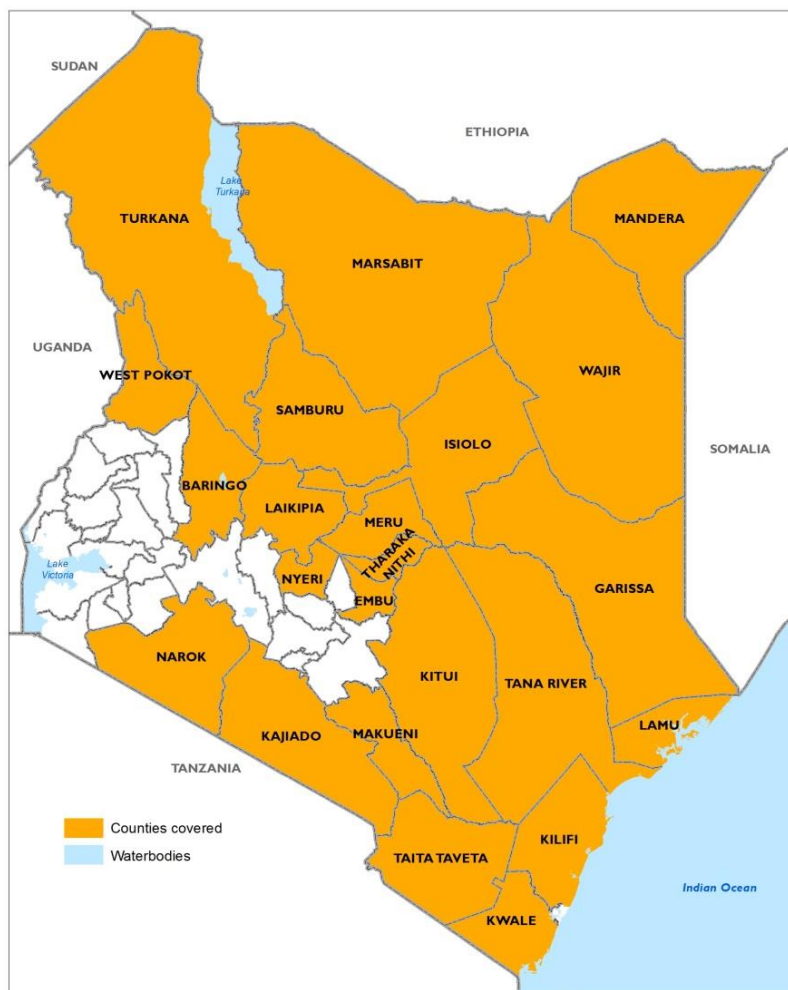# Government of Kenya

THE 2017 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.

July 2017

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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
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
SAM	Severe Acute Malnutrition
SDA	State Department of Agriculture
TLU	Tropical Livestock Unit
ToT	Terms of Trade
URTI	Upper Respiratory Tract Infection
WFP	World Food Programme
WHZ	Weight for Height Z-score

Executive Summary

Introduction
The long rains assessment was conducted from 3rd – 14th July 2017 in arid and semi-arid (ASAL) counties and led by the Kenya Food Security Steering Group (KFSSG). The KFSSG is a multi-sectoral and multi-agency body which brings together relevant government sectors, UN agencies and technically qualified NGOs under the leadership of the National Drought Management Authority (NDMA), co-chaired by the World Food Programme (WFP). The KFSSG carries out the seasonal assessments in partnership with the County Steering Groups (CSGs), which are also multi-sectoral and multi-agency, and whose membership includes local leaders. The assessment reports are therefore the definitive statement on food security in arid and semi-arid counties, endorsed by all KFSSG and CSG members.

Objectives
The overall objective of the assessment was to analyse and determine the impact of the 2017 long rains 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 ultimate goal is to advise on appropriate response mechanisms by the sectors, which include agriculture, livestock, water, health and nutrition, education, peace and security, and markets and trade. The recommended interventions are presented in this report.

Methodological Approach
The seasonal assessments cover the 23 counties classified as arid and semi-arid, which are generally the most food insecure and exhibit high levels of vulnerability.

The unit of analysis is the livelihood zone, with the main livelihoods being pastoralism, agro-pastoralism, mixed farming, marginal mixed farming and some irrigated cropping. The assessments use the Integrated Food Security Phase Classification (IPC), which is a global standard for classifying the severity of food insecurity and ensures that best practice is being applied. A standard methodology also allows comparisons to be made across areas and over time. Although nutrition elements are integrated within the IPC food security analysis, it does not currently incorporate a full overview of the nutrition situation that considers other causes of malnutrition than food insecurity. The IPC Acute Malnutrition Classification was therefore also undertaken to understand both the food and non-food causes of malnutrition.

The data is collected by joint teams of officers from the national and county governments. During this long rains assessment, these teams have:
- Collected data from 2,700 households in 90 sentinel sites using questionnaires
- Interviewed a minimum of six informants in each sample site visited: two community interviews, two key informant interviews, and two market interviews.
- Observed field conditions
- Reviewed secondary data, such as on vegetation condition, livestock and crop prices, and nutrition, both from SMART surveys and from secondary sources.

In each county the findings are consolidated in a report that is presented to the CSG for review and approval. The county reports are then synthesised to produce a national report.

Drivers of Food and Nutrition Insecurity

Rainfall performance

The 2017 March-May long rains began late across most of the country and delayed by between one and four weeks in the marginal agricultural and pastoral areas. Most parts of the country received 50-90 percent of normal rainfall, while western Kenya, the coastal counties of Kwale, Kilifi and Lamu, and parts of Wajir, Marsabit and Garissa received 90-125 percent of normal. Very low amounts of 25-50 percent of normal were realized in parts of Turkana, Marsabit, Samburu, Meru, Kajiado, Taita Taveta, Isiolo and Tana River, while the lowest amounts of 5-25 percent were received in the central part of Isiolo (Figure 1.1). The spatial and temporal distribution of rainfall was poor across the country. Cessation was normal in most counties, resulting in a shortened rainy season. This marks the second, and for some counties the third, consecutive poor performing season.

Figure 1.1: Long Rains Season (March-May 2017) Rainfall Percent of Normal
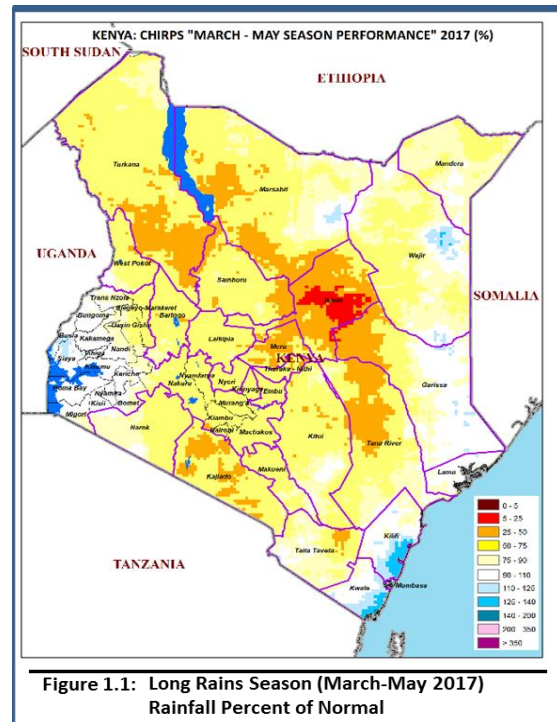
Other important drivers of food insecurity this season are: (i) high staple food prices across the country as a result of consecutive poor seasons and low volumes of cross-border trade from Uganda and Tanzania; (ii) the Fall and African Armyworm infestations that have affected the maize crop in 27 counties, significantly reducing production; and (iii) conflict and insecurity.

Summary of key findings

Figure 1.2: Trend of the food insecure population
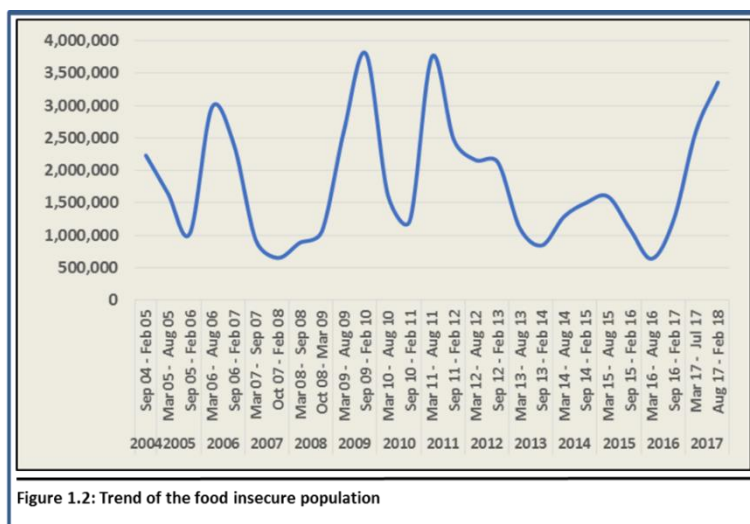
Approximately 3.4 million people are acutely food insecure and in need of humanitarian assistance (Figure 1.2). This is a significant increase on the figure of 2.6 million identified by the 2016 short rains assessment in February. Of this total, 2.6 million are experiencing Crisis and above (IPC Phase 3) outcomes, and 0.8 million are facing Stressed (IPC Phase 2) outcomes, with the likelihood of deteriorating into Crisis (IPC Phase 3).

Most pastoral counties experienced a second consecutive poor rainfall season, while Isiolo and Tana River experienced a third. Forage conditions range from poor to fair and are below normal due to high land surface temperatures, poor regeneration, and increased livestock pressure; forage is already depleted in some areas. Return trekking distances between forage and water are 10-30km, due to the poor recharge of water sources that are projected to last for 2-3 months instead of the normal 3-4 months. Distances are exceptionally long in parts of Turkana (Kakong) and Marsabit (Merille) at 20km and 60-80km respectively. Waiting times have lengthened as sources continue to dry up and livestock numbers increase at the remaining watering points. This has also reduced the watering frequency to 2-3 days per week compared with the normal daily watering.
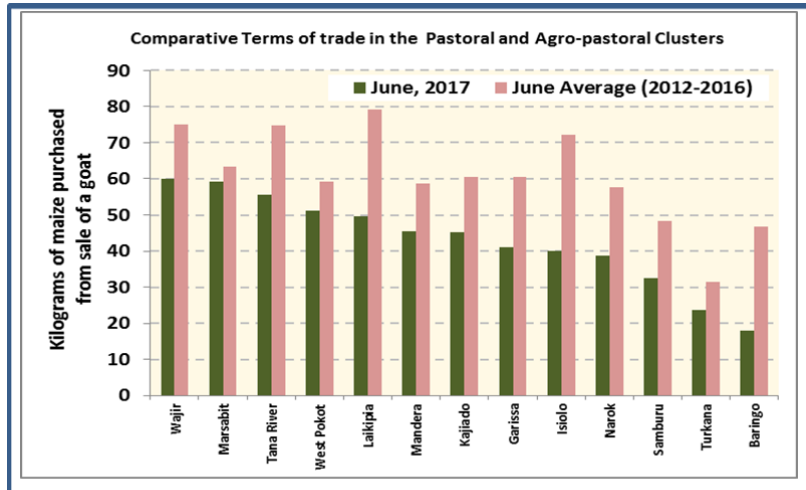

Figure 1.3: Cereals to livestock terms of trade

Livestock body condition is below average, lowering milk production and livestock prices. Body condition is fair to poor for grazers and fair to good for browsers, when normally it would be good. Milk production is 1-2 litres compared with the normal 2-3 litres; the poor season lowered rates of conception and consequently rates of calving, kidding, and lambing. Household milk consumption has reduced significantly to 1-1.5 litres, compared with the normal figure of 2 litres; only 25-30 percent of households have access to milk as most livestock are away in dry-season grazing areas. The short supply of milk and greater demand for it has increased the price to Ksh 60-120 per litre from the normal Ksh 40-80.
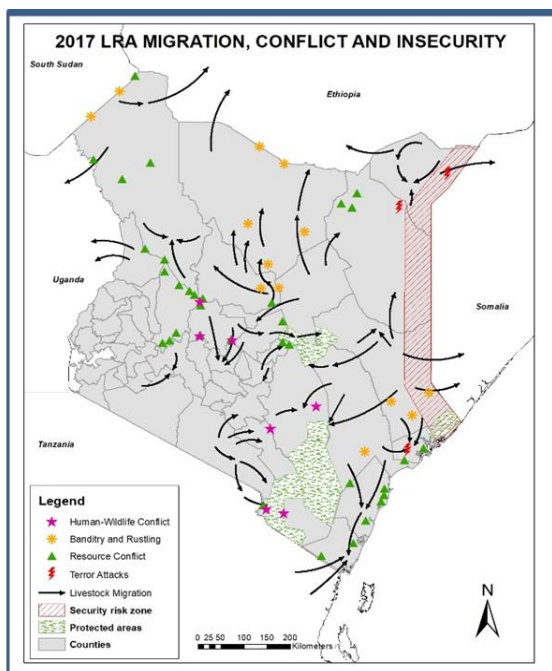
Figure 1.4: Livestock migration routes and conflict hotspots

Livestock prices that are up to 40 percent below average and high staple food prices have significantly reduced the livestock-to-cereals terms of trade (ToT) – a measure of household purchasing power in terms of kilogrammes of maize obtained from the sale of a goat (Figure 1.3). The ToT are currently 7-60 percent below the five-year average. Earlier depletion of forage in dry-season grazing grounds has also driven abnormal outmigration of 60-80 percent of livestock to neighbouring counties and nearby protected areas, resulting in increased incidence of livestock disease and conflict with farmers and wildlife (Figure 1.4).

In the south-eastern and coastal marginal agricultural areas, household food security continues to deteriorate, particularly in the south-eastern areas that saw a 75 percent reduction in maize production and have lean household food stocks at only 15 percent of average. Coastal areas

received above-average long rains and experienced improved crop production compared with the previous season. However, crop production and household food stocks are below average, affecting both food availability and incomes from agricultural activities. High staple food prices are expected to continue for the rest of the year and will further reduce household food availability and consumption.

Categories of the food insecure population
In February 2017, the short rains assessment classified most parts of the pastoral, agro-pastoral and marginal agricultural areas as Stressed (IPC Phase 2) with several parts of Turkana, Marsabit, West Pokot, Baringo, Mandera, Wajir, Tana River, Kilifi and Lamu categorized in Crisis (IPC Phase 3). Figure 1.5 shows the phase classification in July 2017 when the long rains assessment was conducted as well as the projection from August until October 2017.
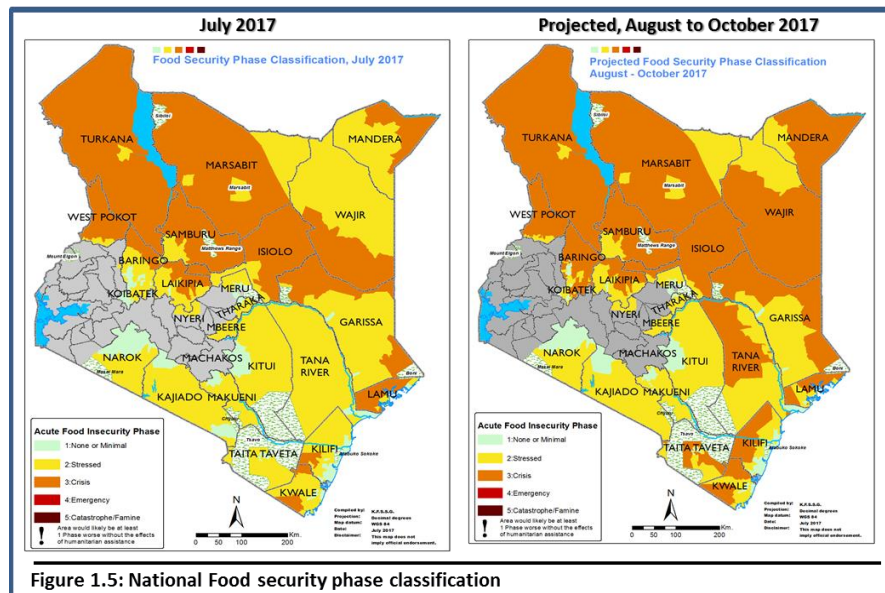

Figure 1.5: National Food security phase classification

Population in Crisis (IPC Phase 3)
There are approximately 2.6 million people classified in this phase, of which 0.5 million are already in Emergency (IPC Phase 4) but do not meet the threshold of more than 20 percent of the population being in this Phase, for the areas to be classified in Phase 4. The counties classified in Crisis (IPC Phase 3) are Turkana, Marsabit, West Pokot, Samburu, Isiolo and Lamu, as well as parts of Mandera, Wajir, Garissa, Baringo, Laikipia, Kilifi and Kwale. Households in this category are marginally able to meet their minimum food needs but only by more rapidly depleting their assets and thus undermining their food consumption. In the absence of adequate cross-sectoral interventions, more areas and households in these counties are expected to fall into this phase by October 2017.

Most households categorised in this phase are consuming 1-2 meals per day, consisting mainly of cereals and pulses, and consuming fewer of the other food groups and less frequently. Household food stocks cannot last for one month. Malnutrition rates are high and likely to continue deteriorating, especially in pastoral areas in the north-east. Food prices are significantly above the five-year average as livestock prices decline, compromising household purchasing power and limiting access to food.

Population in Stressed (IPC Phase 2)
There are approximately 0.8 million people in the Stressed (IPC Phase 2) category. Most parts of the south-east and coastal marginal agricultural areas, as well as Kajiado, parts of Baringo and Narok, and parts of Mandera, Wajir, Garissa, Tana River and Marsabit, are classified in this phase. Households in this category can afford minimally adequate food consumption but are unable to afford essential non-food expenditures without engaging in irreversible coping strategies. More people in this category are expected to fall into Crisis (IPC Phase 3) between

August and October, except in the south-east marginal agricultural areas and in Narok and Kajiado where they are likely to remain in Stressed.

Most of these areas received below-average rainfall that was unevenly distributed. As a result, crop production is expected to be only 25 percent and 50 percent of the long-term average (LTA) in the south-east and agro-pastoral areas respectively. Staple food prices have been rising and are now 35-45 percent above the LTA in the coast and 50-80 percent above the LTA in the south-east. Household food stocks are less than 15 percent of the LTA due to below-normal production during the 2016 short rains season. More than 60 percent of households still have acceptable food consumption, but they are engaging in coping strategies that limit their ability to meet their non-food needs. Although malnutrition rates are acceptable in the south-east, coast, and parts of the agro-pastoral areas, they are likely to deteriorate towards the height of the lean season and into October.

