2017 across the cluster except in Lamu where the cases reported had reduced. The decrease in cases in Lamu was attributed to the mass campaigns done against

malaria, distribution of long lasting insecticide treated nets (LLITNs), house to house spraying that was done in the county. The increase in the other counties in the cluster is attributed to the increased breeding of mosquitoes following the heavy rains and low utilization of the insecticide treated nets. Increased diarrhea cases were also reported in the cluster compared to the same period in the previous year and this was attributed to the much rains received in the season and thus water contamination was noted especially in Kilifi where there was flooding. The trend for upper respiratory tract infections was higher compared to the same period in the year 2017 and was largely attributed to the cold conditions that prevailed following the heavy rains received during the long rains season. There was a measles outbreak reported in Kilifi and Taita Taveta Counties while a cholera outbreak was reported in Kilifi where one confirmed case was reported. The cholera outbreak was contained and is not currently active. There were no exceptional mortalities reported across the cluster and as such crude mortality and under five years mortality rates across the cluster were below the threshold of one per 10,000 persons per day and two per 10,000 per day respectively.

Immunization and vitamin A supplementation

The percentage of fully immunized children was above the national target of 80 percent in the cluster and had increased in Kwale and Lamu counties which reported 86.6 and 81 percent respectively. Taita Taveta County reported 72.5 percent an increase from 67.9 percent reported in the previous year. The increase in the proportion of children who were fully immunized in these counties was attributed to integrated outreach services. Vitamin A supplementation for children aged 6-59 months was below the national target across the cluster and was ranging between 62-66 percent. Lamu County reported the lowest proportion of children who had received Vitamin A supplementation at 11.2 percent. However, there was noted improvement in Vitamin A supplementation coverage attributed to Malezi Bora campaigns conducted during this period.

Hygiene and sanitation

Latrine coverage varied across the cluster and was highest in Taita Taveta County at 92.3 percent, Lamu (72 percent), Kwale (60.8 percent) and lowest in Kilifi (58 percent). The high latrine coverage in Taita Taveta was attributed to community mobilization and education on community led total sanitation (CLTS) which led to many villages being declared open defecation free. In Kilifi county, however, open defecation was being done being done by 28.9 percent of the population. Hand washing at the four critical times was minimal at less than 40 percent as reported in Kilifi County. Water treatment at household level was practiced by about 60 to 73 percent of the population in the cluster as reported in Kwale and Lamu counties respectively.

2.5.5.8 Education

Access

Increase in enrollment in ECDE, primary and secondary schools was reported in Kilifi, Kwale and Taita Taveta counties except Lamu County there was a marginal decrease in enrollment. The increase in enrollment was attributed to provision of food in the ECDEs and primary schools and free day secondary school (FDSE) funding by the National government. Other factors for increased enrolment were the Government policy on ‘100 per cent transition’ from primary to secondary schools and increased establishment of ECDE centres by respective county governments. In Lamu County, the drop in enrollment was as result of insecurity and floods in some parts of the county, especially in Witu and Mpeketoni in Lamu West and Basuba

in Lamu East where five primary schools were closed after teachers were attacked by Alshabab Militants.

Participation and Retention

Participation in school attendance in Taita Taveta and Kwale Counties was stable across all the three levels for both boys and girls. There was minimum dropout rate in all tiers of education in the two counties. School feeding in ECDE and primary schools was a major incentive in keeping children in schools. In Lamu and Kilifi there was a drop in participation where dropouts increased in term two compared to term one as a result of floods experience in Malindi and Magarini areas of Kilifi county which displaced people thus making schools inaccessible. In Lamu, the drop outs were attributed to floods, migration of households to safer areas and insecurity.

School meals programme

Kilifi, Kwale and Lamu counties implemented homegrown school meals programme (HGSMP) in majority of public primary schools. For Taita Taveta, expanded school meals program (ESMP) and Community school meals programme (CSMP) were implemented. The school feeding programs have enhanced retention of learners in schools, reduced the number of absenteeism. The respective county governments provided flour for porridge in ECDE across the cluster.

