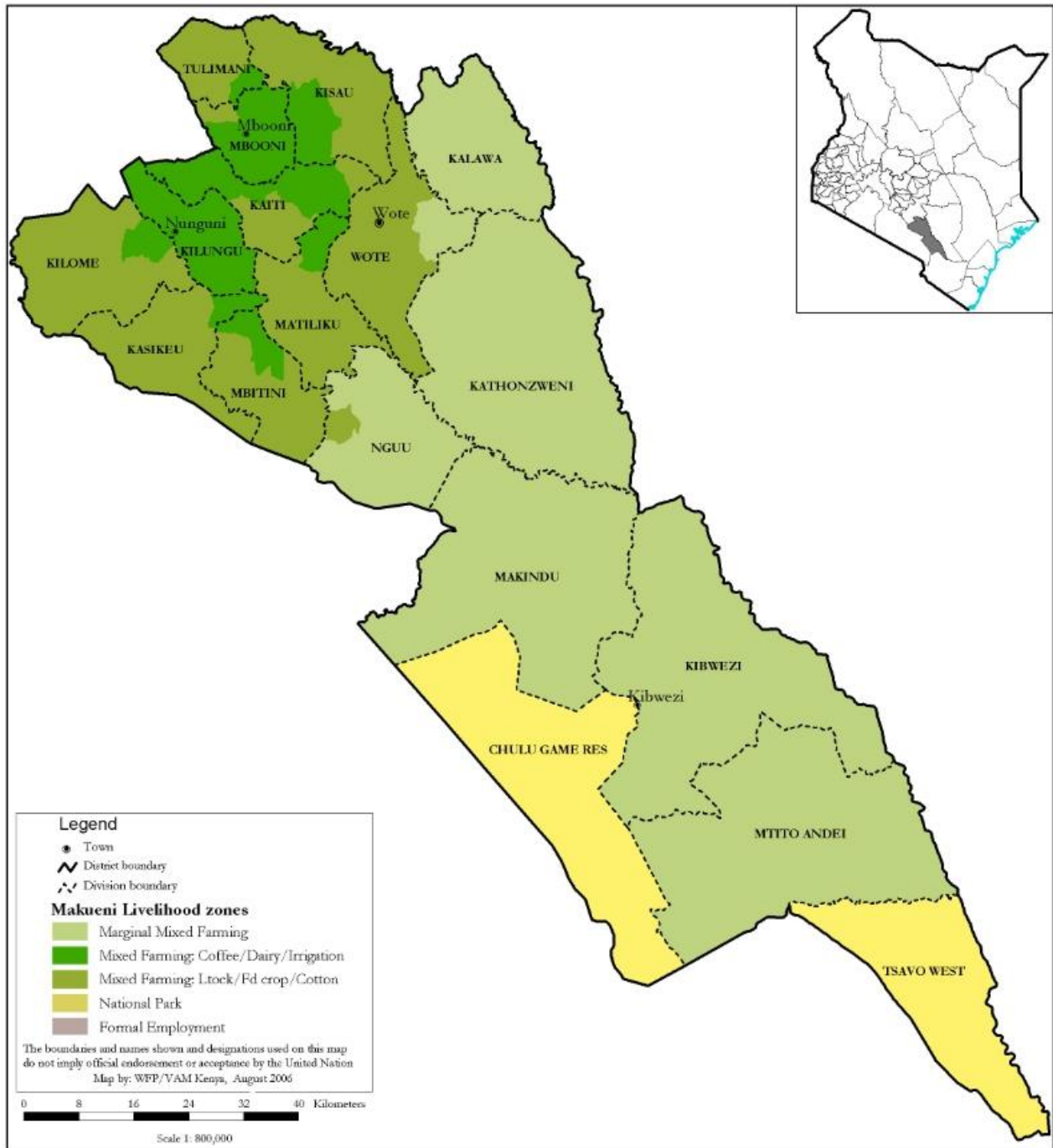


MAKUENI COUNTY 2017 LONG RAINS FOOD SECURITY ASSESSMENT REPORT



A Joint Report by the Kenya Food Security Steering Group (KFSSG)¹ and Makueni County Steering Group

July 2017

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Executive Summary

Makueni County is classified under Stressed Phase of food insecurity (IPC Phase 2) except parts of Kilome and Kaiti sub counties, which are in the Minimal Phase (IPC Phase 1). The long rains performance was poor with most parts of the county receiving 50 to 75 percent of normal rainfall characterized by poor temporal distribution. According to WFP Food Security and Outcome Monitoring results (FSOM May 2017), food consumption score remained stable depicting no significant change in food consumption. The percentage of households with poor food consumption and borderline food consumption expected to increase. As the dry spell persist, households' are likely to consume food less in nutritive value, reduced frequency intake and less dietary diversity. Most of the households in the marginal mixed farming livelihood zone were consuming one to two meals per day comprising mainly two food groups (cereals and legumes) compared to the normal two to three meals. There was a decline in crop production with areas within the marginal mixed farming livelihood zone having total crop failure. Production of maize, green grams and cowpeas was 24, 55 and 31 percent of Long Term Average (LTA). Stocks of major food staples were below the long-term average across the county. Household maize stocks were 15 percent of LTA.

The poor rainfall performance affected pastures, access to water by livestock and livestock productivity with a consequent reduction in milk production and consumption. In the marginal mixed farming livelihood zone, household milk production reduced from one litre to 0.5 litres while in the mixed farming crop/livestock livelihood zone, production reduced from two to one litre. In the mixed farming coffee/dairy livelihood zone, household milk production reduced from four to two litres. Similarly, access to pasture in some areas affected by influx of livestock from Kajiado and Narok counties. Prices of major food staples increased drastically during the period under review. As at June 2017, maize and beans prices were 80 and 39 percent above LTA respectively. The escalating prices of cereals and pulses compounded by declining livestock prices that resulted in deterioration of terms of trade and erosion of the purchasing power of households. In June 2017, households could access 57 kg of maize compared to the LTA of 95 kg.