Nutrition IPC Classification[1]

The IPC for Acute Malnutrition conducted in July 2017 reported a *Very Critical* nutrition situation (Phase 5; GAM WHZ ≥30 percent) in Turkana Central, Turkana North, Turkana South, and North Horr in Marsabit (Figure 1.6). The rates of acute malnutrition in Turkana are comparable to those during the 2011 crisis, with the highest Global Acute Malnutrition (GAM) of 37 percent recorded in Turkana South.
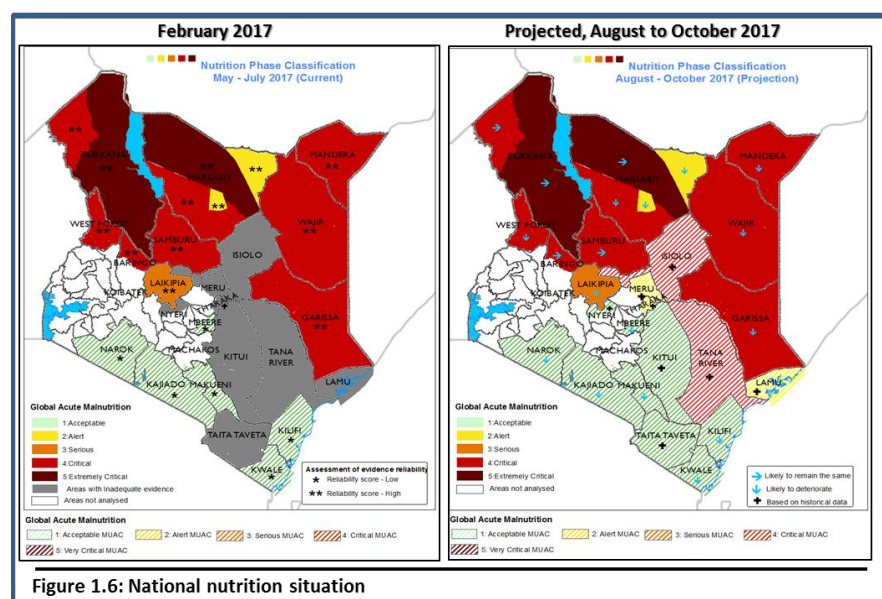
Figure 1.6: National nutrition situation

A *Critical* nutrition situation (Phase 4; GAM WHZ 15.0 - 29.9 percent) was reported in East Pokot (Baringo), Samburu, West Pokot, Turkana West, Garissa, Wajir, and Mandera, while Laikipia reported a *Serious* nutrition situation (Phase 3; GAM WHZ 10.0 -14.9 percent). Moyale and Saku in Marsabit were classified as *Alert* (Phase 2; GAM WHZ ≥ 5 to 9.9 percent), while Narok, Kajiado, Makueni, Mbeere, Kwale, and Kilifi were *Acceptable* (Phase 1; GAM WHZ <5% percent).

The main contributing factor to these malnutrition rates is household food insecurity, caused by low milk availability and food stocks and high food prices. Other factors include common illnesses such as diarrhea, disease outbreaks, low coverage of supplementation programmes, poor child feeding practices, and poor water and hygiene practices. Pre-existing factors such as high poverty rates, low literacy, poor access to health facilities and frequent shocks aggravate the situation. There is a risk of further deterioration in most counties in the coming months as the food security situation worsens.

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[1] GAM WHZ: Global Acute Malnutrition by Weight for Height: MUAC- Mid Upper Arm Circumference: MAM-Moderate Acute Malnutrition: SAM- Severe Acute Malnutrition

A total of 369,277 children in ASAL counties require treatment for acute malnutrition (MAM 296,645 and SAM 72,632), as well as 36,988 pregnant and lactating women. This is an increase on February 2017 when the equivalent figures for children were 343,559 (MAM 268,549 and SAM 75,010). The notable increase in MAM and decrease in SAM is attributed to the difference in populations in the computation.

2017 long rains crop production and prospects
The June 2017 Food Situation Report from the State Department of Agriculture (SDA) notes that the national food security situation remains unstable. This has been evolving since the erratic long rains in 2016 that resulted in maize production of 10 percent below average. A poor short rains season in 2016 then caused an estimated 70 percent drop in production to 0.15 million metric tonnes (MMT), leaving most of the ASALs, especially the marginal agricultural areas that are largely dependent on the short rains, in a precarious food security situation.

While the 2017 long rains generally performed poorly, they were average to above-average in high and medium rainfall areas and in the coastal region. However, in March 2017, the irrigated maize crop in Trans Nzoia was attacked by the Fall Armyworm, which was the beginning of a widespread infestation that has since been reported in all but seven counties (Lamu, Samburu, Garissa, Wajir, Mandera, Isiolo and Marsabit). The infestation in areas that produce most of the country's maize has had a major impact. The SDA estimates that the 200,000 hectares currently affected will result in losses of up to 4.2 million bags, valued at Ksh 12.6 billion. It also estimates the long rains maize production to be approximately 2.3 MMT, or 20-30 percent below average.

This assessment confirms the shortfall: maize production is 75 percent below average in Kitui, Makueni, Tharaka Nithi, Mbeere and Meru North, and 50 percent below average in agro-pastoral areas. The coastal marginal agricultural areas performed slightly better due to relatively better rains, with production at 30 percent below normal.

The situation in Kenya has been compounded by difficulties in the wider region. Between May 2016 and March 2017, maize production in Tanzania and Uganda was also below normal. Their export volumes to Kenya in the first quarter of 2017 fell by 77 percent and 64 percent respectively against the average,[2] further tightening maize supply in Kenya, driving up prices, and necessitating international imports. However, during the second quarter of 2017, imports from Uganda were 46 percent above the four-year average while those from Ethiopia were exceptionally high at 50 times the average. A recent ban on maize grain exports from Tanzania meant that its exports to Kenya were 54 percent below average, and mostly through informal channels. As maize supply and availability in Kenya further declined, and prices steadily rose, the government in May 2017 approved the importation from Mexico of 5.7 million and six million bags of white and yellow maize respectively to mitigate the deficit.

Food price trends
Low maize supply has resulted in prices that are at five-year record highs, and that rose steadily from January 2017, significantly reducing households' access to food. In June, prices across the urban reference markets of Nairobi, Eldoret, Kisumu and Mombasa were 35-60 percent above average (Figure 1.7). Slight dips in price are attributed to green harvests becoming

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[2] East Africa Cross-Border Trade Bulletin, January 2017, produced by the Market Analysis Sub-Group of the Food Security and Nutrition Working Group.

available and cross-border imports, mainly from Uganda. Prices are expected to remain 30-50 percent above average until the end of 2017.

International maize imports continue as part of the government's maize flour subsidy programme that has fixed the retail price of 1kg and 2kg packets of sifted maize flour at Ksh 47 and Ksh 90 respectively. In June, 136,000 MT of maize was received from South Africa, Mexico, Zambia and Ethiopia and sold to registered millers at a subsidized price of Ksh 2,300 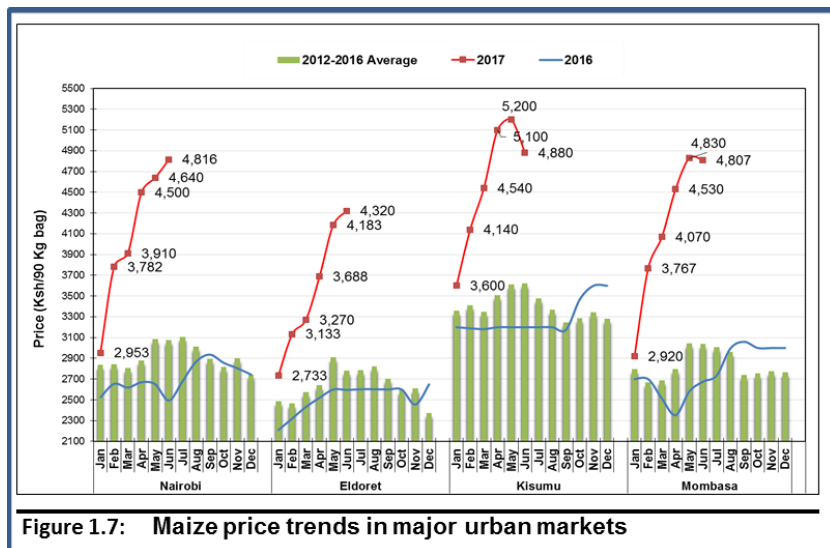per 90kg bag. By the end of the subsidy programme, it is expected that five million 90kg bags will have been distributed to these millers. However, the subsidized maize flour has not been consistently available, especially in May and June. Shortages have been especially pronounced in rural areas, further constraining household food access and availability.

Figure 1.7:   Maize price trends in major urban markets

Food Security Prognosis (August 2017 – January 2018)

Pastoral areas
Food security is projected to reduce from August as rangeland resources deteriorate, staple food prices remain high, and incomes from livestock and milk sales remain low. Food consumption will decline as more households increasingly rely on coping strategies to fill gaps. As livestock stay in dry-season grazing areas, the absence of livestock products such as milk and reduced dietary intake will increase malnutrition. Areas currently classified in Stressed (IPC Phase 2) and Crisis (IPC Phase 3) are expected to remain so until October, with additional parts of Wajir, Baringo, Tana River, Kilifi and Taita Taveta moving into Crisis (IPC Phase 3).

The onset of the short rains is expected in October, after which there will be modest improvements in rangeland resources, livestock body condition, milk production, and livestock sales, temporarily improving household food security. However, range resources will fast deteriorate under increased grazing pressure and high temperatures, driving further abnormal livestock migration that will reduce milk consumption and income. In January, household food consumption will reduce as livestock prices and productivity fall. In areas with poor rains, more households are likely to move into Crisis (IPC Phase 3), while in areas with above-average rains, stability is expected.

Marginal agricultural areas
Below-average crop production in August is likely to reduce household income from agricultural labour activities and crop sales and thus reduce food security. Market dependence will increase in September as household food stocks dwindle, but will be constrained by high food prices, thus deepening dependence on coping strategies. Lower milk consumption is likely to increase malnutrition in children under five until October. Conflict and insecurity will heighten during the peak of the lean season. Increased food insecurity will see additional

households moving into Stressed (IPC Phase 2) or Crisis (IPC Phase 3) in Taita Taveta, Kwale and Kilifi by September.

From September, in anticipation of the short rains in October, agricultural activity will expand, increasing household incomes, access to food, and consumption to some degree. The rains will replenish forage and water, improve livestock productivity and sales, and increase milk consumption, though the impact of this will depend on how the season performs. Some short-cycle crops will become available in December, slightly improving food consumption and dietary diversity until mid-January 2018. Food security is expected to improve slightly with the short rains but not sufficiently to change the food security phase. Households previously in Stressed (IPC Phase 2) and in Crisis (IPC Phase 3) will remain so.

The key factors to monitor over the next six months include:
- Staple food prices
- Livestock health and mortality
- Resource-based conflicts and insecurity
- Effects of armyworms on production
- Fall-out from the 2017 elections
- Impacts of programmes and interventions
- Performance of the 2017 short rains.

Options for response
The table below contains response options by sector. As well as the immediate interventions required, the medium to long-term interventions that build community resilience, as anchored in the Ending Drought Emergencies Common Programme Framework, should be enhanced.

Proposed Interventions by Sector

Sector	Proposed interventions	Cost Ksh. (M)	Cost USD (M)
Agriculture	Armyworm control, promotion of early maturing drought-tolerant crops, relief seeds, fertilizer and inputs subsidy, post-harvest management capacity	459	4.46
Livestock	Supplementary livestock feeding, emergency offtake, disease surveillance	964	9.4
Health and nutrition	Mass screening, integrated outreach, water treatment, Vitamin A & Zinc supplementation, IMAM, MIYCN interventions, IFS (pregnant women), deworming	381	3.7
Water	Fuel subsidy, water trucking, rehabilitation of strategic boreholes,	405	4
Education	HSGMP, EHSMP, water trucking to schools	287	2.8
Food assistance	Build resilience to future shocks through asset creation and safety net programmes; food commodities and cash including associated costs for 3.4 million food insecure people in need of assistance for the next six months (August 2017 – January 2018).	20,909	203.5
Peace and security	Establish and support peace and conflict resolution mechanisms among pastoral and farming communities and form peace committees.	50	0.5
Total		23,455	228.36

1.0 Introduction

1.1 Assessment Coverage and Objectives

The long rains food and nutrition security assessment of 2017 was conducted between 3rd and 14th July 2017. It was coordinated and conducted by the Kenya Food Security Steering Group (KFSSG) and the County Steering Groups (CSG) in the 23 arid and semi-arid counties. These cover close to 80 percent of the country and have diverse livelihood zones (Figure 1.8). The 23 counties are divided into the following livelihood clusters:

i. **Pastoral north-west:** Marsabit, Samburu and Turkana
ii. **Pastoral north-east:** Isiolo, Garissa, Tana River, Wajir and Mandera
iii. **Agro-pastoral:** Baringo, Laikipia, West Pokot, Kajiado, Narok and Nyeri (Kieni)
iv. **Coastal marginal:** Kwale, Kilifi, Lamu and Taita Taveta.
v. **South-east marginal agricultural counties:** Kitui, Makueni, Meru (Meru North), Embu (Mbeere) and Tharaka Nithi (Tharaka).

The overall objective of the assessment was to develop an objective, evidence-based and transparent food and nutrition security situation analysis, taking into account the cumulative effect of previous seasons, in order to inform the

Figure 1.8: Kenya Livelihood Zones

government and relevant stakeholders on the status of food security across arid and semi-arid areas. The assessment also aimed to identify areas with high severity of food insecurity and recommend appropriate response options, whether short or long term.

Specific objectives were to:
- Ascertain at the livelihood level the quality and quantity of the 2017 March to May long rains and assess their impact on all key sectors including crop agriculture, livestock, water, health and nutrition, education, peace and security, and markets and trade.
- Establish the impacts of other compounding factors on household food security, such as conflict, crop pest and disease, food prices and floods.
- Establish required non-food interventions, with particular emphasis on programmes that promote preparedness and build household resilience.
- Assess potential food needs and the options for appropriate transfer modalities, including asset creation, cash and vouchers, safety nets and general food distribution.

1.2 Assessment Approach

Figure 1.9: Sentinel sites for food security outcome monitoring

The overall assessment processes and methodologies were coordinated and developed by the KFSSG. They involved the following steps.

1.   Secondary data for all assessed counties was collected, analysed and collated into briefing packs. This included livelihood zone baseline data, drought monitoring information, nutrition surveillance data, price data and satellite imagery.

2.   The KFSSG organized a one-week training workshop for the assessment teams, at which they refined sectoral indicators and interview guides and were taken through the entire assessment process, including agro-climatic information analysis, sampling methods and field data collection techniques, Integrated Food Security Phase Classification (IPC), estimation of the population in need of immediate relief assistance, and report writing.

3.   Food security outcome monitoring indicators were collected from 2,700 households in 90 sentinel sites (Figure 1.9). Each assessment team also conducted a minimum of two community, two key informant and two market interviews in each sample site. Visual inspection techniques were used during transects drives to obtain qualitative information.

4. The field data was collated, reviewed, analysed and triangulated to verify its validity. The NDMA drought monitoring bulletins, nutrition SMART survey reports and secondary data, and the FEWSNET/NDMA/WFP monthly food security updates provided important additional information.

The assessment adopted a multi-sectoral and multi-agency approach covering the following sectors: agriculture, livestock, water, health and nutrition, education, peace and security, and markets and trade. While the analytical framework is generally the sustainable livelihoods framework, with the livelihood zone being the unit of analysis, the required outcome is a detailed understanding of the changes in food security and identification of populations affected and in need of multi-sectoral assistance, particularly in the immediate and medium term. The results from sampled areas, along with the outcomes of discussions with the CSGs and secondary data analysis, were used to draw inferences for areas not visited but situated in similar livelihood zones. The findings and recommendations were provided at both the county and sub-county levels for planning purposes. The Food Security IPC (Version 2.0) was used to classify the severity of food insecurity in different livelihood zones, while the Nutrition IPC was used to classify the prevalence of malnutrition in areas where SMART surveys were conducted.

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 pastoral north-west livelihood cluster consists of three counties: Turkana, Marsabit and Samburu. It covers an area of 173,772 square kilometres. The projected population is 1,683,369 (KNBS, 2016). The three main livelihood zones and their proportion of population are as follows: pastoral all-species (69 percent), agro-pastoral (24 percent) and fishing/formal employment/business/petty trade (seven percent), as shown in Figure 2.1.

Figure 2.1: Pastoral Northwest cluster livelihood zones
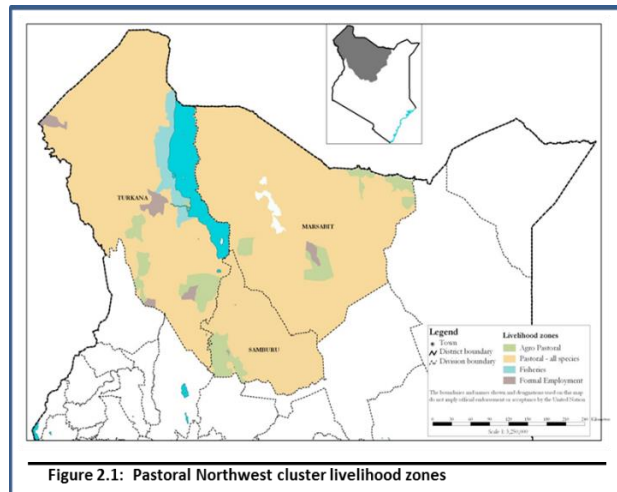
2.1.2 Current Drivers of Food Insecurity
The main drivers of food insecurity in the cluster are the poor performance of the long rains, and resource-based conflict, insecurity and cattle rustling which led to migration and human displacement. Other drivers include flash floods, armyworm invasion, high food prices and low access to water.

Rainfall performance
The onset was late across the cluster in the third dekad of April compared with the first to third dekad normally. Most areas received an average of 50-75 percent of normal rains, but the southern parts of Turkana, south-eastern parts of Samburu and the western and southern parts of Marsabit received only 25-50 percent of normal. The eastern parts of Marsabit received 90-110 percent of normal rainfall. Cessation was normal in the third dekad of May.

Other Shocks and Hazards
The main shocks and hazards were resource-based conflicts reported across the cluster, including cross-border conflicts in Turkana and Marsabit. Cases of insecurity and cattle rustling in Samburu resulted in 14 deaths, migration, and displacement. There were flash floods in Marsabit which killed nine people and numerous livestock (27,000 small stock and 200 cattle).

2.1.3 Current Food Security Situation
The cluster is classified under Crisis (IPC Phase 3), except Moyale sub-county in Marsabit and the agro-pastoral livelihood zone in Samburu which are classified as Stressed (IPC Phase 2). The cereal stocks held at household level account for only 15 percent of the LTA. Pasture and browse conditions range from fair to poor. Return trekking distances to water sources increased across the cluster to 10-25 km, compared with the normal three to six km. However, in the agro-pastoral livelihood zone in Samburu, the distances were still between two and five km.

Livestock body condition ranged from fair to poor across the cluster. Milk production in the pastoral livelihood zones reduced to one litre per household per day compared with the normal four litres, while in the agro-pastoral livelihood zones milk production was two litres compared with the normal six litres. Maize prices ranged between Ksh. 50 and 100 and were above the LTA. Terms of trade were unfavourable and below the LTA, with Turkana having the lowest

ToT where only 24kg of maize could be purchased from the sale of a goat. 25 percent of households had poor food consumption. The SMART survey indicated a very critical nutrition situation in most of Turkana, except the west, and in North Horr in Marsabit, where Global Acute Malnutrition (GAM) was above 30 percent. Samburu, Laisamis in Marsabit and Turkana West were classified as critical with GAM between 15 and 29.9 percent. The nutrition situation in Moyale and Saku in Marsabit was at alert.