3.0 Food Security Prognosis

3.1 Assumptions

The following assumptions have been made that will determine food security outcomes in both pastoral and marginal areas from August 2018 to January 2019.

- Based on the Greater Horn of Africa Consensus Forecast (GHACOF), Cumulative rainfall during the 2018 short rains in the eastern and western areas of Kenya is forecast to be above average between October and December 2018, based on El Niño and IOD neutral conditions. In the southeastern parts of the country however, the rain is forecasted to be average to below average.
- Based on the rainfall received and prevailing crop conditions, the State Department of Agriculture preliminary projections point to maize crop production in the high and medium rainfall areas of approximately 33 percent above the long-term averages.
- Wholesale maize prices are currently up to 20 percent below averages across urban markets and these low prices are set to prevail through January as the above average long rains harvest becomes available.
- Above average forage and water conditions in the pastoral areas are likely to last through October across the pastoral areas minimizing atypical migration.
- Above average household maize stocks are likely to last 3 – 5 months across the marginal areas
- Livestock prices especially goat prices are expected to remain above average as good body conditions persist driven by above average range resources across both pastoral and marginal areas.

3.2 Food Security Prognosis (September 2018 – February 2019)

Pastoral areas

From August, the above average water sources and regenerated forage will continue to support good livestock body conditions through October when the short rains begin keeping the livestock in the wet season grazing areas closer to homesteads increasing access to milk for consumption and income from sale of livestock and livestock products. In August, milk production is set to increase as lambing and kidding occur, increased milk consumption will stabilize and improve the nutrition situation for children under five years of age. Livestock prices are expected to continue to fetch high prices on the markets and coupled with below average staple prices, favourable terms of trade will maintain acceptable levels of food access and consumption. The food security situation is expected to remain stable but the majority of the pastoral areas are expected to remain Stressed (IPC Phase 2) through October, parts of Kajiado that were previously Stressed are set to experience improvements and move to Minimal (IPC Phase 1).

The October – December short rains are the main season in these areas and are expected to be on time and be above average, recharging water sources and driving forage regeneration from November. Livestock body condition is expected to improve further with increased milk production especially for cattle as calving takes place in November restoring milk production to at least average levels across all areas. Household purchasing power is expected to remain above average due to favourable livestock prices and low staple prices resulting from above average long harvests from the high and medium rainfall areas available from October. Abnormal livestock is not expected however households will smaller herd sizes may opt to

remain closer to the homesteads supported by sufficient water and forage resources around the homesteads and households are expected to apply less consumption-based and livelihood coping strategies. In January, income from livestock sales will slightly reduce as households seek to obtain school fees from the livestock sale and inadvertently flood the market. However, further improvements in food and milk consumption will be observed but these areas will likely remain Stressed (IPC Phase 2).

Marginal agricultural areas

The long rains crop harvests will continue to improve food security in the marginal agricultural areas by supporting food consumption at household level for the next 3 – 5 months through December apart from Lamu where stocks will last mid-September. From September, land preparation activities are expected to commence in anticipation of the October – December short rains season which is the main production season providing likely average casual wage labor income-earning opportunities and increasing household food availability and consumption through late October. Households are expected to reduce reliance on coping strategies with increased income, low staple food prices and available food stocks. Malnutrition levels are expected to remain stable through October these areas will remain in Minimal (IPC Phase 1).

From November, households will continue to participate in on-farm casual labour activities for income. Food commodity prices are likely to remain low due to available long rains harvest from the high and medium rainfall areas and reduced demand due to available household stocks. In December stocks are likely to dwindle across all households but relief will come from harvests of short cycle crops which are likely to significant since this is the main production season across most of the marginal areas. For poor households, there will be an increased reliance on consumption based coping strategies and alternative income sources like charcoal sales and reliance on remittances. In December, short cycle crops will increase food consumption and dietary diversity while improved forage will improve livestock body condition and milk consumption resulting in a further decrease in malnutrition in children under five years of age. More households are expected to improve to None (IPC Phase 1) in January as the green harvests become available however, some households in the that ran out of food stocks and receive poor rains like parts of Nyeri, Makueni, Lamu, Meru, and Embu where production was below average may likely lack sufficient food at household level. From February, household level food security is set to increase notably with the availability of the likely average main crop harvests.