The proportion of children under five years at risk of malnutrition, measured by mid upper arm circumference ($\geq 125\text{mm}$ and $< 135\text{mm}$) was 5.8 percent compared to the LTA of 8.8 percent and 6.57 percent for the previous year. Recharge levels for open water sources was 40 and 60 percent in the marginal mixed farming zone and the mixed farming crop/livestock livelihood zone respectively however in the mixed farming coffee/dairy livelihood zone, water recharge level was high at 80 percent. Low recharge and depletion of some open water sources led to increased distances and waiting time at water source hence reduction in water consumption at the household level. The main factors that drive food insecurity in the county includes; below average rainfall performance in three consecutive seasons resulting to no or low household stocks, poor rangeland conditions have led to frequent conflicts and insecurities.

1.0 Introduction

1.1 County background

Makueni County is located in the South Eastern part of the country. It has an estimated population of 884,527 persons (KNBS 2009 census) and covers an area of about 7,966 square kilometres. The county is comprised into six sub counties namely: Makueni, Kilome, Mbooni, Kaiti, Kibwezi East and Kibwezi West. There are three main livelihood zones in the county; namely the mixed

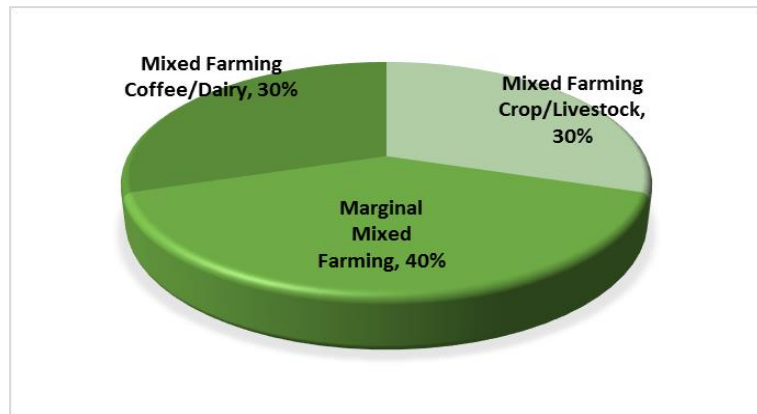


Figure 1: Proportion of population by livelihood zone

farming crop/livestock livelihood zone, marginal mixed farming livelihood zone and mixed farming coffee/dairy livelihood zone comprising 30, 40 and 30 percent of the population respectively (Figure 1). The main economic activities across the livelihood zones are livestock and crop production. In the marginal mixed farming livelihood zone, livestock and crop production contributes 58 and 30 percent of cash income respectively while in the mixed farming livelihood zones, livestock and crop production contribute about 45 and 40 percent to cash income respectively. Other minor economic activities include petty trade and small businesses, casual waged labour, firewood collection and charcoal burning.

1.2 Objectives and approach

The overall objective of the assessment was to assess the impact of the 2017 long rains season on the various sectors on food security in Makueni County.

Specific objectives

- To assess the current factors affecting food security and determine the food security situation in Makueni County
- To give immediate, medium term and long term recommendations to address food security issues in the county

1.3 Methodology and approach

The assessment was conducted between 10th - 15th July 2017 using a multi-sectoral and multi-agency approach, through analysis of various indicators in the agriculture, livestock, markets, water, health, and education sectors. Data collection was carried out through filling of checklists, secondary data, transect drives and focused group discussions with households across the livelihood zones. The transect drive included visits to markets, schools and health centers to collect information. After the analysis, food security classification for the county was determined through use of the Integrated Food Security Phase Classification (IPC) system. The preliminary findings were presented to the County Steering Group (CSG) during a debriefing for their review and input. The final draft assessment report was then compiled by incorporating the input from the CSG.

2.0 Drivers of Food and Nutrition Security in the County

2.1 Rainfall Performance

The onset of the rains was late in the third dekad of March compared to the normal first dekad of March. Rainfall performance was generally poor across the County. Most parts of the county received 50-75 percent of normal rainfall except parts of Kibwezi East and Kibwezi West which received 75- 90 percent of normal rainfall (Figure 2). Temporal and spatial distribution of the rains was poor. Cessation was normal in the first dekad of June.

2.2 Other shocks and hazards

Following influx of livestock from the neighbouring county of Kajiado, reported cases of conflicts were in Kilome Sub County in Kiimakiu/Kalanzoni Ward and Malili area of Konza scheme. There were also reported cases of human-wildlife conflict in Kako/Waia ward where wild dogs killed over 200 sheep and goats.

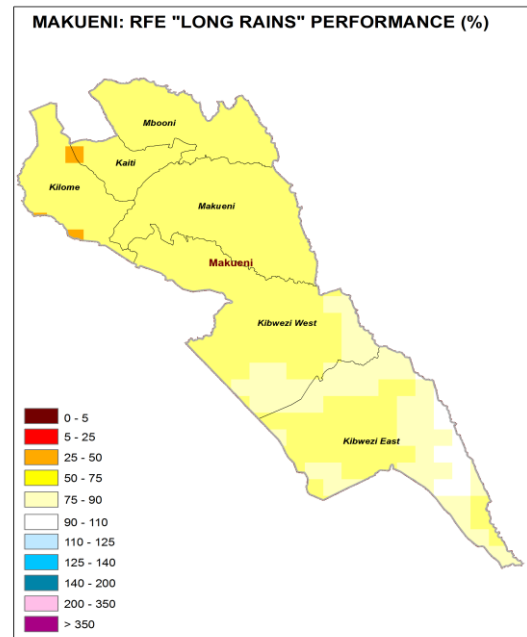


Figure 2: Rainfall performance

3.0 Impacts of drivers on Food and Nutrition Security

3.1 Availability

Commonly consumed food staples are cereals, legumes and livestock products. The main sources of main food staples is own production from farms. Food availability is therefore largely dependent on seasonal rainfall performance and farm productivity. The poor rainfall performance during the season therefore adversely affected both livestock and crop productivity and consequently food availability.