2.1.4 Food security trends

Indicator	Short rains assessment, Feb 2017 (previous season)	Long rains assessment July 2017 (current season)
Food security phase	Largely Stressed (IPC Phase 2), but some areas in Crisis (IPC Phase 3).	Crisis (IPC Phase 3), but some pockets such as agro-pastoral in Stressed (IPC Phase 2)
Maize stocks	Above LTA in Turkana and Samburu but Marsabit is 7.9% below LTA	Below LTA, with Samburu and Turkana at 9% and Marsabit at 19% of LTA
Livestock body condition	Fair to poor	Fair to poor
Household water consumption	10-20 litres per person per day, except in Marsabit and pockets of Samburu where it is 5-8 litres per person per day.	10-20 litres per person per day in Turkana and Marsabit, and 2-4 litres per person per day in Samburu.
Meal frequency	Majority taking 1 – 2 meals per day, with agro-pastoral areas of Samburu and Turkana consuming up to 3 meals.	Majority taking 1-2 meals per day, with agro-pastoral areas of Samburu and Marsabit consuming up to 3 meals.
Household milk production	Average 0-1.5 litres per day	Average 0-2 litres per day
Terms of Trade	Near LTA in Turkana and Samburu but up to 8 percent below LTA in Marsabit	All below LTA
Coping Strategy Index	18 – 25 within the cluster	15- 26 within the cluster
Food Consumption Score	Deteriorating, with households with acceptable score in Samburu, Marsabit and Turkana at 46%, 14.5% and 40% respectively.	Samburu and Marsabit: 40% poor and 24% acceptable Turkana: 26% poor and 50% acceptable
Children at risk of malnutrition	Some parts of Turkana and Marsabit deteriorated to Emergency levels, but most remain Critical, though Samburu is still at Serious level	Turkana and Samburu are on a deteriorating trend while Marsabit is improving and above LTA.

2.1.5 Impact of Drivers on Food and Nutrition Security

2.1.5.1 Crop Production

Rain-fed crop production
The main crops grown are maize, beans and sorghum, with Samburu accounting for 97 percent of maize and 88 percent of beans produced in the cluster. Other crops are cowpeas and green grams which are mainly grown in Samburu and Marsabit. The long rains season contributes 70-80 percent of annual food production in Samburu and Turkana respectively, and about 30 percent in Marsabit. The area under maize, beans and sorghum reduced to 76, 81 and 11 percent of the LTA respectively, attributed to the delayed onset of the long rains. There was near total crop failure in Turkana and Marsabit.

Irrigated crop production

Irrigation is mainly practised around the rivers Turkwel and Kerio in Turkana, while in Marsabit and Samburu it is done through on-farm water harvesting structures. The major crops grown under irrigation are maize, sorghum and kales. Others are spinach, cowpeas and tomatoes. The area under maize, sorghum and kales declined by 24, 90 and 51 percent respectively compared with the LTA, attributed to the drying up of the River Kerio and low recharge of River Turkwel, dilapidated irrigation infrastructure in Turkana, and the stalled Kasungu and Songa irrigation schemes in Marsabit. Consequently, production of maize declined by 60 percent, sorghum by 52 percent, and kales by 62 percent.

Maize stocks

Maize stocks held by households, traders and millers were 15, 30 and 32 percent of the LTA respectively, attributed to the decline in production and reduced maize availability across the country.

2.1.5.2 Livestock Production

Livestock production contributes about 85 and 45 percent to cash income in the pastoral and agro-pastoral livelihood zones respectively. Pasture conditions were fair to poor across the livelihood zones compared with good to fair normally. Poor regeneration of rangeland vegetation and high concentration of livestock accelerated depletion. However, invasive weeds and plants that are not palatable to livestock were observed in parts of the pastoral areas in North Horr. Inter-communal conflict and insecurity have limited access to pasture and browse, especially in parts of Marsabit and Samburu. In Turkana, inter-community conflicts (Turkana, Samburu and Pokot) and insecurity along the international borders with Ethiopia and Sudan have also limited access to pasture and browse.

Livestock body condition for cattle and sheep is fair to poor across the livelihood zones. The condition of camels and goats is good and fair respectively. Livestock body condition is likely to deteriorate further with diminishing pasture and increased trekking distances to water points.

Livestock body condition

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

Household milk availability has remained low across all livelihood zones attributed to fair to poor livestock body condition. Milk availability is likely to decline further towards the lean season. Low milk production has led to low household milk consumption. High milk prices were reported across all livelihood zones due to low milk production. Households continued to rely on powdered milk from retail shops, particularly in Turkana, where powdered milk was retailing at Ksh. 20 per teaspoon.

Milk production, consumption and pricing

Livelihood zone	Milk Production (Litres) /Household		Milk consumption (Litres)/Household		Prices (Ksh)/Litres	
	Current	LTA	Current	LTA	Current	LTA
Pastoral all-species	0.5-1	2-4	0-1.5	1-2	60-120	50-80
Agro-pastoral	1-2	2-5	0-1.5	1.5-3	60-80	50-60
Fishing	0.5	2	0.5	2		50-60

The current water sources for livestock include water pans, shallow wells, boreholes and seasonal streams and rivers. The return trekking distances to water sources in Turkana and Samburu ranged between 10 and 15 km in pastoral areas compared with the normal 3-6 km. In agro-pastoral areas, the distance was 5-10 km compared with the normal 2-4 km. In Marsabit, the return trekking distances for both pastoral and agro-pastoral areas ranged between 15 and 25 km compared with the normal 11-20 km. However, in Merille, the return trekking distance was as high as 60-80 km. Watering frequency for cattle, goats and sheep was after 3-5 days across the cluster, except in Samburu where the frequency was every two days.

The birth rates for all livestock types declined due to poor body condition. Livestock ownership has also declined over successive seasons. Poor households in the cluster have 3-10 Tropical Livestock Units (TLUs) compared with the normal 15-20. Wealthy households have 15-30 TLUs compared with the normal 20-50.

Abnormal livestock migration was reported both within and beyond the cluster, to other counties and neighbouring countries such as southern Ethiopia and Uganda. Migration was also triggered by insecurity along the borders with Baringo, Samburu and West Pokot. Livestock diseases such as Foot and Mouth Disease (FMD), Lumpy Skin Disease (LSD), Sheep and Goat Pox, Contagious Caprine Pleuro-Pneumonia (CCPP), Contagious Bovine Pleuro-Pneumonia (CBPP) and Pestes des Petits Ruminants (PPR) have been reported across the livelihood zones. Trypanosomiasis has also been reported in Turkana. Vaccinations against FMD, PPR, Sheep and Goat Pox and LSD have been supported by the county governments and other partners.

2.1.5.3 Market Performance
The main markets in this cluster are Moyale, Marsabit, Loyangalani, North Horr, Lodwar, Lokichar, Kakuma, Turkwell, Lokichogio, Lolkuniyani, Maralal town and Archers Post. Market operations were normal with no disruption reported, although there was limited access to markets in some pockets of Turkana East and South. The traded species of livestock were mainly goats, sheep, cattle and camels. However, traded volumes were low as a result of early migration. The main food commodities traded were maize and maize flour, rice, beans, green grams, and wheat flour. Volumes of maize supplied were low and access to the same limited due to above-normal prices and low purchasing power. Sources of food commodities were both internal and external from neighbouring counties and from Ethiopia.

Maize prices ranged from Ksh. 49 per kg in Marsabit to Ksh. 100 per kg in Turkana. They were above the LTA with the exception of Marsabit, where there was no difference. Goat prices in Marsabit and Samburu were below the LTA. The ToT were also below average (Figure 2.2): from the sale of an average goat a household could buy 24kg of maize in Turkana and 59kg in Marsabit.
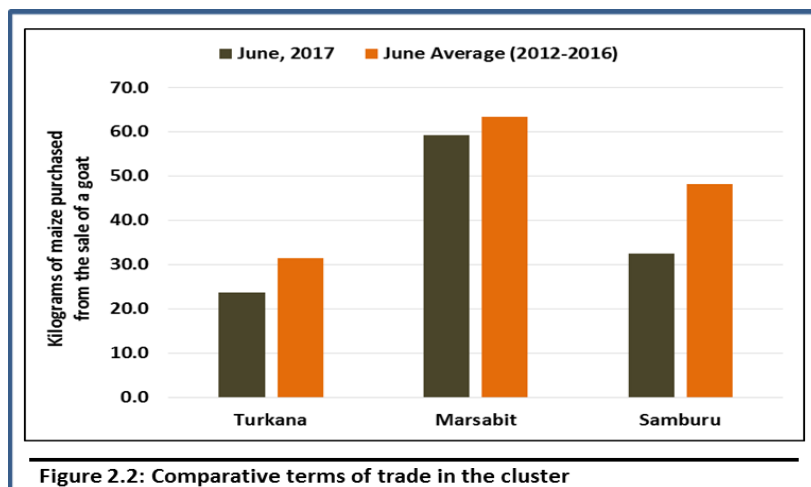

Figure 2.2: Comparative terms of trade in the cluster

2.1.5.4 Water Availability and Access

The main water sources across this cluster are shallow wells, boreholes, water pans and earth pans. Other sources are springs and rivers. The number of people relying on some of the main water points has increased to between 1,000 and 1,500. Ramata pan in Marsabit and Kalama in Samburu are serving 3,000 and 3,400 people respectively. The main factors causing this high concentration are migration of people and livestock towards available sources and the drying up of boreholes and shallow wells. Water from pans across the livelihood zones is generally expected to last for 1-3 months, except in Wamba where it is expected to last for two weeks.

The cost of water is on average five shillings per 20 litre jerry can across the livelihood zones, except for the fisher folks along Lake Turkana where the price is up to Ksh. 20, compared with the normal Ksh. 10. The cost of water was exceptionally high in Marsabit and Moyale towns (Ksh. 50 per 20 litre jerry can) and in Baragoi town in Samburu (Ksh. 40 per 20 litre jerry can). The average return trekking distances were normal at 2-5 km, except in most parts of Turkana where they reached 12km.

The waiting time at water sources averaged 20-30 minutes across the cluster, except in agro-pastoral areas of Samburu where it was normal at five minutes. In the pastoral all-species zones, the waiting time increased from 15 to 60 minutes due to population pressure at the source. In Marsabit, about 39 percent of households in Saku, 30 percent in North Horr, and 26 percent in Laisamis reported waiting times of more than one hour, which is above normal.

The current return distances to water sources doubled from 2-5 km to 5-10 km in the pastoral all-species zone. However, in Wamba and Waso in Samburu, which rely on boreholes and water pans, distances are still normal. The average water consumption is normal at 15 litres per person, with the exception of Samburu (pastoral livelihood zone) where households consumed five litres per person, attributed to increased distances to water sources and drying up of alternative sources.

2.1.5.5 Food Consumption

A SMART Survey conducted in June 2017 in Turkana showed that 26 percent and 24 percent of households respectively had poor and borderline food consumption. From the Food Security Outcome Monitoring (FSOM May 2017), the proportion of households in Samburu with poor, borderline and acceptable food consumption were 41, 36 and 24 percent, compared with 16, 27 and 57 percent during the same period in 2016. The deterioration was attributed to the poor performance of the 2017 long rains and high food prices. Depleted forage also reduced livestock productivity and consequently household milk production and consumption.

2.1.5.6 Coping Strategies

The Coping Strategy Index (CSI) during the long rains season was higher than in the same period in 2016, implying increased food insecurity. According to SMART surveys in June 2017, the CSI ranged between 17 and 26, compared with 5 and 10 during the same period in 2016. More households are employing consumption coping strategies and with greater frequency. The key coping strategies used were reducing meal portions and the number of meals in a day, consuming less preferred foods, and reducing the amount of food taken by adults. About 20-25 percent of households were using emergency livelihood coping strategies such as selling productive livestock, although in Turkana this figure was higher (55 percent). Households using crisis livelihood coping strategies were 20 to 30 percent across the cluster.

2.1.5.7 Health and Nutrition

According to the IPC for Acute Malnutrition conducted between June and July 2017, Turkana Central, Turkana South, Turkana North and North Horr in Marsabit reported a Very Critical Nutrition situation (Phase 5: GAM ≥30 percent). A Critical nutrition situation (Phase 4: GAM WHZ 15.0 - 29.9 percent) was reported in Samburu, Turkana West, and Laisamis in Marsabit. Saku and Moyale sub-counties in Marsabit were in Phase 2 (Alert GAM WHZ ≥ 5 to 9.9 percent) with the potential to deteriorate in the next three months.

A worsening nutrition situation was noted in all counties, with Samburu and Turkana West moving from Serious to Critical, Turkana North and Central moving from Critical to Very Critical, while Turkana South remained at Very Critical. This trend is expected to continue. High malnutrition rates could be attributed to poor dietary intake and household food insecurity, coupled with the disease burden. These factors, compounded by the chronic issues prevalent in these areas such as limited access to quality health services and inappropriate child care and feeding practices, increase the vulnerability of the population and aggravate the high malnutrition rates. The current situation is further compounded by the ongoing nationwide nurses' strike which has disrupted health care service delivery.
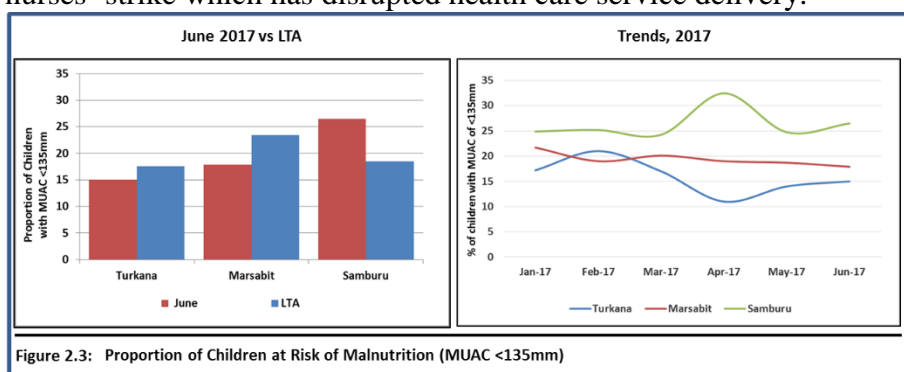

Figure 2.3: Proportion of Children at Risk of Malnutrition (MUAC <135mm)

The proportion of children under five at risk of malnutrition, based on MUAC <135mm from sentinel sites, was above the LTA in Samburu, while in Turkana and Marsabit it was below the LTA (Figure 2.3). Integrated Management of Acute Malnutrition (IMAM) admission trends from January to June 2017 were notably higher in Marsabit and Turkana compared with the same period over the last two years, while they were stable in Samburu. A sharp increase in admission was observed between February and April in Marsabit and Turkana, attributed to the scale-up of mobile health and nutrition outreach, active case-finding, and immediate treatment of children and women identified as being acutely malnourished. In June and July, admissions declined across all counties, largely attributed to the nurses' strike.

Routine Vitamin A and immunization coverage were below the national target of 80 percent across the cluster. This was attributed to poor health-seeking behaviour, poor documentation, and the effects of the nurses' strike that disrupted vaccination and micronutrient supplementation programmes.

2.1.5.8 Education

Access (Enrolment rate)

The percentage of boys enrolled at all levels of education is higher than that of girls. Girls represent an average of 47 percent, 44 percent and 36 percent at ECD, primary and secondary levels respectively. The total number of children enrolled in school in this cluster is as follows:

Enrolment in the cluster

	Boys	Girls	Level Total
ECD	71,247	63,215	**134,462**
Primary	157,464	124,305	**281,769**

| Secondary | 17,163 | 9,780 | **26,943** |

Enrolment is significantly affected by migration. While some schools have seen reduced enrolment, others are overcrowded, and migrating children are out of school for a period. Migration affects boys' enrolment more than that of girls. Secondly, household chores are another large contributing factor to lower enrolment rates. During community interviews at Kakong in Turkana South, girls reported that their schooling was stopped by their parents to attend to household chores (including fetching water, selling charcoal and taking care of their younger siblings). Finally, enrolment rates for girls have always been lower due to cultural perceptions of girls' education and cultural practices of dowry weighting, although the effects of drought have exacerbated the situation.

The enrolment of children of school-going age was 71.5 percent in Turkana (SMART Survey, June 2017), with some sub-counties reporting as low as 60.2 percent. Between Term I and Term II, a decrease in enrolment was noted in Marsabit (by ten percent) and in Samburu (by up to two percent), attributed to lack of school meals. Conversely, ECD enrolment in Samburu increased by five percent between Terms I and II due to the introduction of school meals. This trend was higher among girls, for whom the increase was six percent compared with three percent for boys.

Participation- (Attendance rate)
A decrease in attendance was observed between Term I and Term II, due to lack of school meals, increased family chores, migration, lack of nearby schools, increased early marriages for girls, and perceptions that schooling holds little value. In primary schools in Samburu, nine to 11 percent lower attendance rates were recorded among girls, while for boys the rate fell by seven to nine percent, with the lowest average monthly attendance being in May. In ECD schools between Terms I and II, girls' attendance dropped by 12 percent while that for boys dropped by five percent. Secondary attendance remained constant. North Horr and Laisamis sub-counties in Marsabit recorded very high absenteeism rates at 47 percent and 45.4 percent respectively.

Retention- (Dropout rate)
Among the factors driving dropouts were lack of adequate schools close to where communities reside, migration, perceptions of the value of education, and cultural practices. These factors are exacerbated during drought when there is increased migration and reduced ability to pay school fees. This has led to an additional 1,600 dropouts so far this year compared with 2016.

The transition rate from ECD to primary is almost 100 percent; at this age parents are still not very keen on their children taking an active role in household chores. However, the transition rate from primary to secondary drops to about 70 percent. The transition rate is lowest in the pastoral livelihood zone, where livestock prices and crop production are too low to provide for school fees. Transition from primary to secondary is also affected by cultural practices where older boys and girls are withdrawn from school to take care of livestock and household chores.

School Meals Programme
The programmes within this cluster are the Home Grown School Meals Programme (HGSMP) with cash transfers to schools, and the Regular School Meals Programme (RSMP) supported by WFP and the government with the direct provision of food. About 225,000 children are benefitting from school meals. The programme has contributed to increased and sustained enrolment in all public primary schools within the cluster by attracting children to school, improving learners' attendance and boosting their retention rate while in class. In Marsabit,

ECD children have a snack in the form of enriched porridge supported by the county government.

Occasional water shortages and lack of firewood have constrained the provision of meals to pupils. Consequently, children walk long distances to get water, which has a negative impact on learning. Given the surplus of children and shortage of food, there is also a gap of 55,000 children who are not receiving school meals.

Inter-sectoral links
Insecurity linked to competition over pasture and water, as well as boundary disputes and cattle rustling, have affected education in this cluster. The drought has reduced household incomes, increased poverty levels and made education unaffordable to many, especially parents with secondary school-going children. Migration has also led pastoral communities to pull children out of school.