4.0 Proposed Sectoral Interventions

Options for response

Overall, the food security situation has significantly improved across the counties, primarily due to the positive effects of the above average March to May long rains. However, the heavy rainfall that was received in most ASAL areas also led to substantial flooding and crop losses. Other factors which have impacted negatively on the food security situation in areas previously affected by the drought include the Fall Army Worm infestation and outbreak of Rift Valley Fever (RVF). Although the nutrition situation significantly improved, malnutrition levels still remain above emergency thresholds. Due to the lingering effects of consecutive poor seasons in 2016/17 and persistent underlying vulnerabilities there is still a proportion of population in the arid counties who face acute food insecurity and have food gaps. The tables below contain response options by sector. Immediate interventions to mitigate food insecurity should be complemented by medium to long-term interventions that build the resilience of communities.

4.1 Agriculture Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
Pests and disease control	Kitui, Embu, Meru North, Tharaka Nithi, Baringo, Turkana, Kilifi	158
Provision of farm inputs (i.e. seeds, etc)	Kitui, Meru North, Makueni, Baringo, West Pokot, Kajiado, Narok, Nyeri, Tana River, Isiolo, Garissa, Turkana, Marsabit, Samburu, Kilifi, Taita Taveta, Turkana, Samburu, Kilifi, Taita Taveta.	383
Post-harvest management and preservation	Embu, Kitui, Tharaka Nithi , Makueni, Baringo, West Pokot, Laikipia, Narok, Nyeri, Turkana, Samburu, Kilifi, Taita Taveta.	239
Development of irrigation infrastructure	Meru, Kitui , Makueni, Baringo, West Pokot, Laikipia, Kajiado, Nyeri, Garissa, Turkana, Samburu, Kwale,	645
Value addition and market linkages	Makueni, Thaaka Nithi, Nyeri, Kwale	16
Water harvesting technologies and conservation agriculture	Makueni, Tharaka Nithi, Kitui, Baringo, West Pokot, Laikipia, Narok, Nyeri, Isiolo, Garissa, Mandera, Tana River.	1,083
Total		**2,524**

4.2 Livestock Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
Livestock disease surveillance and vaccination for Rift Valley Fever and other diseases	Makueni, Embu (Mbeere), Meru North, Tharaka Nithi, Baringo, West Pokot, Laikipia, Kajiado, Narok, Nyeri, West Pokot, Laikipia, Kajiado, Narok, Nyeri, Isiolo, Garissa, Tana River, Samburu, Turkana, Marsabit, Kilifi, Taita Taveta,	337

Intervention	County	Cost in Ksh (Million)
Pasture and fodder establishment and conservation	Makueni, Embu (Mbeere), Meru North, Tharaka Nithi, Baringo, West Pokot, Laikipia, Kajiado, Narok, Nyeri, Garissa, Tana River, Turkana, Kilifi, Taita Taveta, Lamu	643
Livestock restocking/ offtake	Makueni, Baringo, Garissa, Turkana,	449
Purchase and distribution of supplementary feeds	Tharaka Nithi, Makueni, Baringo, West pokot, Laikipia, Kajiado, Narok, Nyeri, Tana River	201
Breed improvement (Up scaling on Enterprise diversification and Provision of quality breeding stock/ equipment: beekeeping, dairy goats, and poultry farming)	Embu, Meru North, Kitui, Baringo, West Pokot, Laikipia, Kajiado, Narok, Nyeri, Kwale	421
Livestock insurance cover	West Pokot, Kwale	160
Total		**2,211**