3.1.1 Crops Production

The long rains season contributes about 40 percent of annual production in the county. The three main crops grown during the long rains season are green grams, maize and cowpeas. Other minor crops grown include sorghum, millet, pigeon peas and cassava. Oranges and mangoes are grown in parts of the county and contribute to farm income and food security.

Rain fed crop production

The area under green grams and cowpeas were 29 and 59 percent above the Long Term Average (LTA) respectively mainly attributed to farmers planting more with the expectation that the rains would be below normal to sustain maize production. The area under maize was 72 percent of LTA as more land was allocated to green grams and cowpeas. Crop production was adversely affected by poor rainfall performance. Expected production for green grams, maize and cowpeas was 55, 24 and 31 percent of LTA respectively. The most affected areas were those within the marginal mixed livelihood zone including Kibwezi West (Makindu and Kikumbulyu wards) and Kibwezi East (Mitu Andei, Masongaleni and Thange wards), Makueni sub county (Kathonzweni, Mavindini, Kitise) and parts of Kilome

(Kiimakiu/Kalanzoni ward) and Mbooni sub county(Kalawa). Table 1 indicates trends in crop production.

Table 1: 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 (90 kg bags) Projected/Actual	LTA production during the Long rains season (90 kg bags)
Maize	53,956	75,250	59, 848	249,500
Cowpeas	46,920	29,525	102,000	330,850
Green grams	33,920	26,400	102,280	293,000

Irrigated crop production

The main crop grown under irrigation are tomatoes, kales and maize. Irrigation is done along the permanent rivers, small irrigation schemes and some on-farm irrigation. The area under tomatoes was 13 percent above LTA due to increasing demand and ready markets (Table 2). Area under kales and maize slightly decreased as more land was apportioned to tomatoes. Production was near normal as the water sources for irrigation did not completely dry up.

Table 2: Irrigated crop production

Crop	Area planted during the 2017 Long rains season (ha)	LTA (3 years) area planted during Long rains season (ha)	2017 Long rains season production (MT) Projected/actual	LTA (3 years) production during 2017 Long rains season (MT)
Tomatoes	356	315	5365	5372
Kales	205	216	2357	2392
Green Maize	230	250	1195	1200

Cereal stocks

The main staple foods consumed across the livelihood zones are maize, beans, green grams and cowpeas. Other food commodities consumed to a limited extent are wheat products and rice. Part of the maize, green gram, cowpeas and beans consumed by households is from own production while rice and wheat products are mainly purchased.

Household maize stocks held were 15 percent of LTA mainly attributed to below normal production in the previous season. Household stocks are likely to increase when about the 60,000 bags after the long rains crops harvest in August 2017. Harvests were however expected only in the mixed farming livelihood zone as there was total crop failure in the marginal mixed farming livelihood zone. Stocks of rice, millet and sorghum usually held in small quantities but there was also a reduction in quantities of stocks held by the various stakeholders. Maize stocks held by traders was about 41 percent of LTA attributed to low maize availability across the country and depressed production in the county. Traders were sourcing maize coming from as far as Busia (Uganda) and Moyale (Ethiopia). Table 3 and 5 indicates the stocks of various cereals held in July 2017 compared to the LTA

Table 3: Quantities of cereals held

Commodity	Period	Households	Traders	Millers	NCPB	Total
Maize (in 90 kg bags)	Current	4,675	53,000	0	5,650	63,325
	LTA	30,000	130,000	0	45,000	205,000
Rice (in 50 kg bags)	Current	0	1,500	0	1,300	2,800
	LTA	0	1,500	0	3,000	4,500
Millet (in 90 kg bags)	Current	30	45	0	0	75
	LTA	120	150	0	0	270
Sorghum (in 90 kg bags)	Current	120	86	0	0	206
	LTA	300	203	0	0	503

The households' maize stocks held were mainly in the mixed farming crop/livestock livelihood zone and mixed farming coffee and dairy livelihood zone. In the marginal mixed farming zone, households were not having maize stocks and no expected harvests due to poor rainfall performance. The Ksh.90 subsidized maize flour was not available in remote areas within the county and where available, it was being sold at between Ksh.130 and 140 (Marwa Shopping Center, Kilome Sub County). The maize stocks in the mixed farming crop/livestock farming zone and mixed farming coffee/dairy were expected to last for less than a month compared to the normal three months. In the marginal mixed farming livelihood zone, maize harvests are usually low and households stocks usually last less than a month.

3.1.2 Livestock Production

The main types of livestock kept in the county are cattle, goats and indigenous chicken. Other minor livestock enterprises are sheep rearing and beekeeping. In the marginal mixed farming livelihood zone, livestock production contributes 60 percent to cash income while in the mixed farming crop/livestock and mixed farming coffee/dairy livelihood zones; livestock production contributes about 42 percent to cash income.