2.2 The Pastoral North-East Livelihood Cluster

2.2.1 Cluster Background
The cluster consists of Mandera, Wajir, Isiolo, Garissa, and Tana River counties and covers an area of 165,970 square kilometres. The projected population is 1,905,014 (KNBS, 2016). There are five main livelihood zones namely: pastoral (57 percent of the population), agro-pastoral (21 percent), marginal mixed farming (nine percent), irrigated (seven percent) and informal/formal employment/business/petty trade (six percent) as shown in Figure 2.4
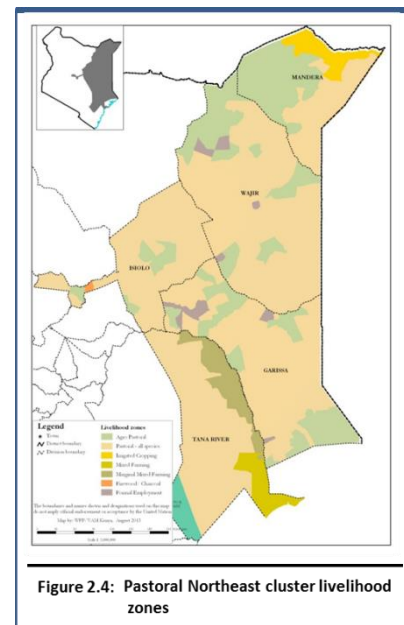
2.2.2 Current Drivers of Food Insecurity

Rainfall Performance
The onset of the rains was late in the first dekad of April rather than the first to third dekad of March. The cluster received below normal rains of 50-75 percent of normal, with the eastern parts of Garissa receiving 90-110 percent of normal. The western part of the cluster received depressed rains of 25-50 percent of normal, while the central part of Isiolo received

Figure 2.4: Pastoral Northeast cluster livelihood zones

only 5-25 percent of normal. A few areas received 75-90 percent of normal rains. Temporal distribution was poor and spatial distribution uneven. Cessation was normal in the first dekad of June, except in Isiolo where it was early in the second dekad of May.

Conflict and Insecurity
Resource-based conflict was associated with livestock concentration in Isiolo and Wajir. Insecurity incidents resulting from numerous terror-related threats in Mandera and Garissa led to loss of life and disrupted local movements, mostly along the Kenya/Somalia border. Insecurity and conflict interfered with access to markets and altered livestock migration routes, as noted in Wajir. Wildlife menace was noted in Wajir and Isiolo. Fall armyworms and crop pests were reported in Tana River and Isiolo respectively.

2.2.3 Current Food Security Situation
The cluster is largely classified as Stressed (IPC Phase 2) although parts of Isiolo, Wajir, Mandera and Garissa are in Crisis (IPC Phase 3). The ToT were below the LTA. Garissa and

Isiolo recorded the lowest ToT, where the sale of a goat was exchanged for 40kg maize, and Wajir the highest at 60kg. One kg of maize costs between Ksh. 60 and Ksh. 66, which is above the LTA. The unfavourable ToT is a result of declining livestock prices due to poor body condition and increasing food prices. Households are consuming one to two meals per day consisting mostly of cereals and pulses. Trekking distances to water sources range between 10 and 18km. Milk production is lower than the LTA, with household production less than one litre per day. More than 30 percent of households have a poor food consumption score, while employing emergency coping strategies to meet food gaps. The nutrition situation in the cluster is critical as indicated by GAM rates of 14.1-25.3 percent.

2.2.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2017 (previous season)	Long Rains Assessment, July 2017 (current season)
Food security phase	Stressed (IPC Phase 2), except parts of Mandera, Wajir, Tana River, and Garissa in Crisis (Phase 3)	Stressed (IPC Phase 2), except parts of Isiolo, Mandera, Wajir and Garissa in Crisis (IPC Phase 3)
Food stocks	Household food stocks below average except in Isiolo, where there are no stocks.	No household stocks except in Mandera, where households have 26 percent of LTA
Livestock body condition	Fair to poor, except in Isiolo where forage was good.	Fair to poor
Household water consumption	10-15 litres per person per day	20-30 litres per person per day, except in Wajir and Isiolo where water consumption was 5-10 litres per person per day
Meal frequency	2-3 meals per day (1-2 meals per day in Mandera and Tana River which is below normal)	2-3 meals per day, with 1-2 meals per day in Mandera
Household milk production	1-3 litres	1-2 litres in Mandera and Tana River, Wajir 0.5-4 litres, Garissa and Isiolo producing less than 1litre
Terms of trade	Unfavourable across the cluster, below average	Unfavourable across the cluster, below average
Coping strategy index	16	13
Food Consumption Score (Acceptable)	83% of households	71% of households
Proportion of children at risk of malnutrition	Malnutrition rates are above the LTA	Malnutrition rates are above the LTA except in Wajir where they are below

2.2.5 Impact of Drivers on Food and Nutrition Security

2.2.5.1 Crop Production

Rain-fed crop production

The main crops grown under rain-fed production are maize, sorghum, green grams and cowpeas. The area planted under maize, cowpeas, green grams and sorghum was 37, 43, 28, and 54 percent of the LTA respectively. The decline in area was attributed to delayed onset and below-average rainfall. Insecurity in Mandera also hampered the movement of farmers. Production of maize, cowpeas, green grams, and sorghum was expected to be 30, 41, 25, and 41 percent of the LTA respectively. The decline in seasonal production was attributed to moisture stress, pests and diseases, wildlife destruction, and inadequate availability of certified seeds. Below-average production will result in reduced food availability in households (especially for the farming populations) and in the markets.

Irrigated crop production
Irrigation agriculture is undertaken along rivers and through the use of shallow wells. The main crops grown under irrigation are maize, bananas, and mangoes. Other minor crops are paw paws and vegetables. The area planted under maize decreased to 66 percent of the LTA, attributed to reduced water levels in rivers and shallow wells, especially in Wajir and Isiolo. The area under banana and mangoes increased by 30 and 14 percent above the LTA respectively, attributed to stakeholder support in the development of irrigation water infrastructure in Garissa. Production of maize and cowpeas was 48 and 52 percent of the LTA due to reduced amounts of water available for irrigation.

Cereal stocks
Maize stocks held by various actors were below the LTA. Farmers and millers each held five percent of LTA of maize stocks while traders had 60 percent of LTA. The decline is attributed to the fall in maize production and the low availability of maize across the country. In Mandera, insecurity affected the cross-border imports of cereals.

Cereal stocks held

Commodity		Households	Traders	Millers	Food Aid	NCPB
Maize	Current	767	6,521	1,730	0	0
	LTA	15,841	11,068	1,051	0	2,260
Rice	Current	180	40,035	0	0	3,000
	LTA	920	37,410	0	0	0
Sorghum	Current	138	431	0	980	0
	LTA	263	485	0	0	45
Millet	Current	0	164	0	0	0
	LTA	0	330	0	0	80

2.2.5.2 Livestock Production

Forage and livestock body condition
There was below-normal recovery in rangeland conditions due to below-average rains. The pasture condition was poor and depleted in the pastoral livelihood zones but fair to poor in the agro-pastoral and mixed farming areas, compared with good in a normal season. Browse condition was fair in all the livelihood zones which is below normal; the exception was the pastoral livelihood zones of Mandera, Garissa and Isiolo where browse was totally depleted. Forage and water were accessible across the cluster except in parts of Isiolo (Kom, Delbeg and Duma) where access was limited by insecurity. Available pasture and browse were expected to last for one to two months (July-August). Livestock body condition was largely poor for cattle in pastoral livelihood zones but fair for sheep, goat and camels.

Water for livestock
Return trekking distances to watering points increased by over 50 percent of normal across the cluster. Some parts of the pastoral livelihood zones in Isiolo (Yamicha and Eresa), Tana River (Tana North sub-county), and Garissa (Mbalambala and Lagdera) recorded return distances of up to 26-50 km. The average watering frequency was once every 2-3 days for all livestock in all livelihood zones across the cluster, compared with the normal once every 1-2 days.

Water situation for livestock

Livelihood zone	Return trekking distances (km)		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Pastoral	25-30	10-15	1-2	3-4	Once/2-3 days	daily
Agro-pastoral	10-15	5-10	1-2	3-4	daily	daily

Milk production and consumption

Birth rates were below normal across all livelihood zones. Household milk production per day declined by over 50 percent of LTA across all livelihood zones. Likewise, household milk consumption reduced by about 50 percent of LTA across all zones. The average milk price per litre increased by over 200 percent of LTA across all livelihood zones.

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	0.5-1	1-1.5	0.5	1	60-100	25-35
Agro-pastoral	1	2-3	0.5	2	60-100	20-30

The Tropical Livestock Units (TLUs) were 50 and 30 percent for low and medium-income households respectively across the cluster. The decline in livestock ownership was attributed to successive poor seasons which resulted in reduced birth rates, increased sales, and drought-related livestock deaths.

An estimated 60 to 80 percent of livestock in the cluster have out-migrated, with migration being abnormal in magnitude, timing, routes and patterns (detailed information is provided in the respective county reports).

No disease out-breaks were reported. However, there were suspected cases of FMD, LSD, Sheep and Goat Pox, CCPP, and CBPP.

2.2.5.3 Market Performance

The major markets in the cluster were operating normally, with a few exceptions in Mandera (caused by insecurity) and Wajir (caused by boundary disputes). These disruptions restricted trade with Somalia and limited access by traders and livestock sellers from Wajir North to the Wajir market. Low volumes of foodstuffs were traded as result of insecurity and low household purchasing power,
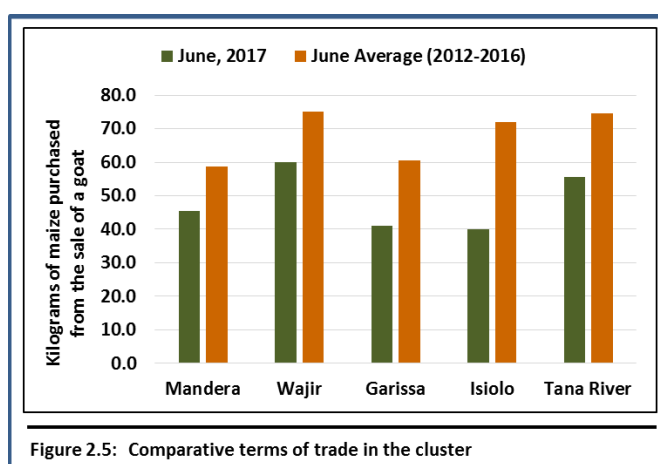

Figure 2.5: Comparative terms of trade in the cluster

while low volumes of traded livestock were attributed to livestock migration and poor livestock body condition. Maize prices were above average in all counties in the cluster except Mandera, where they were below average. Average goat prices were below the LTA except in Tana

River. Across the cluster, the terms of trade were below average (Figure 2.5) implying reduced purchasing abilities for households.

2.2.5.4 Water Availability and Access

The main sources of water for domestic use were boreholes, rivers, water pans and shallow wells. Recharge of open water sources was 30 to 50 percent of capacity across the cluster, with the exception of the agro-pastoral livelihood zones of Wajir and Garissa where recharge was 70 to 80 percent of capacity. Notably, the pastoral all-species zones of Wajir, Garissa, Isiolo and Mandera had much lower recharge levels of 10-20 percent due to depressed rainfall. Most of the water pans have dried up except in Wajir. Average household return distances ranged from 5-10 km, although the pastoral areas of Mandera and Isiolo recorded longer distances of between 15 and 30 km. The waiting time at water sources averaged 20-30 minutes. Waiting times significantly increased in the Bura area of Garissa to 120 minutes and in Tana River from 180 to 300 minutes. The average cost of a 20 litre jerry can was normal throughout the cluster at Kshs. 2-5, apart from water vendors who sold it at Kshs.10-50.

2.2.5.5 Food consumption

According to FSOM data for May 2017, the proportion of households with poor, borderline and acceptable food consumption was three, 26 and 71 percent respectively. This showed a deterioration when compared with May 2016 when one, five and 94 percent of households had poor, borderline and acceptable food consumption scores. Households were mainly consuming one to two meals per day comprising a little milk, pulses (beans), rice, maize, and meat.

2.2.5.6 Coping Strategies

The mean CSI was 13.1 in May 2017 compared with 15.7 in May 2016. There was minimal change in the frequency of use of consumption coping strategies compared with 2016.

2.2.5.7 Health and Nutrition

Morbidity patterns

The most common diseases affecting under-fives and the general population were diarrhoea, upper respiratory tract infection, and malaria/fever. Malaria cases were generally lower from January to June 2017 compared with the same period in 2016. Diarrhoea cases rose between January and June 2017 compared with the same period in 2016, attributed mainly to dust, poor water and hygiene and sanitation conditions. Cholera outbreaks were reported in Garissa (32 cases, three deaths) and Wajir, and a measles outbreak in Mandera.

Immunization and vitamin A supplementation

The proportion of children aged 6-59 months who were fully immunized ranged from 26.3 in Mandera to 63.3 percent in Garissa. Routine Vitamin A supplementation for children under five ranged from 7.1 to 50.8 percent, with Mandera reporting the lowest coverage and Wajir the highest. According to the SMART survey conducted in Garissa, Vitamin A coverage reduced to 62 from 74 percent for children aged 6 -11 months.

Nutrition status

The nutrition situation was critical in most counties with GAM (WHZ <-2 and or edema) of 14 percent in Tana River, 16.3 percent in Garissa, 16.4 percent in Wajir (agro-pastoral) and 16.8 percent in Wajir (pastoral). The proportion of children at risk of malnutrition as measured by MUAC (<135mm) was within seasonal norms in Mandera and Wajir but above the LTA in Isiolo, Garissa and Tana River (Figure 2.6). The main contributors of acute malnutrition were

low dietary intake due to inadequate food access and utilization, disease, inadequate childcare practices, insufficient health services, and an unhealthy environment.

Figure 2.6: Proportion of Children at Risk of Malnutrition (MUAC <135mm)
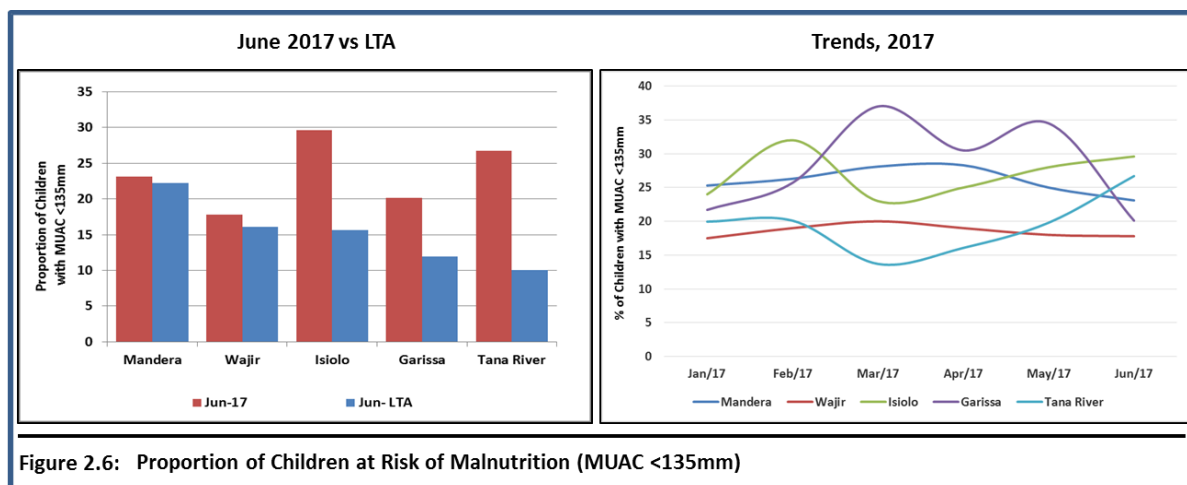
Sanitation and Hygiene

Hygiene practices are low, with the proportion of households practising hand-washing at critical times being lowest in Tana River at 4.5 percent, 13.5 percent in Mandera, and 23.6 percent in Garissa. Most households do not treat their water before drinking: 84.7 percent in Mandera, 93.9 percent in Garissa, 84.7 percent in Wajir, and 76.2 percent in Mandera. The proportion of households practising open defecation was highest in Wajir and Tana River at 60.2 and 52.3 percent respectively, while in Garissa and Mandera it had reduced to 30.1 and 21.2 percent respectively. The reduction in open defecation in these two counties was attributed to community led total sanitation.

2.2.5.8 Education

Access (Enrolment rate)

The percentage of boys enrolled at all levels is higher than that of girls, who represent 46, 42 and 34 percent of enrolments at ECD, primary and secondary levels respectively. The number of girls in school gradually reduces as they transition from ECD through to secondary due to early marriage and pregnancy. Insecurity also affected enrolment. The total number of children enrolled within this cluster is shown in the table below.

Enrolment in the Cluster

Enrolment	Boys	Girls	Total
ECD	50,727	43,278	**94,005**
Primary	154,546	115,396	**269,942**
Secondary	28,049	14,510	**425,59**

In Isiolo, ECD enrolment between Term I and Term II 2017 decreased by 1.2 percent as a result of migration, lack of extension of ECD teachers' contracts, and inadequate school feeding. Conversely, enrolment in secondary schools during the same period was stable, as result of the establishment of free day secondary schools and bursaries from the county government, CDF, Wings to Fly, KCB, and Cooperative Bank.

Participation (Attendance rate)

Attendance was stable over Terms I and II but temporarily disrupted in Garissa and Isiolo due to insecurity; after re-opening the attendance rate was ten percent lower. The drought has decimated livestock, reducing household income and hence their ability to raise school fees. Increased responsibilities such as herding and fetching water, especially for girls, has reduced their participation in school. In Isiolo, there is significant disparity between the attendance rates of girls and boys in secondary school, with girls at 58 percent and boys at 100 percent.

Retention (Dropout rate)

Increased dropout rates were attributed to migration, insecurity, herding of livestock, and income-earning activities such as *boda boda*. In Garissa, dropout rates increased by 16 percent, while in Wajir an increase of 8-9 percent for boys and girls was registered from 2016 to 2017. Dropouts were especially noted in areas of prolonged drought, where lower livestock numbers limited income for school fees, especially for secondary school children. Migration has led to the transfer of students from one school to another. Additionally, a sharp increase in dropouts at the end of Term I was observed in Isiolo due to insecurity in Garbatulla.

School Meals Programme

A total of 180,000 children are benefitting from school feeding: the RSMP is being implemented in Mandera and Wajir and the HGSMP in Garissa, Tana River and Isiolo, but has experienced delays in disbursement of funds from the ministry in Term II. The school meals programme has contributed to improved enrolment, retention and relatively stable school attendance at primary and ECD levels. Counties like Isiolo, Mandera and Wajir have provided substantial funds for ECD school meals, albeit not enough to cater for all learners throughout the term. In some instances schools have coped with this by sharing the food meant for primary schools with ECD learners. However, about 111 schools experienced serious food constraints affecting 12,000 students (33 schools in Garissa, 14 in Isiolo, 18 in Mandera, 12 in Tana River and 34 in Wajir). Most schools run out of stocks before the end of the school term, sometimes experience acute water shortages restricting their ability to cook, and lack funds to hire a cook or buy firewood, thus having a negative impact on attendance.

Inter-sectoral links

Conflict and insecurity have affected attendance and enrolment in over 40 schools in Garissa, Mandera and Wajir. Insecurity in Garissa (Fafi, Dadaab and Lagdera sub-counties), Isiolo (Garbatulla sub-county) and Wajir (Wajir North and Eldas sub-counties) resulted in occasional closure of schools during Term II of 2017. Insecurity also affects the non-local teachers. Further, communities seeking refuge in safer areas can increase pressure on the school infrastructure leading to large pupil/teacher/classroom ratios, such as the four schools sheltering internally displaced people in Buna and Wajir North sub-counties.