4.3 Water Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
Water trucking	Makueni, Meru, Baringo, Mandera, Samburu	20
Repair /rehabilitation/extension/ maintenance of water structures and systems	Meru , Embu, Tharaka Nithi, Kitui, Makueni, Baringo, West Pokot, Laikipia, Nyeri, Garissa, Isiolo, Wajir, Turkana, Marsabit, Kilifi, Taita Taveta, Lamu	901
Construction of new water sources (boreholes, pans and dams) and warter storage facilities	Meru , Embu, Tharaka Nithi, Kitui, Makueni, Baringo, West Pokot,, Nyeri, Mandera, Tana River and Wajir, Turkana, Samburu, Isiolo , Lamu	1,742
Hydro-Geological Surveys	Mandera, Samburu	3
Water desalination plants	Lamu	120
Total		**2,786**

4.4 Health and Nutrition Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
integrated health and nutrition outreaches, mass nutrition screening and community health education	Meru, Tharaka Nithi, Makueni, Baringo, West Pokot, Laikipia, Narok, Nyeri, Garissa, Tana River, Isiolo, Taita Taveta	118
Upscale of HINI (high impact nutrition interventions)	Meru , Embu, Tharaka Nithi, Kitui, Makueni, Baringo, West Pokot, Narok, Turkana, Marsabit, Samburu, Kilifi, Taita Taveta, Embu	100

Intervention	County	Cost in Ksh (Million)
Up scaling IMAM (Integrated management of acute Malnutrition) program	Meru , Embu, Tharaka Nithi, Kitui, Makueni, Baringo, West Pokot, Taita Taveta,	50
KAPS Survey	Meru	3
SMART survey	Baringo , Nyeri, Taita Taveta, Lamu, Embu (Mbeere)	25
Total		**296**

4.5 Education Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
Construction/ establishment of new schools	Laikipia, Kajiado, Lamu	224
Equipping/ purchase/ construction/ extension/ rehabilitation of water structures, sources and systems within the school	Tharaka, Laikipia, Turkana, Samburu, Lamu	53
Provision of home grown school meal programme (HGSMP)	Meru , Tharaka Nithi, Kitui, Makueni, Laikipia , Kilifi, Embu	1,437
Total		**1,714**

4.6 Peace and Security Sector: Priority Interventions September 2018 – February 2019

Intervention	County	Cost in Ksh (Million)
Peace building initiatives to resolve conflict over resources, enhance conflict resolution mechanisms	Wajir, Isiolo, Lamu	9
Total		**9**

4.7 Food Assistance Sector: Priority Interventions September 2018 – February 2019

Food Insecure Populations, September 2018 – February 2019

County	County population (2016 projected)	Food insecure population in need of assistance after the 2017 SRA	September 2018 – February 2019	
			% of food insecure populations	Number of food insecure populations
Turkana	1,083,653	219,900	17	182,700
Wajir	458,900	121,300	14	65,500
Mandera	711,117	259,400	12	88,800
Garissa	431,950	197,600	19	83,700
Marsabit	315,936	136,600	13	40,800
Samburu	283,780	90,600	0	0
Laikipia	505,712	30,300	0	0
West Pokot	649,418	97,000	9	57,600
Tana River	303,047	174,800	16	49,300
Isiolo	155,465	104,100	23	36,500
Kajiado	870,721	103,800	0	0

County	County population (2016 projected)	Food insecure population in need of assistance after the 2017 SRA	September 2018 – February 2019	
			% of food insecure populations	Number of food insecure populations
Baringo	703,697	54,000	7	50,900
Narok	1,077,719	0	0	0
Sub-total, Pastoral	**7,551,115**	**1,589,400**		**655,800**
Makueni	959,022	196,300	0	0
Kwale	820,199	0	0	0
Kilifi	1,399,975	186,700	0	0
Kitui	1,097,687	244,400	0	0
Taita Taveta	358,173	82,100	0	0
Embu (Mbeere)	219,220	83,200	0	0
Tharaka-Nithi (Tharaka)	141,061	21.200	0	0
Meru (North)	775,982	64,000	0	0
Nyeri (Kieni)	175,812	39,100	0	0
Lamu	128,144	48,900	0	0
Sub-total, Marginal Agricultural	**6,075,275**	**965,900**		**0**
Total	**13,626,390**	**2,555,300**		**655,800**