Pasture and browse condition

Pasture was adversely affected by the poor rainfall performance across the livelihood zones (Table 4). The worst affected wards are Kalawa Ward (Athi, Ndauni, Kathulumbi Locations), Kakowaia Ward and Kisau Kiteta Wards, Kako/Waia Ward and Kisau Kiteta Ward (Mbooni Sub County), Kikumbulyu North Ward, parts of Nguu/Masumba and Makindu Wards (Kibwezi West Sub County), Kitise/Kithuki, Mavindini Wards (Makueni Sub County), and Ngaamba, Malili, Itumbule in Kilome Sub County. In most parts of the marginal mixed farming zone, pasture is depleted compared to normal times when it lasts for about three months. In the mixed farming crop/livestock livelihood zone, pasture is expected to last for one month compared to the normal three months. Browse condition was good across the livelihood zones but expected to deteriorate as the dry season progresses. Probably, browse will last for the next three and half months compared to the normal five months. Factors affecting access to pastures were influx of Maasai herders from Kajiado and Narok counties in some areas and an invasive obnoxious weed that was preventing regrowth of pasture in grazing areas.

Table 4: Pasture and browse situation

Livelihood zone	Pasture				Browse			
	Condition		How long to last (Months)		Condition		How long to last (Months)	
	Current	Normal	Current	Normal	Current	Normal	Current	Normal
Marginal mixed farming zone	Poor	Fair to good	Less than a month	3	Fair	Good	3.5	5
Mixed farming crop/ livestock	Fair to good	Good	1	3	Good	Good	3.5	5
Mixed farming coffee/dairy	Fair to good	Good	1	3	Good	Good	3.5	5

Water for livestock

The main sources of water for livestock across the livelihood zones were boreholes, earth dams, rivers, piped water and water pans. The poor rainfall performance affected water availability and access to livestock especially in the marginal mixed farming livelihood zone. Table 5 shows trekking distances to water points for livestock. Watering frequency for all livestock species was five times a week compared to the normal seven days per week in the marginal mixed livelihood zone. In the mixed farming livelihood zone, watering frequency for all livestock species was daily which was normal.

Table 5: Water for livestock

Livelihood zone	Return average distances (km)		Expected duration to last (months)	
	Current	Normal	Current	Normal
Marginal mixed	10	5	1	2
Mixed farming crops/livestock	6	3	1	2
Mixed farming coffee/dairy	3	1.5	1	2

Livestock Body Condition

The body of cattle was good to fair across in the marginal mixed farming livelihood zone and the mixed farming crop/livestock livelihood zone compared good normally (Table 6). In the mixed farming coffee/dairy livelihood zone the body, condition of all cattle was good. The body condition of goats was good across the livelihood zones due to availability of browse. The body condition of livestock especially cattle is expected to deteriorate further as the dry spell progresses. Recovery is expected from the month of November 2017 after the onset of the short rains season.

Table 6: Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normal	Current	Normal	Current	Normal
Marginal Mixed farming	Fair to good	Good	Good	Good	Good	Good
Mixed farming crop/livestock	Fair Good	Good	Good	Good	Good	Good
Mixed farming	Good	Good	Good	Good	Good	Good

coffee/dairy						
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Milk production, consumption and pricing

Milk production and consumption reduced across both livelihood zones while prices increased (Table 7). Reduced productivity and consequent increase in prices attributed to the poor performance of the rains, poor pastures and increased trekking distances.

Table 7: Milk availability, consumption and prices

Livelihood zone	Milk Production (Litres/Household)		Milk consumption (Litres/Household)		Prices (Ksh)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Mixed farming crop/livestock	0.5	1	0.4	0.75	70	60
Mixed farming crop/livestock	1	2	0.75	1	70	50
Mixed farming coffee/dairy	2	4	1	2	40	30

Tropical Livestock Units (TLUs), mortalities and livestock diseases.

The TLU for the low income and medium income households reduced during the period under review mainly attributed to increased livestock sales to access food and panic sales due to the prolonged dry spell that reduced livestock numbers in the households (Table 8). No outbreak or increases livestock mortalities were reported during the period.

Table 8: Tropical Livestock Units

Livelihood zone	Low income households		Medium income households	
	Current	Normal	Current	Normal
Marginal mixed farming	0.75	1	3	10
Mixed farming crop/livestock	0.5	0.75	5	15
Mixed farming coffee/dairy	0.125	0.5	2	5

Livestock Migrations

Unusual in-migrations were noted where livestock from Kajiado and Narok counties have moved into Kilome Sub County in Konza, Malili, Ngaamba, Itumbule areas and Kiimakiu. About 1000 camels and 3000 cattle have also moved into KALRO Kiboko land with increased risk of movement into private land surrounding the research station and causing conflicts. As the dry spell progresses, the livestock are expected to move further into Kibwezi East and Kibwezi West. Influx of livestock from Tana River and Garissa through Kitui County may also occur if the dry spell persists for a longer period.

3.2 Access to food

3.2.1 Markets and trade

The main markets in the county include Loruk, Mtito Andei, Makindu, Kathonzweni, Wote, Matiliku, Kitise, Salama, Nunguni, Tawa, Kikima, Machinery, Kibwezi and Nthongoni. There were no market disruptions reported during the period under review. The main food commodities traded were maize, beans, green grams, cowpeas and vegetables. In the marginal mixed farming livelihood zone, all the farm produce were being sourced from outside the area due to drastic reduction in crop production. In the mixed farming

crops/livestock and mixed farming coffee/dairy livelihood zones some green grams, cowpeas, maize from early harvests and pigeon peas were being sourced from farms. The main supply source for vegetables and green maize were irrigated farms in the county and Kajiado County. In the marginal mixed farming livelihood zone, households were also purchasing wheat grains to mix with maize for preparation of *uji* and *ugali*. The main livestock types traded in livestock markets were cattle, goats and some sheep mainly sourced from farmers from within the locality and neighbouring counties. There were increased volumes of livestock in the markets due to panic sales by farmers from the mixed farming livelihood zone following the long dry spell and more livestock sales to access food.