About 6.6 percent of schools have been affected by drought, disrupting the learning of 2,453 and 3,740 children at ECD and primary levels respectively. Lack of water at schools is a significant challenge. Water trucking is supported by NGOs in 26 schools in Wajir.

2.3 The Agro-pastoral Livelihood Cluster

2.3.1 Cluster Background

The cluster consists of six counties namely: Baringo, West Pokot, Laikipia, Kajiado, Narok and Nyeri. It covers a total area of 71,471 square kilometres with a projected population of 3,983,079 (KNBS, 2016). There are six main livelihood zones: mixed farming (31 percent of the population), pastoral (27 percent), marginal mixed farming (20 percent), agro-pastoral (11 percent), formal employment/tourism/trade/business (10.7 percent), and irrigated cropping (0.7 percent) (Figure 2.7). Livestock production contributes about 75 percent to income and 55 percent to food.

Figure 2.7: Agro pastoral cluster livelihood zones
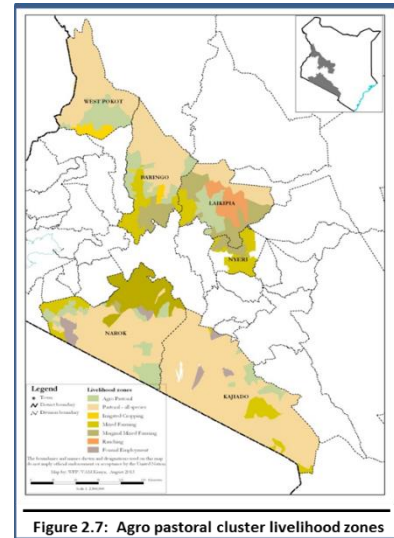
2.3.2 Current Drivers of Food Insecurity

Rainfall performance

The onset of the long rains was late, from the third dekad of March to the first dekad of April, instead of the first dekad of March normally. Most parts of the region received an average of 50 to 75 percent of normal rainfall with some pockets in Narok receiving 75 to 90 percent. In Kajiado, rainfall was largely depressed, mostly ranging from 25 to 50 percent of normal. The temporal distribution was poor while the spatial distribution was uneven. Cessation of the rains was early in the second dekad of May, except in West Pokot and Baringo where it was normal in the first dekad of June.

Other shocks and hazards

Fall armyworm posed the greatest threat in this cluster and had a major impact on maize production. Cases of resource-based conflict were also reported in Baringo and Nyeri as a result of in-migration of livestock from neighbouring counties. Insecurity that restricted access to pasture was reported in West Pokot and Baringo. Human-wildlife conflicts were reported in Laikipia, Kajiado and Narok. Extreme fluctuation of temperature and hailstones were reported in Laikipia resulting in widespread loss of crops. Frost was also reported in Nyeri (Kieni).

2.3.3 Current Food Security Situation

The cluster is classified as Stressed (IPC Phase 2), except parts of Baringo, the pastoral livelihood zones of Laikipia and the pastoral and agro-pastoral livelihood zones of West Pokot, which are classified in Crisis (IPC Phase 3). The mixed farming zone of West Pokot is Minimal (IPC Phase 1). The food stocks held at household level are less than 50 percent of the LTA, except in Narok and West Pokot where households had 63 and 89 percent of stocks respectively. Rangeland conditions were fair to poor across most counties, except in the mixed farming zones of West Pokot, Baringo and Kajiado where they were fair to good. Livestock body condition was fair to poor, with milk production 30-50 percent below the LTA in most parts of the cluster. Maize prices remained high, being 80-100 percent above the LTA, while goat prices were below the LTA. Consequently, the terms of trade were unfavourable and below the LTA in all counties. The proportion of households with poor and borderline food consumption ranged from 30-55 percent. The cluster showed a growing proportion of children at risk of malnutrition based on MUAC <135mm.

2.3.4 Food Security Trends

Indicator	Short Rains Assessment, Feb 2017 (previous season)	Long Rains Assessment, July 2017 (current season)
Food security phase	Stressed, except pockets of Baringo and West Pokot in Crisis. Minimal: agro-pastoral and mixed farming pockets of Narok, Baringo and West Pokot	Stressed in Kajiado, Narok, Kieni and mixed farming and marginal mixed farming in Laikipia. Crisis: pastoral parts of Baringo, West Pokot and Laikipia
% maize stocks at household level	Above LTA	35 – 70 percent Kieni (Nyeri)- nil stocks
Household water consumption	10 -30 litres per person per day	2-25 litres per person per day
Meal frequency	1-3 per person per day	2-3 except in Baringo (1-2 per day)
Terms of trade	Below LTA except Kajiado and Laikipia	Below LTA for all counties
Coping strategy index	20 – 28 Nyeri: 1.6 Laikipia: 4.14	18 in Baringo and Laikipia 6 in Kajiado and Narok 1.6 in Kieni
Food consumption score	Poor: 13% Borderline: 27.5% Acceptable: 61.2%	Poor: 14% Borderline: 26% Acceptable: 60%
Children at risk of malnutrition	Below LTA in Narok, Kajiado and Laikipia. Above LTA in Baringo and West Pokot	Above the LTA by 19 - 68%.

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 which contributes 30 percent to food and about 40 percent to cash income for households. The main crops grown include maize, beans and Irish potatoes. The area planted for maize was near the LTA, while that for beans and Irish potatoes increased by 18 and nine percent of the LTA respectively. Production of maize and potatoes was 56 and 68 percent of the LTA, while that of beans was near the LTA as shown in the table below. The decline in production is attributed to below-normal rains.

Rain-fed crop production

Crop	Area planted during 2017 long rains season (Ha)	Long term average area planted during the long rains season (Ha)	2017 Long rains season production	Long term average production during the long rains season
Maize	166,034	172,526	2,095,745	3,719,888
Beans	85,011	72,328	697,954	720,825
Potatoes	12,783	11,761	425,590	627,882

Irrigated crop production

Irrigation is practised in irrigation schemes, along rivers and in greenhouses, with the main crops being tomatoes, maize and cabbages. Other crops grown under irrigation include kales and onions. The total area under irrigation decreased from 6,730 hectares to 5,210 hectares. The area under maize reduced from 2,240 hectares to about 1,745 hectares while that of cabbages reduced from 630 hectares to 522 hectares. There was an increase in the area under tomatoes from 1,525 hectares to 1,750 hectares. Due to the smaller area under irrigation, maize

and cabbage production was about 55 percent of the LTA. Tomato production was however near the LTA.

Cereal stocks

The total maize, millet and sorghum stocks available in the cluster were about 55, 75 and 94 percent of the LTA respectively. Household maize stocks are about 60 percent of the LTA due to reduced production in parts of the cluster and little carryover stock from the previous season. Maize stocks are likely to marginally increase from August after the start of the long rains harvest.

Cereal stock held

Commodity	Period	Households	Traders	Millers	Food Aid	Total
Maize (in 90kg bags)	Current	236,691	91,486	6,519	8,973	343,869
	LTA	386,779	87,564	26,459	41,157	652,849
Rice (in 50kg bags)	Current	0	28420	310	0	28730
	LTA	200	21986	0	0	22186
Millet (in 90kg bags)	Current	5488	614	14	0	6116
	LTA	4926	3108	49	0	8083
Sorghum (in 90kg bags)	Current	3155	338	15	0	3508
	LTA	2696	907	90	0	3714

2.3.5.2 Livestock Production

Livestock production contributes about 30, 40 and 70 percent respectively to cash income in the mixed-farming, agro-pastoral and pastoral livelihood zones respectively. Pasture and browse conditions ranged from fair to poor across most livelihood zones, while they were totally depleted in some agro-pastoral and pastoral livelihood zones. Pasture and browse were estimated to last for one to two months (July-August), due to below normal recovery and overgrazing. Frost and wind in Kieni, Nyeri, also affected pasture regeneration. Access to water and forage was limited by insecurity in Baringo and human-wildlife conflict in Kajiado. Conflicts over pasture and water also arose in Laikipia due to forceful intrusion into private ranches by herders**.**

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 and irrigated cropping	Fair-poor	Good	1-2 months	Fair-poor	Good	2-3 months
Agro-pastoral and pastoral	Poor	Good to fair	1 months (depleted in some)	Poor	Good	1-2 months

The main water sources for livestock are rivers, springs, pans, dams, laggas and boreholes. Return trekking distances to water increased by over 40 percent in the pastoral and agro-pastoral zones due to poor recharge of sources during the long rains. Watering frequency remained fairly stable in the mixed farming and irrigated cropping livelihood zones but reduced in the pastoral and agro-pastoral livelihood zones.

Water for livestock

Livelihood zone	Return trekking distances		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Pastoral	3-15	1-5	0.5-1	2-3	4-5 per week	6-7 per week

Livelihood zone	Return trekking distances		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Agro-pastoral	3-10	1-5	1-4	3- 4	Alternating days	daily
Mixed farming	0.5-3	0.5-3	2-unlimited	unlimited	Daily-twice daily	Daily-Twice
Irrigated cropping	>1	>1	unlimited	unlimited	Daily-twice daily	Daily-Twice

Livestock body condition

The body condition of cattle and sheep was fair to poor, while that of goats and camel was good to fair. Goats and camel exhibit more resilience than the other species. Normally, body conditions would be good at this time of the year. Livestock body condition will worsen as the dry season sets in, especially in the pastoral zones where pasture is already depleted.

Milk production has dropped and is below the LTA across the cluster. This is due to fair to poor pasture condition across the livelihood zones which affected livestock productivity and subsequently reduced household milk consumption. The low supply of milk against sustained high demand has resulted in higher prices.

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	1-2	3-8	0.5-1.5	2-3	50-75	40-60
Agro-pastoral	1-3	4-10	1-2	2-4	50-90	40
Irrigated cropping	3-5	5-8	1-2	1-2	70	50
Mixed farming	2-5	4-8	2-3	2-4	30-60	30-50
Marginal mixed farming	1	4-5	1-2	1-3	70	40

Tropical livestock unit

TLU reduced significantly in the pastoral all-species and agro-pastoral livelihood zones, attributed to reduced birth rates, abortions and livestock mortalities. Livestock offtake in the agro-pastoral and pastoral all-species zones also reduced the TLU.

Tropical Livestock Unit

Livelihood zone	Low-income households		Medium-income households	
	Current	Normal	Current	Normal
Mixed farming	2-3	2-3	4-5	3-5
Irrigated cropping	2.5	3.2	4	4.5
Agro-pastoral	2	3-5	3-10	6
Pastoral all-species	1-7	3-10	5-15	5-15

Migration was earlier than normal in the whole cluster. Kajiado and Laikipia experienced in-migration into private ranches. Out-migration from Kajiado towards Tsavo West National Park was also noted. Nyeri experienced in-migration from Laikipia and Samburu. There was out-migration from West Pokot towards the Kenya-Uganda border.

Cases of diseases reported included sheep and goat pox, anthrax, PPR, CBPP, CCPP, Rabies, Enterotoxaemia, LSD, FMD, Blue Tongue and cases of Helminthiasis, East Coast Fever and Trypanosomiasis.
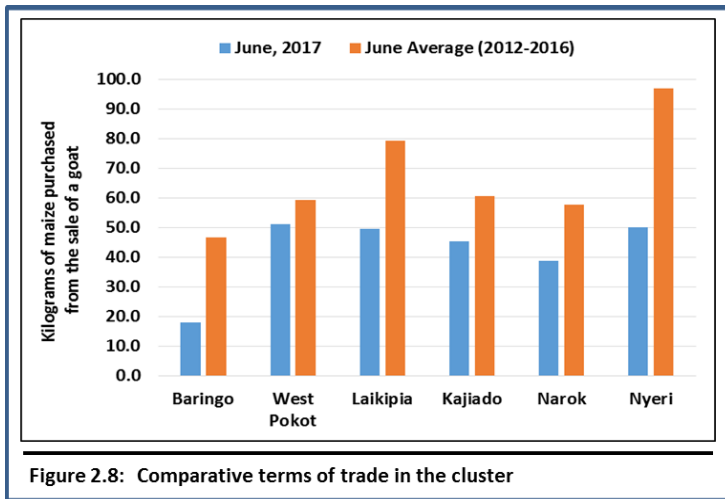
Figure 2.8: Comparative terms of trade in the cluster

2.3.5.3 Market Performance
Most of the main markets in the cluster were operating normally, except Loruk and Kinyach in Baringo and Chesegon market in West Pokot that reported disruptions due to insecurity. Traded volumes of food commodities were normal, except for maize that had low volumes and higher than normal prices. Livestock sales were mostly characterized by over-supply, while buyers remained fewer than normal due to poor livestock health and body condition. In Narok and Nyeri, traded volumes of livestock were relatively stable. The terms of trade in June continued to be unfavourable and below average across the cluster (Figure 2.8), caused by increasing cereal prices against declining livestock prices.

2.3.5.4 Water Availability and Access
The main water sources in the cluster are boreholes, rivers, springs, shallow wells, earth pans and dams, as well as piped water serving community-based projects. Recharge of surface water sources ranged from 50-60 percent of their capacity, although in some areas such as Laikipia and Baringo, recharge levels were as low as 30-50 percent. Although the water sources are the normal ones for this time of year, there were fewer operational sources in use because of below-normal recharge.

Return distances to water sources remained within the normal range of 1-3 km across the cluster, with the exception of the pastoral livelihood zones of Baringo and Kajiado where distances almost doubled to 8-10 km and 20-30 km respectively, attributed to the drying up of most surface water sources. The waiting times increased in areas that experienced borehole genset breakdowns. Pastoral areas had longer waiting times of 60-120 minutes, in some areas up to 180 minutes, against a normal time of 30-60 minutes. The searing heat and evaporation was fast depleting surface water sources leading to reduced water levels in pans and dams, especially in parts of Baringo and Laikipia. Water consumption remained normal in most areas with the exception of the pastoral livelihood zone of Laikipia, where consumption was five litres per person per day against the normal l5 litres.

2.3.5.5 Food Consumption
According to NDMA data, the proportion of households with poor and borderline food consumption scores ranged from 30-55 percent, with notable variations across the counties. Meal frequency, especially in pastoral areas, was 1-2 meals per day against a normal of 2-3 meals per day.

2.3.5.6 Coping Strategy
The CSI in May 2017 was 18.6 compared with 12.9 in May 2016. This implies an increased use of consumption-based coping strategies such as reducing the number of meals and portion size, as well as eating less preferred or less expensive food.

2.3.5.7 Health and Nutrition

Morbidity Patterns

Monthly cases of diarrhea gradually reduced from 18,000 in January to about 14,000 in May The prevalence of diarrhea in 2016 was generally stable from May to October, but dropped sequentially in November and December 2016. Data for May and June 2017 might be under-reported due to the health workers strike (nurses). Malaria cases between January and April 2017 appeared to be stable at about 8,000 cases per month and lower than in 2016. Acute respiratory infections ranged between 60,000 and 80,000 cases which is comparable to 2016. Measles cases were comparable to 2015 and 2016 (the number ranged between 20 and 40 per month). On the other hand, dysentery between March and May 2017 was higher (300-400 cases per month) compared with 2015 and 2016.

Immunization and Vitamin A supplementation

Vitamin A supplementation was highest in Laikipia at 59 percent, although it was below the national target of 80 percent in all counties. Measles coverage was 47.8 percent in West Pokot and 90 percent in Laikipia. In Kieni (Nyeri), the coverage 54.7 percent and in Kajiado it was 90.8 percent. For OPV3, coverage was 51.9 percent in West Pokot, 89.4 percent in Laikipia, 54.7 percent in Kieni (Nyeri) and 87.5 percent in Kajiado.

Nutrition status

Only West Pokot and Laikipia conducted SMART surveys in 2017. West Pokot was Critical (GAM by WHZ 20.4 percent) while Laikipia was Serious (GAM by WHZ 11.4 percent). Narok and Kajiado were Acceptable (GAM by MUAC of 0.9 percent and 0.27 percent respectively), using sentinel site data. The situation is likely to deteriorate although a change in the phase is not expected. Kieni did not have sufficient data to compute GAM.

Figure 2.9: Proportion of Children at Risk of Malnutrition (MUAC <135mm)
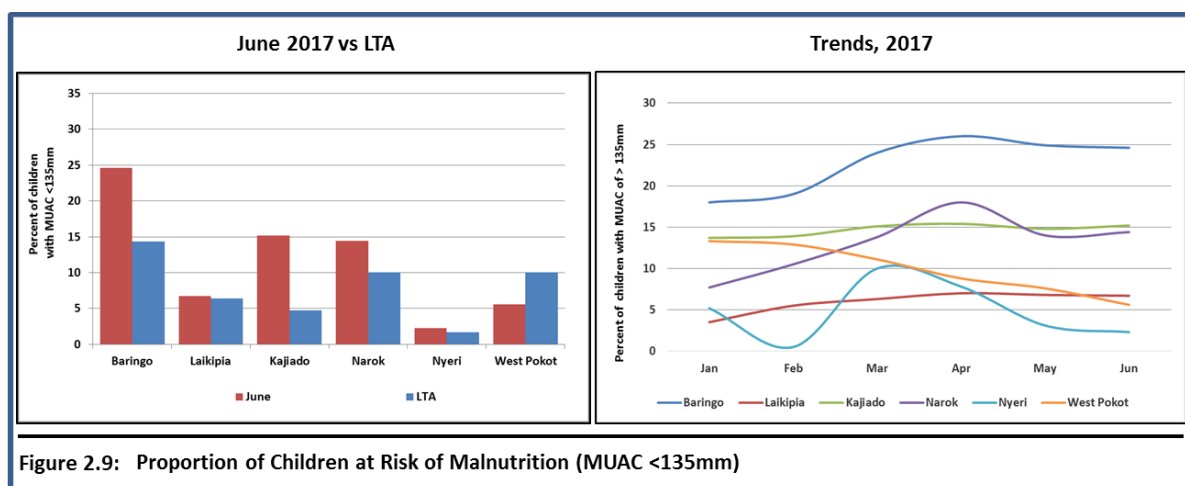
Sanitation and Hygiene

Latrine coverage across the cluster ranged from two percent in East Pokot (Baringo) to 97 percent in Kieni (Nyeri). Access to improved sources of drinking water was very poor, the lowest being in East Pokot (Baringo) at six percent and the highest in Laikipia at 28.9 percent. This is due to low coverage of piped water. There was no adequate data on water treatment and hand-washing during the four critical times, except for West Pokot.

2.3.5.8 Education

Access (Enrolment rate)
Enrolment in ECD was stable across the cluster between Terms I and II. Increases were noted in Baringo (1.5 percent) and, significantly, by 16.1 percent in West Pokot, with the gain being largely among boys (30.1 percent) rather than girls (1.2 percent). Enrolment in Term II, 2017, for primary and secondary school stabilized when compared with Term 1 in Laikipia, Baringo, Narok and Kajiado. Primary enrolment rates increased by 0.2-1 percent across the cluster. However, a two percent decrease for primary girls was observed in Laikipia, attributed to the drought and consequent increase in responsibilities such as fetching water and herding animals. In secondary schools, slight increases (0.2-0.5 percent) were observed between Terms I and II in Baringo and West Pokot, while a 21 percent drop in secondary enrolment was noted in Nyeri.

Participation (Attendance rate)
Attendance rates fluctuated between November 2016 and June 2017, correlating with the availability of school feeding. The rate fell between Term III 2016 and Term I 2017, and increased again in Term II 2017. Insecurity and migration were factors that seriously affected school attendance. Insecurity in Baringo resulted in the closure of 40 schools, affecting more than 52,360 learners (25,626 girls). Twelve schools in Baringo hosted displaced people and were temporarily closed. These had significant but temporary impacts on attendance. Migration also affected school attendance, especially in Kajiado.

Retention (Dropout rate)
Dropout rates have generally slightly increased. Narok had the highest rate, with primary schools reporting 15 percent among male students and 17 percent among female students. Baringo recorded rates of between four and seven percent, while Laikipia had an average rate of three percent, with some sub-counties reaching seven percent. The rate in Nyeri increased by 2.5 percent. More positively, secondary school dropout rates fell in West Pokot, and in Narok by one percent. The dropout trends affected girls in particular. In Baringo, for example, the dropout rate for girls in ECD and primary doubled in each case, while for boys it was stable.

The reasons for increased dropouts in primary schools and ECD are lack of food in schools (West Pokot, Narok, Baringo), family labour responsibilities (Baringo, Narok, Nyeri, West Pokot), migration and distance to schools (Narok, West Pokot, Baringo), and insecurity/violence (Baringo). Secondary school dropouts were largely related to poverty, which in many locations was worsened by drought.

School Meals Programme
The HGSMP is being implemented in Nyeri, Laikipia, Baringo and West Pokot. West Pokot and Baringo also have the RSMP, while Baringo also has the Extended School Meals Programme (ESMP). These programmes benefit 375,000 children and enhance access, participation, and retention, given the lack of food at home, attracting learners to school and improving their concentration.

There is also additional provision by county governments and communities. In Nyeri, the government has provided relief food to supplement meals for 10,000 pupils. The community has initiated its own strategy, with pupils bringing portions of maize and beans to school (although only 35 percent of families are able to do so). In Laikipia, parents supported the community school feeding programmes in schools not being reached, but the drought reduced

their support. In Narok, 50,000 children in 128 schools are benefitting from drought mitigation meals through a government Food for Fees programme.

Nevertheless, there are still gaps in provision. Approximately 330,000 children are missing out on school meals, primarily due to delayed disbursement of funds or delivery of food, increased food prices, lack of water to cook with, lack of funds for firewood and wages for the cook, and insecurity. New public schools have not yet been included in the programme.

Inter-sectoral links
In Baringo and West Pokot, the Ministry of Health regularly carried out deworming at ECD centres as a food security and nutrition-related intervention. In Baringo, the national government through the Ministry of Interior held peace-building campaigns to curb insecurity in Baringo North, East Pokot and Marigat sub-counties. In West Pokot, all schools in the county had functional latrines, although they were inadequate in isolated schools. However, 79 percent of schools did not have hand-washing facilities and 85 percent did not have drinking water within 100 metres.

2.4 The South-eastern Marginal Agricultural Livelihood Cluster

2.4.1 Cluster Background
This cluster consists of five counties, namely Tharaka Nithi (Tharaka), Meru (Meru North), Kitui, Makueni and Embu (Mbeere). It has a projected population of 3,448,026 (KNBS, 2016) and covers an estimated 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 up the remaining nine percent.
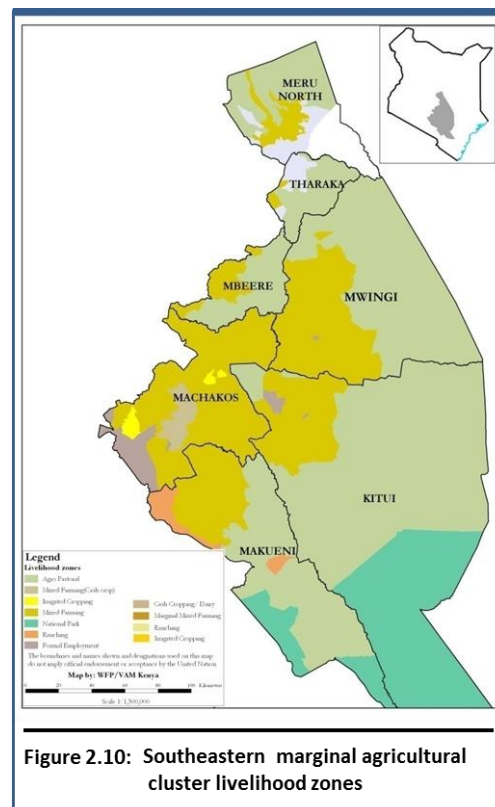

Figure 2.10: Southeastern marginal agricultural cluster livelihood zones

2.4.2 Current Drivers of Food Insecurity

Rainfall performance
The onset of the rains was late in the first dekad of May instead of the third dekad of March normally. The amount of rainfall received was 50 to 75 percent of normal, with most parts of Meru North receiving depressed rains of 25-50 percent of normal. Some pockets in central parts of Kitui received 90 to 110 percent of normal. Spatial distribution was uneven and temporal distribution was poor. Cessation was early in most parts occurring in the second dekad of May, except in Kitui and Makueni where it was normal in the third dekad of May.

Other shocks and hazards
Resource-based conflicts were reported in Makueni, Kitui and Meru (North), mainly as a result of livestock influx from neighbouring counties. High food prices affected access to food, particularly in Meru and Tharaka. Human-wildlife conflicts were reported in Makueni.

2.4.3 Current Food Security Situation

The cluster is classified as Stressed (IPC Phase 2) with some parts of Kilome and Kaiti of Makueni classified as Minimal (IPC Phase 1). Household stocks generally range between 21 and 34 percent of the LTA; Embu and Kitui held the lowest at 14 and four percent of the LTA respectively. Pasture and browse condition was fair to poor with only mixed farming zones reporting good to fair. Pasture is, however, fast deteriorating in the agro-pastoral zones. Distances to water sources for livestock were 3-15 km, up from 1-10 km normally. Livestock body condition was good to fair, except in the agro-pastoral zones where it was fair to poor. Milk production was 1-4 litres per household per day down from 3-8 litres normally. Maize prices varied between Ksh. 50 and Ksh. 62 per kg, up from Ksh. 29 - Ksh 37. Goat prices remained between Ksh. 2,500 and Ksh. 5,000 across the cluster. The ToT were unfavourable and varied widely: in Embu, Kitui, Tharaka Nithi and Makueni, they were 51, 55, 59 and 60 percent of the LTA respectively, while in Meru they were 97 percent of the LTA. The cluster can be considered to have adequate food consumption: households with poor and borderline scores were less than 20 percent. The proportion of children at risk of malnutrition based on MUAC <135mm was below the LTA in Embu (5.6 percent), Makueni (5.8 percent) and Kitui (7 percent), while above the LTA in Meru (25 percent) and Tharaka Nithi (9 percent).

2.4.4 Food Security Trends

Indicator	Short Rains Assessment Feb 2017 (previous season)	Long rains assessment July 2017 (current season)
Food security phase	Stressed (IPC Phase 2)	Stressed (IPC Phase 2) Pockets of Makueni and Kitui Phase 1
Household food stocks (90kg bags)	101,944 bags, below LTA and previous season	Household stocks 21-34% of LTA Kitui 4% of LTA
Livestock body condition	Good to fair	Good to fair Meru North fair to poor
Household water consumption	15 – 25 litres per person per day	5-30 litres per person per day
Terms of trade	54-110kg	52-94kg
Coping strategy index	14-29	8-14
Food consumption score; MF and MMF livelihood zone	Acceptable: 60.8% Borderline: 22% Poor: 15%	Acceptable: 74% Borderline: 18% Poor: 8%
Children at risk of malnutrition	5% - 13.3% Meru North 28%	5% - 9% Meru North 25%

2.4.5 Impact of Drivers on Food and Nutrition Security

2.4.5.1 Crop Production

The cluster is more reliant on the short rains season for crop production than the long rains season since the former is more reliable than the latter. The long rains season contributes about 40 percent and the short rains 60 percent of annual crop production.

Rain-fed crop production

The main crops grown are maize, green grams and cowpeas. Others are beans, sorghum and millet. The area under maize was 80 percent of the LTA, attributed to more households planting the early maturing crops due to their increasing economic value, and in anticipation of below-normal rainfall. The area under green grams and cowpeas was 18 and 14 percent above the LTA. Following the below-average performance of the rains, expected maize production was 26 percent of LTA. Green grams and cowpeas production was 49 and 40 percent of LTA.

Rain-fed crop production

Crop	Area planted during 2017 Long rains season (Ha)	LTA area planted during the Long rains season (Ha)	2017 Long rains season production (90kg bags) Projected/Actual	LTA production during the Long rains season (90kg bags)
Maize	118,958	148,451	204,925	776,832
Green grams	93,143	78,715	255,278	525,491
Cowpeas	79,699	69,694	223,675	565,689

Irrigated crop production

The main crops grown under irrigation are tomatoes, bananas and kales. Other crops include water melons, green maize, paw paws and cabbages. The area planted under tomatoes reduced from 1,423 hectares (Ha) to 1,370 Ha while that of bananas reduced from 1,120 Ha to 1,100 Ha. The area planted under kales reduced from 860 Ha to 780 Ha. Production of tomatoes, bananas and kales was 21,740 metric tonnes (MT), 19,750 MT and 7,920 MT respectively and within the normal ranges.

Cereal stocks

The main cereals consumed in the cluster are maize and rice. Millet and sorghum are mainly grown for sale and consumed to a limited extent. Maize stocks held by households were 15 percent of the LTA, mainly attributed to low carry-over stocks from the previous season. An additional 204,925 of maize bags are expected when the long rains harvest is complete, mainly from Makueni and Kitui. Stocks held by traders and the National Cereals and Produce Board (NCPB) were 36 and 22 percent of the LTA respectively, due to the low availability of maize across the country.

2.4.5.2 Livestock Production

Livestock production contributes 23-60 percent to cash income in the marginal mixed farming areas, and 15-45 percent to cash income in the mixed farming livelihood zones. In rain-fed agriculture and agro-pastoral zones, livestock contribute 15-26 percent to cash income.

Pasture and browse condition was fair to poor in all the livelihood zones. Crop residues are also contributing to livestock feeds especially in the mixed and rain-fed cropping areas in Tharaka. Access to pasture was limited by the influx of livestock from Kajiado and Narok into parts of Makueni, and insecurity in Meru, Kaningo and Goi wards in Mwingi North which triggered the migration of livestock to Garissa. Some invasive weeds are preventing the re-growth of pasture in parts of Makueni.

Pasture and browse condition

Livelihood zone	Pasture				Browse			
	Condition		How long to last (Months)		Condition		How long to last (Months)	
	Current	Normal	Current	Normal	Current	Normal	Current	Normal
Mixed Farming	Fair-Good	Good	2-3	3-4	Good-Fair	Good	2-3	4-5
Marginal Mixed Farming	Fair - poor	Fair-Good	0.5-2	2-3	Good-Fair	Good	1-3	3-5
Mixed Farming Coffee/ Dairy	Good - Fair	Good	1-2	2-3	Good	Good	2-3	5
Mixed Farming Crops/Livestock	Good - Fair	Good	1-2	2-3	Good	Good	2-3	5
Rain -Fed Agriculture	Fair	Good	2-3	2-3	Good	Good	2-3	4

| Agro-pastoral | Poor | Fair | 1 | 2 | Poor | Good | 1 | 2 |

Livestock body condition ranges from good to fair which is normal at this time of the year However, in the agro-pastoral areas of Meru, the body condition of cattle and sheep is poor and likely to deteriorate further as result of diminished pastures and increased distance to water sources.

Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normal	Current	Normal	Current	Normal
Mixed Farming	Good-Fair	Good	Good-Fair	Good	Good	Good
Marginal Mixed Farming	Good- Fair	Good	Good	Good	Good	Good
Mixed Farming Coffee/ Dairy	Good	Good	Good	Good	Good	Good
Mixed farming Crops/ Livestock	Good-Fair	Good	Good	Good	Good	Good
Rain-fed Agriculture	Good-Fair	Good	Good-Fair	Good	Good	Good

Milk Availability and Consumption

The current milk availability and consumption is relatively low at 0.5-1 litre(s) in the mixed farming and marginal areas compared with the normal 2-3 litres at this time of the year. Reduced production of milk and supply across all the livelihood zones has increased the cost of milk. Milk prices were relatively lower in the mixed farming coffee/dairy zone in Makueni at Ksh. 40 per litre, compared with the rest of the cluster.

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	2-4	2-8	1	2	60-80	40-50
Marginal Mixed Farming	0.5-1	1-2	0.5-1	1-2	60-80	40-50
Mixed Farming Coffee/Dairy	2	4	1	2	40	30
Mixed Crop Livestock	1	2	0.75	1	70	50
Rain-fed Agriculture	0.5-2	3-6	0.5	2	40-60	30-40
Agro-pastoral	0.5	2-3	0.5	2	60	50

The current water sources for livestock include permanent rivers, water pans, boreholes, earth dams and piped/furrow water. Livestock migration, especially from Garissa to parts of Tseikuru and Ngumi wards, is likely to deplete the water sources earlier than normal. The return trekking distance to water sources has increased across the livelihood zones.

Water for livestock

Livelihood zone	Return trekking distances (Km)		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Rain-fed agriculture	6	4	1-1.5	2-3	Cattle, sheep and goats are watered alternate days	Once per day
Marginal Mixed farming	4-12	3-8	1-2	2-3	Cattle, sheep and goats are watered alternate days	Once per day
Mixed farming	2-3	<1	1-2	2-3	Cattle, sheep and goats are watered once per day	Normal

The birth rates are normal at this time of year but suppressed in marginal mixed farming areas by poor pasture conditions and increased distance to water sources. For poor households in all livelihood zones, the average TLUs are 1-3 compared with the normal 2-4, while for medium-income households the average TLUs were 2-8 compared with the normal 3-15.

Livestock migration was reported within the cluster. In Tharaka, livestock were moving in from Mbalambala and Meru National Park. In Embu, some herds of livestock have moved to the riverine areas of Tharaka while in Makueni, unusual in-migration was noted of livestock from Kajiado and Narok into Kilome sub-county. An influx of livestock from Tana River and Garissa through Kitui was also reported. In Meru, livestock migration was reported in the agro-pastoral zones from Isiolo, Samburu and Laikipia. Conflicts and tensions have affected crop production in the Mandogoi area of Ngomeni ward and disrupted livestock markets in Mutha ward in Kitui South sub-county. Conflicts were also reported in Ikime ward and resulted in loss of human life in Igembe North sub-county, along the border of Meru and Isiolo.

Livestock diseases such as FMD, LSD, Sheep and Goat Pox, CCPP, CBPP and PPR have been reported across the cluster. Anthrax and Rabies were also reported in Antuambui (Meru). Vaccinations against FMD, PPR, Sheep and Goat Pox and LSD have been ongoing across the counties supported by the county governments and other partners.

2.4.5.3 Market Performance
The main markets in this cluster include Ikutha, Tseikuru, Mwingi, Mutha, Kabati, Ishiara, Siakago, Makutano, Kangeta, Mikinduri, Kianjai, Kathangachini, Gatunga, Marimanti, Chiakariga, Kathonzweni, Matiliku, Emali and Salama. Although market operations were largely normal, with no major disruptions reported, operations in Mutha were affected by conflict between pastoralists and the local community. Market supplies were stable with normal traded volumes for food crops, except maize that was sourced externally and in low volumes. There was an over-supply of livestock, with cattle, sheep, goat and poultry the main traded species. Early harvests of green grams, cowpeas and pigeon peas were recorded in some parts of the cluster.

Trends in Maize Prices
There was a significant upward trend in maize prices across the cluster (Figure 2.11). Current prices are well above both the LTA and the same period last year. The highest price in June was recorded in Makueni at Ksh. 63 per kg, compared with the LTA of Ksh. 34 and the 2016 equivalent of Ksh. 27. Tharaka Nithi recorded the lowest price of Ksh. 50 against the LTA of Ksh. 33 and the 2016 price of Ksh. 29.
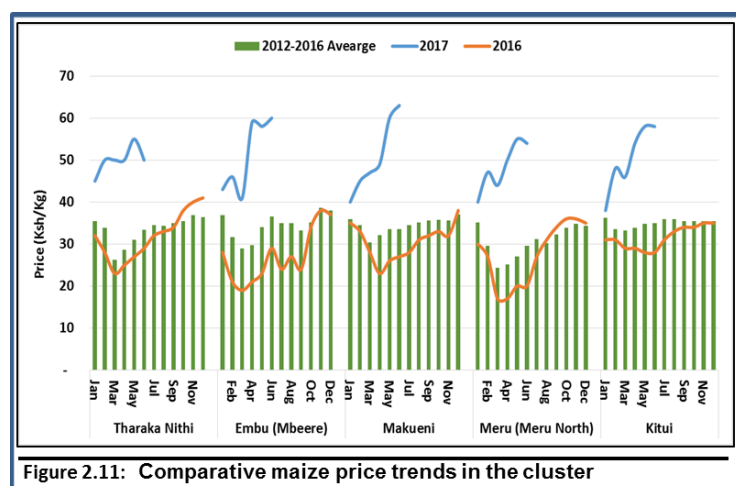

Figure 2.11: Comparative maize price trends in the cluster

2.4.5.4 Water Availability and Access
The major sources of water are rivers, boreholes, dams, piped water, springs, water pans and shallow wells, which are normal for the time of year. Recharge of open water sources ranged between 60 and 75 percent, with the exception of the marginal mixed farming livelihood zones

where it was 25-50 percent. The recharge improved water availability and access. Water in the open sources is projected to last until the end of August.

The most concentrated water points included Kitise water project, Mbala borehole and Ngamione earth dam in Kitise/Kithiku ward in Kitui, and Ndumuuru, Mariara, Kandebene and Malaene in Meru North, which are serving more than 7,600 people and 20,000 assorted livestock. In the rain-fed cropping and mixed farming zones, distance to water for domestic use was normal at less than two km, with the exception of the mixed farming zone of Makueni where it was seven km as opposed to the normal three km. In the marginal mixed farming zones across the cluster, the household distance increased from 3-5 km to 6-10 km.

Waiting times at the source were within the normal range of 10-30 minutes. However, regions in the marginal mixed farming zone of Kitui recorded higher waiting times of up to one hour, compared with 30 minutes normally, due to the high concentration of people and livestock. Areas with exceptionally long waiting times included Ukasi and Sosoma areas in Nguni ward.

The cost of water remained within the normal range of Ksh.3-5 per 20 litre jerry can across the cluster, with the exception of the agro-pastoral and marginal mixed farming livelihood zones of Meru North and Makueni where the cost increased from the normal Ksh. 2-5 to Ksh. 5-10 per 20 litre jerry can. Average water consumption in litres per person per day was within the normal range of 15-20 in the rain-fed cropping and mixed farming livelihood zones. The agro-pastoral and marginal mixed farming zones also recorded normal consumption of 10-15 litres, except in Meru North and Kitui which recorded 5-10 litres caused by the drying up of open sources and increased distances to water. Areas with low water consumption included Nguni, Ngomeni, Ikutha, Endau/Malalani and Nuu wards in Kitui, and Amwathi, Antuambui and A.Kiongo in Meru North.

2.4.5.5 Food Consumption
Most households (73.9 percent) were consuming an acceptable diet in terms of meal frequency, dietary diversity, nutritional value and amount, and had acceptable food consumption scores. The proportion of households with borderline and poor food consumption scores were 18.3 percent and 7.9 percent respectively. Food consumption was worse than in the same period in 2016, when 93.6 percent of households had acceptable food consumption and six percent were borderline.