Maize prices

Maize prices have been on an upward trend since January 2017. In January, maize prices were 11 percent above the LTA. The month of June 2017 had maize price above the LTA by 80 percent as exhibited in (Figure 3). Upsurge in maize prices was mainly attributed to decreased production in the county and across the country. Maize prices are likely to increase in the county until early January to February 2018 when harvests from the short rains season are expected.

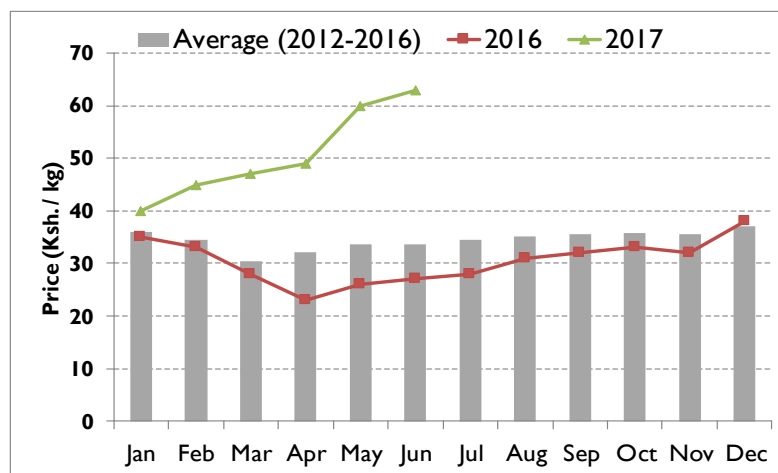


Figure 3: Maize price trends

Beans prices

Prices of beans were higher than both the LTA and that of 2016. Beans prices declined in the month of April due to harvest of beans thereafter increasing in subsequent months because of below normal beans production. Therefore, higher beans price was compounded by reduced production. Prices as at June 2017 were 39 percent above the LTA (Figure 4).

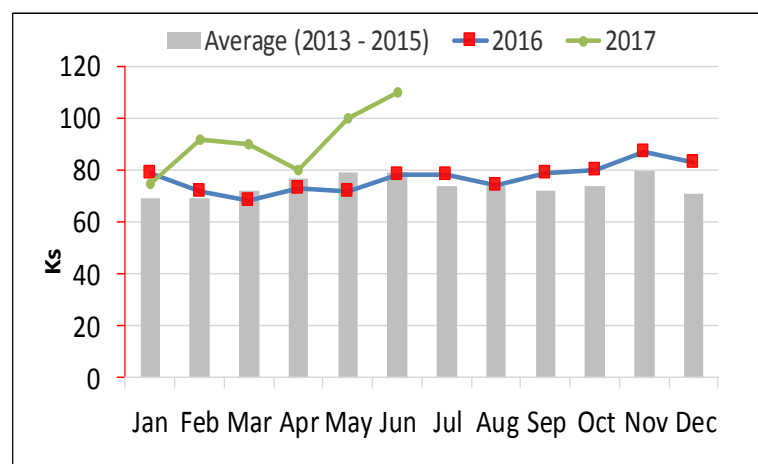


Figure 4: Beans price trends

Goat prices

The price of goats in June, 2017 was Ksh.3,600 compared to the LTA of Ksh.3100 representing an increase of 13 percent (Figure 5). Expected decline in goat prices from the next three months due to deterioration of body condition and more goats injections into markets for sale to access food. It's expected that goat prices

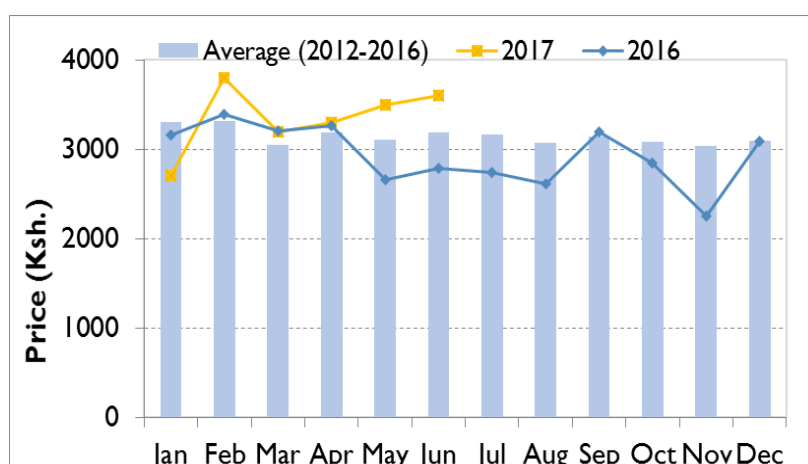


Figure 5: Goats price trends

may increase from

November 2017 after onset of the short rains. A further increase in goats' prices may occur from January and February 2018 when harvest of the short rains crops is expected which will reduce the number of goats' injections into the markets for sale to access food. Figure 5 indicates trends in the prices of goats. In the marginal mixed farming zone, goat prices as low as Ksh.900-1500 were noted.