2.4.5.6 Coping Strategies
The CSI for the cluster was 24 in May 2017 compared with 4.7 in May 2016. The increase is attributed to the poor performance of previous seasons which reduced households' access to adequate food. The most common coping strategies are now to reduce the number of meals and meal portions and to limit the amount of food taken by adults. Households were engaging in various coping strategies including charcoal burning, petty trade and casual waged labour.

CSI and proportion of households adopting livelihood coping strategies

Period	Mean CSI	HH not adopting coping strategies	Stress coping strategies	Crisis coping strategies	Emergency coping strategies
May-17	24	3.4%	31.2%	14.9%	50.6%
May-16	4.8	45.0%	33.3%	8.8%	12.9%

2.4.5.7 Health and Nutrition

Morbidity Patterns
Cases of diarrhoea have fluctuated depending on seasonality. March and May reported the highest number of cases due to the long rains. June had the lowest number of cases, although this is attributed to limited reporting caused by the health workers' strike rather than an improvement in health. Cases of malaria have declined significantly since 2016 due to preventive interventions. Cases of measles fell from January to May 2017, and slightly increased in June 2017, but were also lower than in 2016.

Immunization and Vitamin A Supplementation
Routine Vitamin A and immunization coverage was generally poor across the cluster and also below the national target of 80 percent. The poor coverage was attributed to poor data quality, the health workers' strikes for the better part of 2017 and inadequate support for integrated outreach activities in the hard-to-reach areas. The proportion of fully immunized children in the cluster was 70.5 percent; Tharaka had the lowest and Makueni the highest with 47.4 percent and 79.4 percent respectively. The percentage of children who received Oral Polio Vaccine3 (OPV3) was 69.8 percent, with Meru and Kitui having the highest and lowest proportions at 82.8 percent and 61 percent respectively.

Nutrition Status and Dietary Diversity
The proportion of children at risk of malnutrition based on MUAC<135mm between January and June 2017 was lowest in Mbeere at 3.9 percent and highest in Meru (North) at 24.5 percent (Figure 2.12). GAM was between 0.15 and 1.1 percent for Mbeere and Makueni respectively. Nutrition status is likely to deteriorate towards the lean season. Meal frequencies and dietary diversity are declining across the cluster. The number of meals consumed by children (6-59 months) reduced from 3-4 to 2-3 per day in Mbeere and from 2-3 to 1-2 per day in Meru. The household food consumption score is also expected to worsen as the dry spell progresses and as food prices continue to rise.
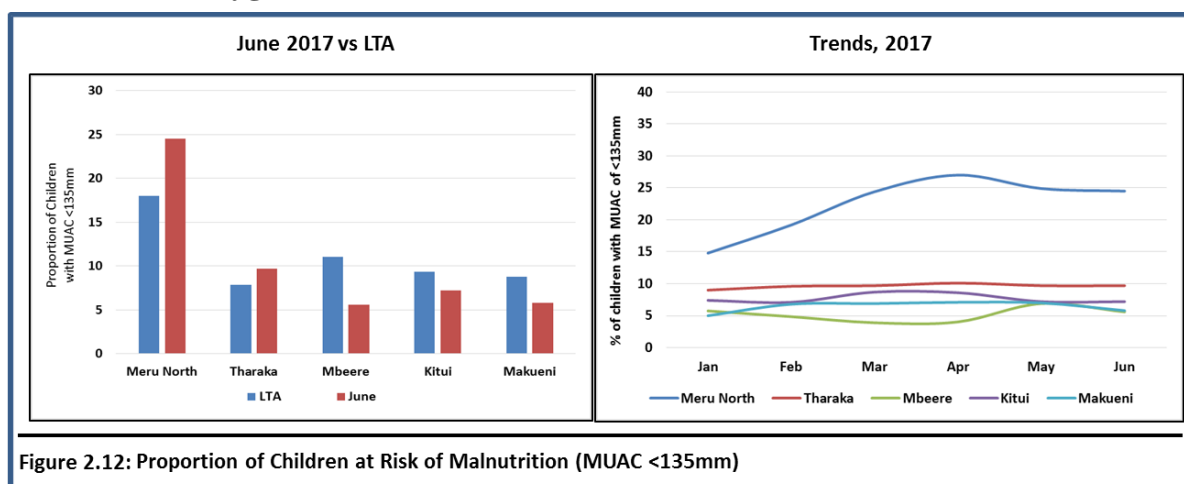
Sanitation and hygiene

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

Other underlying factors that affect malnutrition include inadequate maternal and child care practices, insufficient health care services, poor access to safe drinking water due to the ongoing dry spell, and poor hygiene and sanitation practices, with most areas having low latrine coverage and poor application of hygiene practices such as hand-washing. Maternal and child care practices are compromised due to long walking distances to water, which reduces the time allocated for child care.

2.4.5.8 Education

Access (Enrolment rate)
The enrolment statistics indicate that this is the only cluster that has attained gender parity, with the percentage of girls enrolled at the three levels of education being 50, 50 and 49 percent at ECD, primary and secondary respectively.

In all counties there was a decrease in enrolment for both boys and girls in public primary schools in Term II compared with Term I 2017. Kitui and Tharaka registered slight falls in primary and secondary schools, while large drops were observed in Makueni, where the primary enrolment rate dropped by 20 percent, and in Meru North, where primary and secondary enrolment rates in Igembe North sub-county fell by 37 percent. ECD enrolment rates for the same period also fell by ten percent in Makueni, by 3.4 percent in Kitui, and by a substantial amount again in Igembe North sub-county (32 percent).

The reduction in enrolment is attributed mainly to lack of school feeding (late disbursement of cash for the school feeding programme by the national government), and to the impact of drought on families' ability to pay school fees (especially noted in Kitui) as families divert resources to purchase food. In Tharaka, it was speculated that declining enrolment in public schools was correlated with an increase in private academies.

Participation (Attendance rate)
The attendance rate in this cluster has been generally stable since 2016; however, fluctuations can be seen to correlate with insecurity and the provision of school meals. The steady attendance has been attributed to school feeding in all counties, including in ECDs, and in secondary schools due to the allocation of bursaries.

Retention (Dropout rate)
The dropout rates in primary schools were lower in 2017 than in 2016. However, they were more pronounced in the lower areas of Meru (agro-pastoral livelihood zone) where insecurity was greater. Makueni had slightly higher dropout rates attributed to food shortages and increased child labour across the livelihood zones. The rate was seven percent in ECD and 11 percent in primary schools, while in secondary school it was 12.4 percent for boys and 15.5 percent for girls. This was attributed to the problem of fees/costs and family labour responsibilities across the livelihood zones.

In the cluster, there were normal transition rates from primary to secondary and a higher transition rate from ECD to primary. The school meals programme has contributed to increased learner participation and better concentration in class, leading to the relatively good transition rates of above 80 percent.

School Meals Programme
266,000 primary school children benefit from four types of schools meals programmes implemented in this cluster: the HGSMP in all the counties, the ESMP in Tharaka Nithi and Kitui, and the RSMP and the Community School Meals Programme (CSMP) in Kitui only. ECD feeding initiatives have also been launched in Embu. Some schools in the agro-pastoral zone of Meru have benefited from general food distribution rations from the Ministry of Interior, while other schools mobilise children to bring meals from home, covering an additional 12,325 students.

Gaps remain in 1,400 schools with over 350,000 children missing out on meals (the largest being Kitui with a gap of 280,000). This is caused by food delivery delays, or delays in disbursement of funds, or lack of water to prepare meals. There are also new public primary schools which have not yet been included in any feeding programme (for example, 58 in Tharaka). Lack of school feeding adversely affected school attendance, and transfers of students to schools where meals are offered has been recorded in at least ten schools.

Inter-sectoral links
In eight schools in this cluster (one in Embu, three in Kitui, one in Makueni, one in Meru and two in Tharaka Nithi), conflict and insecurity linked to resource competition or boundary disputes have temporarily disrupted the learning of 449 ECD students and 1,757 primary students, with about 100 being absent from school for a long period in Term II.

2.5 The Coastal Marginal Agricultural Livelihood Cluster

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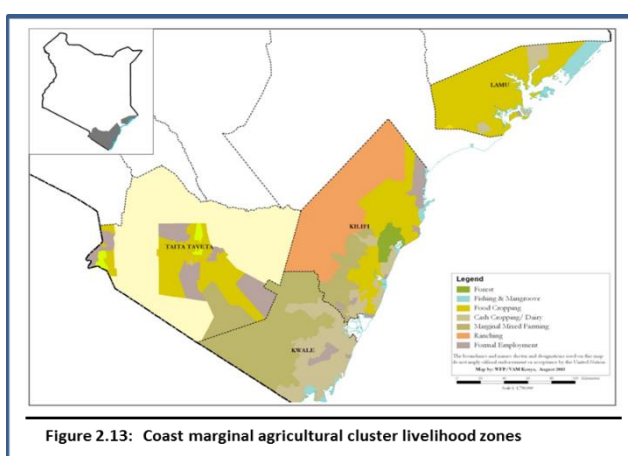

Figure 2.13: Coast marginal agricultural cluster livelihood zones

2.5.2 Current Drivers of Food Insecurity

Rainfall Performance
The onset of the short rains was late across all counties, except in Kwale where it was normal. Lamu experienced a false start while Kilifi only received rain in the first dekad of May. Rainfall in most parts of the cluster was near normal at 90-110 percent of normal, while the southern parts of Kilifi and Kwale received above 110 percent of normal. Taita Taveta largely received 70 to 90 percent of normal rainfall with some pockets in Voi receiving 25 to 50 percent of normal. Temporal distribution was poor; Kilifi and Kwale had storms during the first dekad of May that resulted in floods in some areas. The spatial distribution was uneven except in Kwale and Lamu where it was even. Cessation was normal, except in Lamu where it was early in the second dekad of June compared with the normal first dekad of July. In Kwale the rains were still on by mid-July.

Other shocks and hazards
Insecurity was reported in Lamu due to the ongoing insurgency by suspected Al-Shabaab militants. A three-month curfew has been imposed in the area. Isolated cases of human-wildlife conflict were reported in Taita Taveta where elephants invaded crop farms. Outbreaks of Fall Armyworms were affecting the maize crop in Kilifi and Kwale. Both counties also witnessed rain storms in May leading to floods and water logging in some areas.

2.5.3 Current Food Security Situation

The cluster is currently classified as Stressed (IPC Phase 2), except Lamu and parts of Kilifi (Bamba, Ganze and Adu) that are classified as Crisis (IPC Phase 3). Household maize stocks are less than one percent of the LTA, and depleted in Kilifi, but 30 percent of the LTA in Lamu. Pasture and browse condition is fair to poor, except in mixed farming and dairy farming zones where pasture is good. Livestock body condition ranges from good to fair. Milk production has slightly reduced. Dairy livestock and mixed farming livelihood zones recorded between five and six litres of milk per household per day compared with the normal seven litres; other livelihood zones recorded between one and three litres. Maize prices were above the LTA and ranged between Ksh. 45 and 60 per kg. Kwale had the highest price at Ksh. 60 which was normal, while Taita Taveta had the lowest at Ksh 45 per kg. Goat prices were above the LTA and between Ksh. 2,500 and 4,000. Terms of trade were favourable across the cluster. A medium-sized goat could be exchanged for 39kg of maize in Kwale and 70kg in Lamu. Households with a poor food consumption score ranged between 3 percent and 17.3 percent, while the proportion of children at risk of malnutrition based on MUAC <135mm was five percent across the cluster and above the LTA. Kilifi reported a GAM rate of 4.6 percent which was low and normal.

2.5.4 Food Security Trends

Indicator	Short rains assessment, Feb 2017 (previous season)	Long rains assessment July 2017 (current season)
Food insecurity phase	Stressed: all except Lamu East and parts of Kilifi classified under Crisis	All in Stressed, except Lamu and parts of Kilifi in Crisis
% of maize stocks held by households	11% of LTA	0%-7% of LTA, except Lamu (30% of LTA)
Livestock body condition	Fair to poor for cattle and good to fair for small stock	Fair to poor for cattle and good to fair for shoats
Water consumption (litres per person per day)	15-20 in Taita Taveta and Kwale (normal) 6-10 in the pastoral zones of Kilifi and Lamu (compared with the normal 15-20)	15-40 in Taita Taveta and Kwale (normal) 5-16 in the pastoral/fishing zones of Kilifi and Lamu (compared with the normal 15-20)
Meal frequency	1-2 meals per day	1-2 meals per day in Lamu and Kwale 2-3 meals per day in Kilifi and Taita Taveta
Terms of trade	ToT ranges between 76 and 116kg and is above the LTA except in Lamu	ToT between 63 and 86kg and above LTA except in Kwale with 39kg (below LTA)
Coping Strategy Index	22	7-18 Lamu (18), Kwale (16), Kilifi (14) and Taita Taveta (7)
Food Consumption Score	Poor: 20% Borderline: 46% Acceptable: 34%	Poor: 17% Borderline: 42% Acceptable: 41%
MUAC	Stable: Kilifi and Kwale	Stable in Taita Taveta Deteriorating in Kilifi, Kwale and Lamu

2.5.5 Impact of Drivers on Food and Nutrition Security

2.5.5.1 Crop Production

Rain-fed crop production

Most parts of the cluster, including Lamu, Kwale and the coastal areas of Kilifi, are dependent on the long rains season for crop production. Taita Taveta and the hinterland of Kilifi are mainly dependent on the short rains season. The main crops grown in the cluster are maize, cowpeas and cassava. Other crops grown are green grams and cowpeas. The total area under the three main crops was 45 percent below the LTA. The total area planted under maize and

cassava was 94 and 82 percent of the LTA respectively. Production of maize, cowpeas and cassava was 69, 91 and 38 percent of the LTA, attributed to poor rainfall performance and outbreak of the Fall Armyworm.

Irrigated agriculture

Irrigation is mainly carried out in small irrigation schemes along the rivers. The main crops grown under irrigation are bananas and maize. Other crops grown under irrigation are beans, tomatoes, rice, onions, egg plants and capsicums. A total of 3,467 hectares were planted compared with the LTA of 3,642 hectares. The bananas were mainly grown in Taita Taveta. Banana production increased slightly to six percent above the LTA. Green maize and beans production was 80 and 68 percent of the LTA respectively.

Cereal stocks

The overall maize stocks held in the cluster were 23 percent of the LTA while household stocks were six percent of the LTA. Traders' stocks were 42 percent of the LTA. The reduced stocks were attributed to the decline in production and low availability across the country. Rice stocks held by households and traders were 38 and 83 percent of the LTA respectively.

Cereal stocks held

Commodity	Period	Households	Traders	Millers	NCPB	Total
Maize (in 90kg bags)	Current	8,489	69,180	50	0	77,719
	LTA	141,725	163,390	20,850	8,900	334,865
Rice (in 50kg bags)	Current	2,706	17,400	0	0	20,106
	LTA	7,209	21,080	0	0	28,289

2.5.5.2 Livestock Production

The main livestock types are cattle, sheep, goats and poultry. Livestock production contributes 45 percent of income in mixed farming, 20 percent in marginal/mixed farming, and 20 percent in the agro-pastoral livelihood zone.

Pasture and Browse Condition

The pasture condition was good across all the livelihood zones and is likely to last for 3-4 months which is normal at this time of the year. However, in the agro-pastoral livelihood zone, the pasture situation was good to fair.

Livestock Body Condition

Livestock body condition for cattle was fair while that of sheep and goats was good across all livelihood zones. The body condition is normal at this time of the year though is expected to worsen, especially in the livestock farming zone as the forage condition deteriorates.

Water for Livestock

The current water sources for livestock include water pans, rivers, dams, ponds and shallow wells and this is normal at this time of the year. The watering frequency is daily in all the livelihood zones but is likely to reduce gradually. The water is expected to last for around 3-4 months.

Water for livestock

Livelihood zone	Sources		Return average distances (km)		Expected duration to last (months)	
	Current	**Normal**	**Current**	**Normal**	**Current**	**Normal**
Mixed farming	Water pans Shallow wells Rivers streams	Water pans Shallow wells Rivers streams	3-4	1-4	4	4
Marginal mixed farming	Water pans Shallow wells Rivers Streams	Water pans Shallow wells Rivers streams	2-4	3-8	3	3
Agro-pastoral	Water pans Shallow wells Rivers Streams	Water pans Shallow wells Rivers Streams	10-12	6-8	3	3

Birth Rates, Milk production, consumption and prices

The birth rates are below normal compared with the same period last year, attributed to the previous drought in all the livelihood zones. However, the birth rates were near normal for cattle in the mixed farming/livestock livelihood zone. In the marginal mixed farming livelihood zone, average milk production per household was 0.5-1 litre compared with the normal 1-2 litres. Consequently, household daily milk consumption was 0.5-1 litre compared with the normal two litres. More milk was produced and consumed in the mixed farming zones in Taita Taveta and Kilifi at 5-6 litres compared with the LTA of 3-5 litres. Milk prices in the mixed farming and marginal farming livelihood zones were normal but were above the LTA in the agro-pastoral livelihood zone.

The TLUs are lower than normal for both poor and middle-income households in all the livelihood zones. In the agro-pastoral livelihood zone, poor households have 1-2 TLUs compared with the normal 3-5, while middle-income households have 5-10 compared with the normal 9-20. The reduction in TLUs was attributed to the effects of the drought. Migration was reported in and out of the livelihood zones. These migrations are not normal and are attributed to the poor performance of the rains. No outbreaks of notifiable livestock diseases were reported. Cases of endemic tsetse fly-related diseases (Trypanosomiasis) were reported in parts of the mixed farming livelihood zone in Lamu.

2.5.5.3 Market Performance

The main markets include Wundanyi, Mwatate, Voi, Taveta, Mpeketoni, Witu, Faza, Mtwapa, Bamba, Samaburu, Kinango and Vigurungani. The livestock and food markets were accessible and functioned normally across the cluster with no disruptions. Generally, there was low supply of the main traded foodstuffs such as maize, rice, beans, cowpeas and green grams. Maize was vastly limited in supply and thus retailed at higher than normal prices for this time of year. The cluster imported maize mainly from Tanzania. Low volumes of livestock were traded, with the common types being cattle, goat and sheep.