3.2.2 Terms of trade

The Terms of Trade (ToT) deteriorated from the month of January 2017 compared to the LTA and that of 2016 as shown in Figure 6. In June 2017, households could access 57 kg of maize from the sale of a goat compared to an LTA of 95 kg and

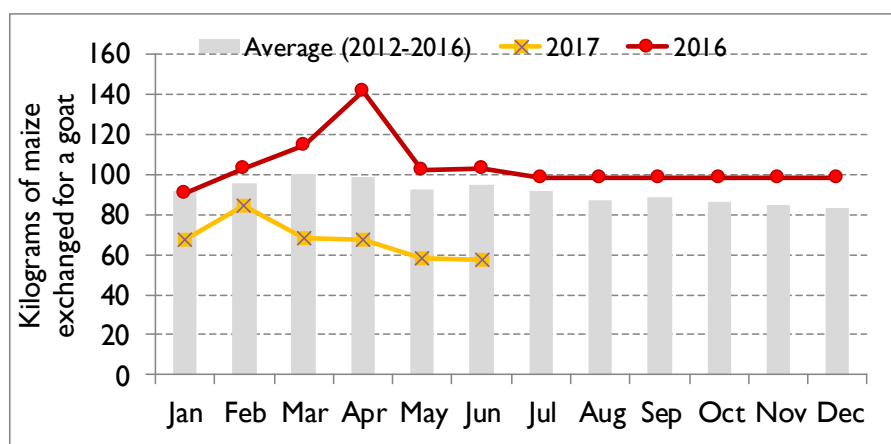


Figure 6: Trends in terms of trade

103 kg in May 2016. The drastic deterioration of TOT was attributed to the sharp and steady increase in maize prices. The TOT is expected to deteriorate further with expected increase in maize prices and declining goat prices. Improvement is expected from the month of January when maize prices are expected to reduce when harvesting of short rains maize starts. Goat prices are also expected to improve due to improved body condition and less supply into the markets. The marginal mixed farming livelihood zone had the poorest ToT due to very low goat prices and high prices of maize.

3.2.3 Income sources

In the mixed farming livelihood zone, the current sources of income include sale of vegetables from irrigation schemes, sale of firewood and charcoal, casual labour, sale of livestock especially goats and chicken, petty trade, water vending and remittances. In the mixed farming livelihood zones income sources included sale of farm produce (green grams, cowpeas, and beans), casual labour, and petty trade.

3.2.5 Food Consumption

The food consumption scores for the county are shown in Figure 7. Compared to December 2017, FCS remained stable depicting no significant change in food consumption. The percentage of households with poor food consumption and borderline food consumption is expected to increase as the dry spell progress and as the price of main staples escalate further with a consequent deterioration in terms of trade. Most households in the marginal mixed farming livelihood zone were consuming one to two meals per day comprising mainly two food groups (cereals and legumes) compared to the normal two to three meals. In the mixed farming coffee/dairy livelihood zone, households consumed three meals per day that is normal while in the mixed farming crops/livestock livelihood zone meal frequency was two to three meals per day compared to the normal three meals. Meal composition was mainly maize, legumes and vegetables.

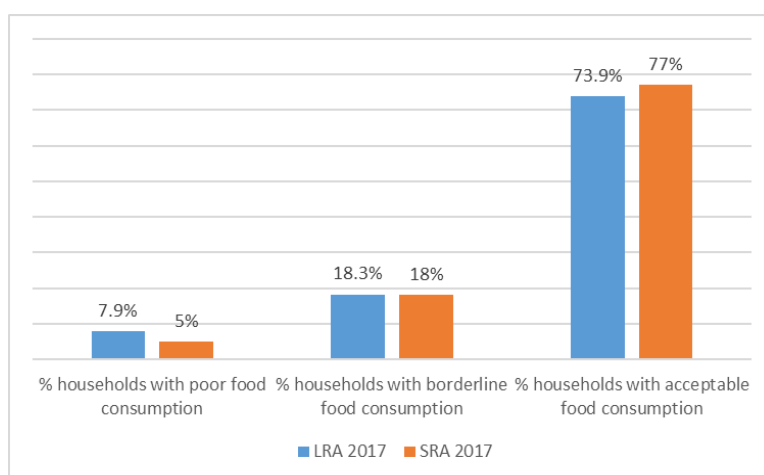


Figure 7 : Trends in Food Consumption

3.2.6 Coping strategy

Compared to the previous year the percentage of households applying crisis and emergency coping strategies increased while the number of households not adopting any coping strategies reduced indicating a deterioration in the food security situation (Figure 8)

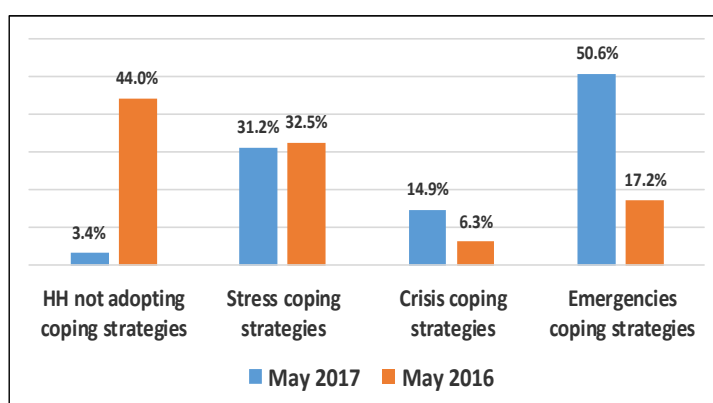


Figure 8: Coping strategies

3.3 Utilization

3.3.1 Nutritional status

Morbidity

Upper respiratory tract infection for U5s

There was a drastic increase in cases of Upper Respiratory Tract Infection for the children under five years old in the month of May (Table 9). The increased cases of URTI in May 2017 may be attributed to increased dustiness.

Table 9: Trends for URTI cases

Jan	Feb	Mar	Apr	May
13,035	3,597	15,782	10,443	35,599

Diarrhea and malaria cases for U5s

Malaria cases have been on the decline for both children and adults due to malaria prevention interventions implemented in the county (Figure 9 and 10). The cases of diarrhea declined from the month of January 2017 but began rising from May due to increasing water stress.

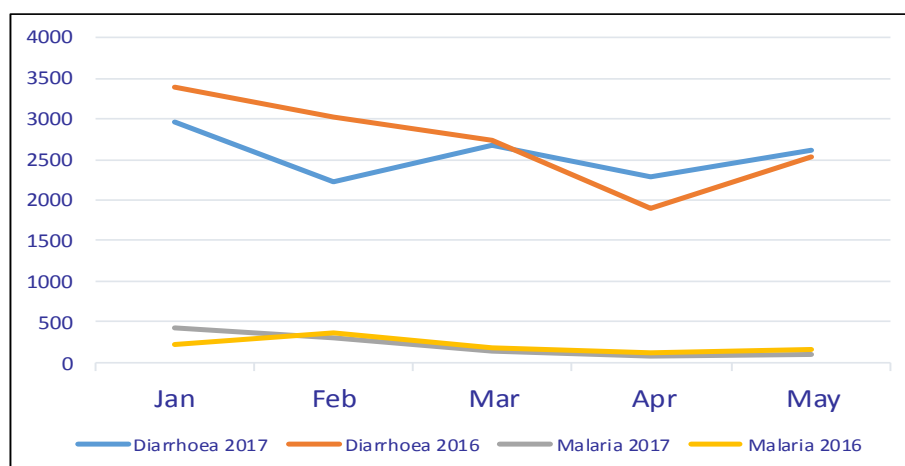


Figure 9: Trends in diarrhea and malaria infections (U5s)

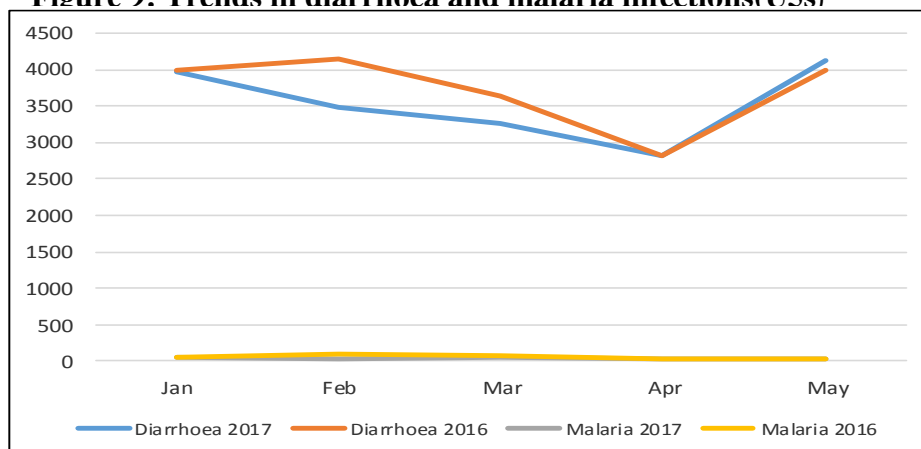


Figure 10: Trends in diarrhea and malaria infections for the general population)

Epidemic prone diseases

The cases of epidemic prone diseases reported between January and June reduced in 2017 compared to 2016 (Figure 11). Reduction in cases of measles was attributed to mass vaccination campaigns conducted in 2016. Cases of dysentery reduced due to sensitization on sanitation and hygiene conducted in primary schools and communities. Malaria cases reduced due to prevention campaigns conducted across the county. Diarrhea cases reduced from 15,786 in 2016 to 12,770 in 2017. No reported cases of outbreaks of epidemic prone diseases.

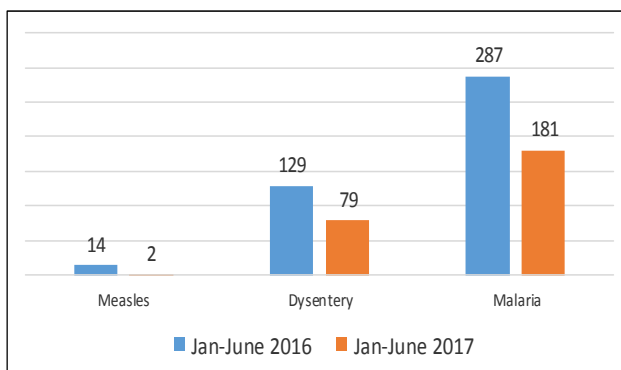


Figure 11: Trends in epidemic prone

Immunization and Vitamin A Supplementation

The proportion of fully immunized children (FIC) between January and June 2017 was 87 percent compared to 88 percent during the same period in 2016. The percentage was above the national target of 80 percent. Vitamin A supplementation for children of six to 11 months between January and June dropped from 86 percent in 2016 to 57 percent in 2017 due to persistent strike by doctors and nurses affecting reporting. Vitamin A supplementation for children of ages between 12 and 59 months dropped from 83 percent to 43 percent during the same period.

Health services across the county was affected by strikes by government health workers with households mainly seeking health services from private clinics and hospitals

Nutrition Status and Dietary Diversity

The percentage of children at risk of malnutrition as measured by mid upper arm circumference (MUAC<135mm) was stable from the month of February 2017 and below the LTA (Figure 12). The levels were however above those of 2016. It is important to note that with the below normal performance of the long rains season, the reported stability in nutrition status may be temporary and the situation could rapidly

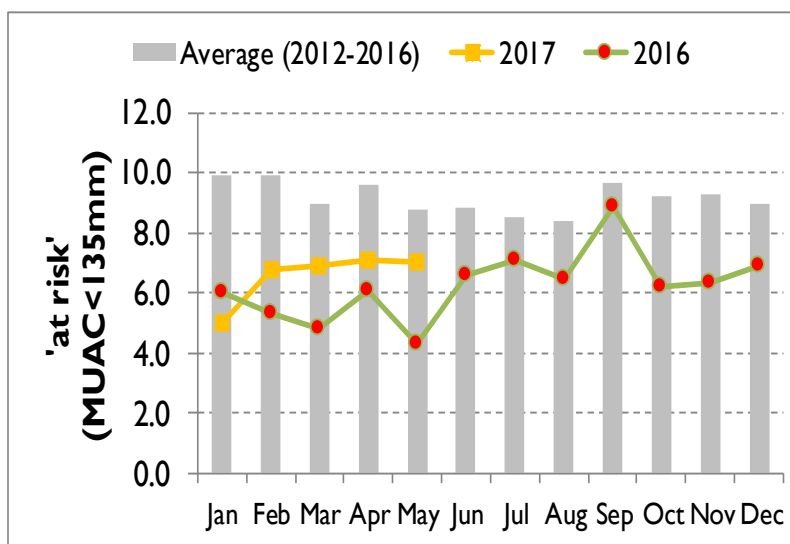


Figure 12: Children at risk of malnutrition

deteriorate especially in the hotspot areas if no interventions are undertaken and especially at the peak of the lean season in August – September.