Maize prices have been on an upward trend since January, except in Taita Taveta where they have remained stable (Figure 2.14). Prices reduced in June in Kilifi and Kwale due to additional inflows from source markets. However, they remain significantly above the LTA by 34, 44 and 46 percent in Kilifi, Lamu and Kwale respectively. In Taita Taveta, prices are 10 percent above the LTA due to the informal inflows from Tanzania.
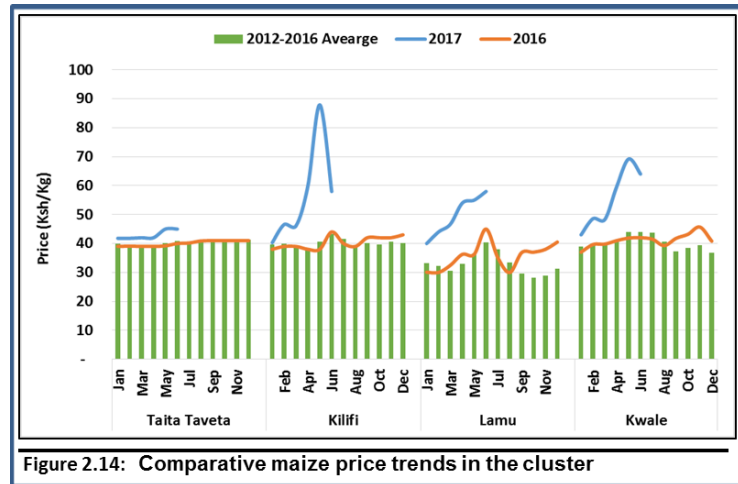

Figure 2.14: Comparative maize price trends in the cluster

2.5.5.4 Water Availability and Access

The main sources of water are shallow wells, boreholes, piped systems, dams, water pans and shallow wells. Most rivers have normal flows. Most pans in Kwale and Kilifi have more than 80 percent of their capacity, and about 50 percent of their capacity in Lamu and Taita Taveta. About 60 percent of pans in the livestock zone of Taita Taveta and the pastoral/ranching livelihood zone of Kilifi are already dry. Most water sources are expected to last for more than five months, except in the livestock zones of Taita Taveta and the pastoral/ranching livelihood zone of Kilifi where they may last until September. Distances to water sources are within the normal ranges in the mixed farming zone of Kwale and in the mixed farming food crop/horticulture/dairy & irrigation/livestock zones of Taita Taveta. They are also within the seasonal range in most parts of Lamu and Kilifi at 1-3 km. However, in the fishing and mangrove zones of Lamu and the livestock zones of Kilifi and Taita Taveta, the distances have increased from the normal 2-4 km to 4-6 km. In the livestock zone in Kwale, the distances have reduced from the normal six km to an average of 2-4 km.

Waiting time at the source has remained low at 10-100 minutes across the cluster. However, households in the fishing and mangrove zones were waiting up to one hour to collect fresh water from water kiosks, while in the livestock zone of Taita Taveta, waiting time has increased from the normal 20 minutes to 100 minutes due to the drying up of pans and water rationing. The cost of water at source per 20-litre jerry can was Ksh. 2-50 across the cluster, with the highest being in parts of Alia in Taita Taveta and in Sokoke and Bamba in Kilifi, where vendors were selling water up to Ksh. 50 per 20-litre jerry can.

Household water consumption was normal at 25-30 litres per person per day in the livestock zone of Kwale and in the mixed farming food crop/horticulture/dairy and irrigation/livestock zones of Taita Taveta. In Taita Taveta, consumption was 15-20 litres per person per day while in Lamu and Kilifi, water consumption reduced from 15 litres per person per day to 10-15 litres per person per day. The lowest was in Mtangawanda, Tchundwa and Bahamisi in Lamu with an average of five litres per person per day.

2.5.5.5 Food Consumption

In Taita Taveta, Lamu and Kwale, the proportion of households with poor, borderline and acceptable food consumption was 17.3 percent, 42.1 percent and 40.6 percent respectively. In Kilifi, the equivalent percentages were three percent, 12 percent and 85 percent (based on data from NDMA sentinel sites).

2.5.5.6 Coping Strategies

The CSI in the cluster slightly increased from 14.54 in May 2016 to 18.13 in May 2017. The rise reflected growing challenges in accessing adequate food due to the impacts of the current and previous seasons which reduced crop production and livestock productivity and increased staple food prices. The coping strategies employed by households were to rely on less preferred foods, reduce meal portions, and skip meals.

2.5.5.7 Health and Nutrition

Morbidity and Mortality

The most common diseases reported in the cluster were URTI, malaria and diarrhea. Malaria and URTI increased in Kwale, while URTI and diarrhea declined in Kilifi and Lamu. Across the cluster, there was a notable decline in recorded infections attributed to the nurses' strike at most of the primary health care facilities. There was no disease outbreak across the cluster. Mortality was within the normal ranges (below one person/10,000/day).

Immunization and Vitamin A supplementation

The proportion of fully immunized children was below the national target of 80 percent, with the highest recorded in Lamu (75.1 percent) and the lowest in Kwale (62.5 percent). Vitamin A coverage for children aged 6-59 months was low in all counties. The highest was in Kilifi (61.4 percent) and the lowest in Lamu (14.2 percent).

Nutrition Status

The proportion of children at risk of malnutrition (MUAC<13.5mm) remained stable in Kwale, Lamu and Taita Taveta. Between January and June 2017, gradual improvement was noted in Kilifi (Figure 2.15), attributed to the scaling up of mass screening and outreach as well as the cash transfer programme targeting 12,200 households in the county.

Figure 2.15: Proportion of Children at Risk of Malnutrition (MUAC <135mm)
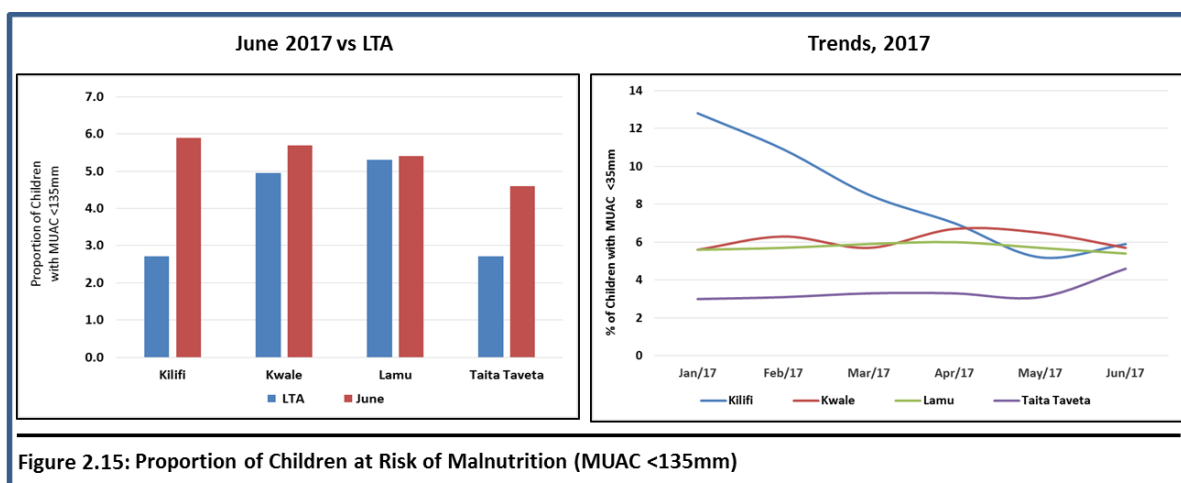
Water Sanitation and Hygiene

In Kwale and Taita Taveta, where households experienced water shortages, there was a notable increase in water-borne diseases. Latrine coverage across the cluster was good. It averaged 60 percent in Kilifi, but was as low as 43 percent in the ranching/livestock keeping and marginal mixed farming livelihood zones. Latrine coverage in Lamu and Kwale was 70 percent and 52.5 percent respectively. Coverage was highest in Matuga at 71 percent while Kinango sub-county had the lowest coverage at 10 percent.

2.5.5.8 Education

Access (Enrolment rate)
Enrolment in the cluster was generally stable from Term I to Term II, but fluctuations, either positive or negative, were noted in line with the introduction or absence of school meals programmes at all levels of schooling. ECD enrolment slightly improved due to the efforts by county governments to build more ECD centres and support county-driven feeding programmes for ECD pupils. More boys than girls enrolled at ECD across the county, while the reduction in enrolment was also sharper among girls. For example, in Kwale, girls' ECD enrolment fell by eight percent between Terms I and II compared with one percent for boys, with notable reductions in Msambweni sub-county where girls' enrolment fell by 44 percent.

Attendance rate (Participation)
School attendance also fluctuated depending on school feeding and the availability of food at home. In Taita Taveta, attendance was stable due to the provision of school meals, while Kwale and Lamu experienced more fluctuation. Kilifi reported a lower attendance rate at 89 percent. Generally, the attendance of both boys and girls began to increase and stabilize at the beginning of Term II, mainly attributed to the resumption of school meals by the national and county governments supported by WFP.

A further contributing factor for absenteeism in this cluster, especially Kilifi, is that the level of poverty has worsened due to drought, and consequently household chores, early marriage and pregnancy have increased.

Transition rates from ECD to primary were high at about 90 percent across the counties, and from primary to secondary were relatively normal at about 75 percent; the lower rate from primary to secondary is mainly due to demand for school fees at post-primary level coupled with the limited absorption capacity of the education system at this level. There are only 264 secondary schools in the cluster (21 in Taita Taveta, 135 in Kilifi, 22 in Lamu, and 86 in Kwale), compared with 1,301 primary schools, meaning that transition is restricted by lack of capacity even for those who attain the minimum pass rates during the national primary examinations.

Retention (Dropout rate)
There were more dropouts in 2017 than in 2016, attributed to the lack of food in schools (reported in Kilifi, Kwale and Lamu), migration, and long distances to schools (reported in Taita Taveta and Kwale). There were minimal dropouts in Kwale ECDs attributed to feeding programmes, construction of ECD centres, and availability of teachers and desks. The dropout rate in Taita Taveta primary schools increased by two percent, and in Kwale by one percent, from 2016 to 2017. Secondary dropouts increased by one percent in Lamu, due to inability to pay fees, and by three percent (0.2 to 3.2) in Taita Taveta, where pupils at upper primary levels were transferring to schools in Tanzania; these transfers were predominantly by class seven learners since this level qualifies them to join secondary school in Tanzania. A few parents had also moved to Tanzania because of the drought. It has become a normal trend for pupils from Tanzania to come to Kenya for a comparatively better education and later to relocate to their country when they reach class seven. The main reason for girls dropping out was early marriage and pregnancy, while for boys it was venturing into the '*Boda Boda*' transport business.

School Meals Programme
Late disbursement of HGSMP funds in Term II of 2017 (reported in all counties in this cluster), coupled with a rise in the market value of most cereals, limited the availability and coverage

of school feeding and affected second term attendance across the counties. It was confirmed in Kwale that no school feeding is taking place as a result of this. 65,000 children were missing meals in 197 schools (25,000 in Kilifi, 10,000 in Lamu, 15,500 in Kwale and 14,000 in Taita Taveta). These are predominantly new public schools that are not yet included in the national school meals programme and consequently experience fluctuating and unpredictable attendance rates. The provision of school meals is also hampered by lack of water for cooking (reported in all counties) and a surplus of children.

Kwale, Lamu and Kilifi county governments started providing enriched porridge and milk to children enrolled in their ECD centres, which had a positive impact on enrolment, attendance and retention (as noted above).

3.0 Food Security Prognosis

3.1 Assumptions
This section summarizes the assumptions being made that will determine the food security outcomes in the next six months.

- Based on the July International Research Institute / Climate Prediction Centre forecast, the October to December short rains season is expected to be above average over the eastern regions of Kenya and below average over the southern, northern and western parts of the country and the more southern coastal areas. Average cumulative rainfall is forecast for areas around Lake Turkana, western Kenya and the coastal strip.
- Wholesale maize prices between June 2017 and January 2018 are expected to range between KSh 4,000 and 5,000 for a 90kg bag. Prices are expected to remain above the recent five-year average levels by about 30 to 50 percent due to tight supplies in the country.
- According to the State Department of Agriculture, the combination of Fall Armyworm infestations and erratic long rains in the high and medium-rainfall areas, particularly in the North Rift, is likely to result in a 20-30 percent drop in long rains maize crop production in October. This will reduce supply and keep prices high until January.
- Further deterioration of the already below-average rangeland resources will result in continued abnormal livestock migration and a heightened risk of resource-based conflict until October.
- Due to below-average crop production in 2017, food stocks in most poor households are low and will likely remain below normal until January 2018.

3.2 Food Security Prognosis, August-January 2017

Pastoral Areas
Food security is expected to reduce from August as rangeland resources further deteriorate. High staple food prices will restrict food access and availability as household incomes fall. Food consumption will continue to decline. Poor households will increasingly rely on consumption coping strategies such as skipping meals and reducing meal sizes, and livelihood coping strategies such as selling productive assets, begging, and withdrawing children from school. As livestock stay in dry season grazing areas away from homesteads, the absence of livestock products such as milk and reduced dietary intake will increase malnutrition, especially in children under five. Areas currently classified in Stressed (IPC Phase 2) and Crisis (IPC Phase 3) are expected to remain so until October, with additional parts of Wajir, Baringo, Tana River, Kilifi and Taita Taveta moving into Crisis (IPC Phase 3).

The onset of the short rains is expected in October, after which there will be modest improvements in rangeland resources, livestock body condition, milk production, and livestock sales temporarily improving household food security. However, from December, range resources will fast deteriorate under increased grazing pressure and high temperatures, driving further abnormal livestock migration that will reduce milk consumption and income. In January, food consumption in most households will reduce as livestock prices and productivity fall. In areas with poor rains, more households are likely to move into Crisis (IPC Phase 3), while in areas with above-average rains, households may stay the same or improve to Stressed (IPC Phase 2).

Marginal agricultural areas

Below-average crop production in August is likely to reduce household income from crop sales and agricultural labour and thus reduce food security. Household food stocks are likely to be depleted by September. Access to food will be constrained by persistent high prices, deepening dependence on coping strategies such as charcoal sales, remittances, and petty trade. Lower milk availability and consumption is likely to increase malnutrition in children under five until October. The risk of human-wildlife conflict and conflict between livestock herders and farmers will heighten at the peak of the lean season. Increased food insecurity will see additional households moving into Stressed (IPC Phase 2) or Crisis (IPC Phase 3) in Taita Taveta, Kwale and Kilifi.

Between September and October, land preparation and planting will commence in anticipation of the short rains, increasing household incomes and facilitating better food access and consumption, though at levels below average. The rains will replenish forage and water, improve livestock productivity and sales, and increase milk consumption, though the impact of this will depend on how the season performs. Some vegetables and other short-cycle crops will become available in December, slightly improving food consumption and dietary diversity until mid-January 2018. Food security is expected to improve slightly with the short rains but not sufficiently to change the food security phase. Households previously in Stressed (IPC Phase 2) and in Crisis (IPC Phase 3) will remain so.

The key factors to monitor over the next six months include:

- Staple food prices
- Livestock health and mortality
- Resource-based conflicts and insecurity
- Effects of armyworms on production
- Fall-out from the 2017 elections
- Impacts of programmes and interventions
- Performance of the 2017 short rains.

4.0 Proposed Sectoral Interventions

4.1 Agriculture Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Agriculture		
Fall armyworm control, capacity building and provision of chemicals	Baringo, Narok, Kwale, Kilifi, Taita Taveta	179
Provision of early maturing drought tolerant seed crops, provision of relief seed, fertilizer and other inputs, land preparation subsidy	Kajiado, Narok, Wajir, Tana River, Isiolo, Mandera, Marsabit, Samburu, Marsabit, Makueni, Kwale, Kilifi, Lamu, Taita Taveta	235
Fuel subsidy for irrigation schemes	Isiolo, Mandera	25
Provision of post-harvest handling materials and post-harvest management training	Makueni, Kilifi, Kwale	20
TOTAL		**459**

4.2 Livestock Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Purchase and distribution of emergency supplementary feeds concentrates, molasses and salts	Baringo, Laikipia, Narok, West Pokot, Isiolo, Wajir, Garissa, ,Mandera, Tana river, Taita Taveta	540
Emergency livestock offtake, (commercial and slaughter)	Baringo, Kajiado, West Pokot, Isiolo, Wajir, Mandera, Carissa ,Tana river, Isiolo, Garissa	300
Livestock disease surveillance along migratory routes, livestock markets and border points	Kajiado, Narok, Baringo, Isiolo Garissa Tana river, Taita Taveta, Lamu	124
TOTAL		**964**

4.3 Water Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Fuel subsidy for strategic boreholes	Baringo, Wajir, Mandera, Marsabit, Samburu, Isiolo	25
Water trucking	Narok, Kajiado, Isiolo, Wajir, Mandera, Garissa, Tana river, Marsabit, Samburu, Isiolo, Embu (Mbeere), Makueni, Taita Taveta	170
Rehabilitation, repair and maintenance of strategic boreholes	Baringo, West Pokot, Wajir, Isiolo, Mandera, Marsabit, Kwale, Turkana	210
TOTAL		**405**

4.4 Health and Nutrition Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Mass screening for under-fives, lactating and pregnant women	Kajiado, Laikipia, West Pokot, Narok, Garissa, Wajir, Isiolo, Samburu, Marsabit, Turkana, Makueni, Kilifi, Kwale, Lamu	140
Integrated medical outreaches	Laikipia, West Pokot, Garissa, Wajir, Isiolo, Tana river, Mandera, Marsabit, Samburu, Turkana, Taita Taveta	91
Scale up HINI/IMAM/IYCN interventions	West pokot, Laikipia, Kajiado, Isiolo, Marsabit, Turkana, Makueni, Tharaka Nithi, Embu (Mbeere), Kwale, Kilifi, Taita Taveta, Lamu	90
Supplementation (Vitamin A, Iron Folate Supplementation among Pregnant Women, Zinc Supplementation	Baringo, West Pokot, Narok, Makueni, Embu (Mbeere), Taita Taveta	35
Households water treatment	Baringo, West Pokot, Narok, Tana River, Garissa, Kilifi	25
TOTAL		**381**

4.5 Education Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Upscaling of school meals programmes	Baringo, Kajiado, West Pokot	207
Water trucking to schools	Isiolo, Wajir, Marsabit	80
TOTAL		**287**

4.6 Peace and Security Sector: Priority Interventions August 2017 – January 2018

Intervention	County	Cost in Ksh (M)
Peace building initiatives to resolve conflict over resources, enhance conflict resolution mechanisms	Wajir, Isiolo, Laikipia, Lamu, Baringo, Samburu	50
TOTAL		**50**

4.7 Food Assistance Sector: Priority Interventions August 2017 – January 2018

County	County population (2016 projected)	No. people requiring assistance in February 2017 (2016 SRA)	August 2017 – January 2018	
			% of population in need of assistance	No. people requiring assistance
Turkana	1,083,653	276,200	32	351,900
Wajir	458,900	146,100	33	151,900
Mandera	711,117	202,300	32	228,200
Garissa	431,950	123,400	36	155,900
Marsabit	315,936	139,700	51	161,500
Samburu	283,780	123,700	48	137,000
Laikipia	505,712	54,600	24	123,100
West Pokot	649,418	97,000	24	153,600
Tana River	303,047	134,100	53	159,700
Isiolo	155,465	83,900	63	98,700
Kajiado	870,721	48,300	15	128,200
Baringo	703,697	73,900	18	128,900
Narok	1,077,719	41,700	7	77,100
Sub-total, Pastoral	**7,551,115**	**1,544,900**	**27**	**2,055,700**
Makueni	959,022	165,400	22	213,400
Kwale	820,199	207,100	19	154,300
Kilifi	1,399,975	200,500	19	259,800
Kitui	1,097,687	180,200	24	265,800
Taita Taveta	358,173	61,900	27	97,800
Embu (Mbeere)	219,220	43,800	38	83,200
Tharaka-Nithi (Tharaka)	141,061	21,200	15	21,200
Meru (North)	775,982	77,600	11	88,300
Nyeri (Kieni)	175,812	44,000	35	61,500
Lamu	128,144	51,300	43	55,300
Sub-total, Marginal Agricultural	**6,075,275**	**1,053,000**	**21**	**1,300,600**
Total	**13,626,390**	**2,597,900**	**25**	**3,356,300**