Percentage of underweight children

The percentage of underweight children increased between the month of March and April 2017 attributed to depletion of short rains food stocks during the period (Figure 13). There was improvement from the month of May as households started harvesting the early maturing crops such as green grams,

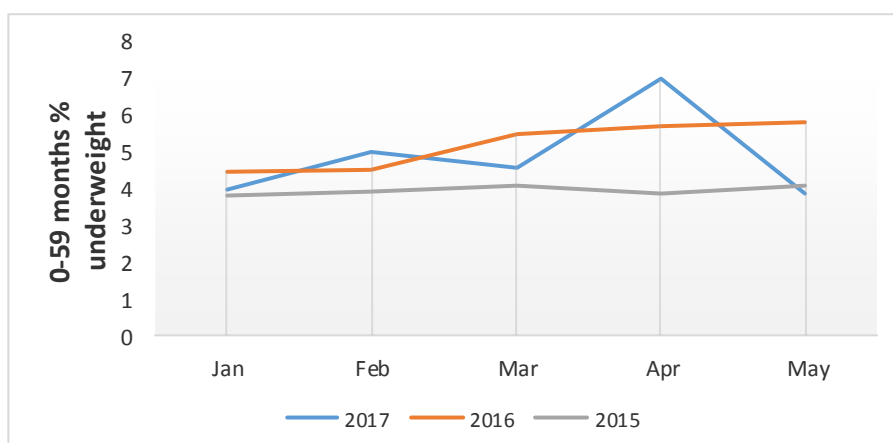


Figure 13: Trends in percentage of underweight children

cowpeas and beans. The percentage of underweight children may increase as the dry spell progresses especially in the marginal mixed farming livelihood zone.

Admissions into selective feeding programmes

Admissions into selective feeding programs were high in the months of March and May due to increased reported cases of diarrhea in those months. The number of admission into SFP and OTP in 2017 were higher than 2016 due to better performance of the rains in 2016 and lower reported cases of diarrheal diseases. Figure 14 shows trends in admission in supplementary feeding programmes.

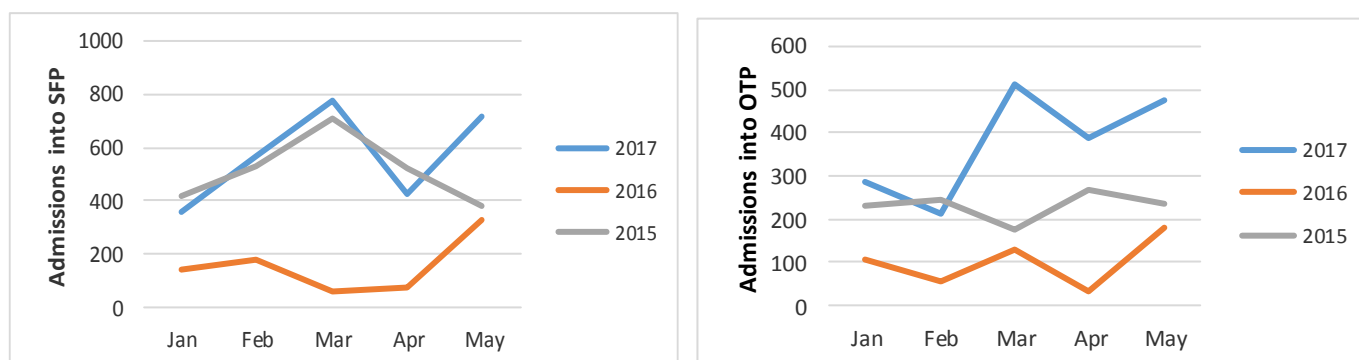


Figure 14: Trends in admission into selective feeding programmes

3.3.2 Sanitation and Hygiene

Latrine coverage increased to 96 percent in 2017 compared to 94 percent in 2016. Despite improvement in latrine coverage application of other hygiene practices such as handwashing during four critical times still remain low. Water treatment was also still low.

3.3.3 Mortality rates

There were more deaths reported between January and June 2017 compared to January to June 2016 (Table 9). The mortality rates for under-five children was 0.102 by June 2017 compared to 0.077 during the previous year. Crude mortality was 0.093 compared to 0.076 in 2016. Mortality rates were within the acceptable levels.

Table 9: Mortalities for U5s and general population

Period	Under 5 deaths	Total under 5 population
Under 5 year old mortalities		
January to June 2017	253	136,760
January to June 2016	189	134,845
Mortalities for the general population		
January to June 2017	1643	976,857
January to June 2016	1332	963,179

3.3.4 Water access and availability

The major water sources in the county are piped water, boreholes, earth dams, water pans, rivers and springs. Recharge of water sources in the mixed farming coffee/dairy was about 80 percent. In the mixed farming crops/livestock and marginal mixed farming livelihood zones, recharge of water sources was 60 and 40 percent respectively. Some water pans especially in the marginal mixed farming livelihood zone have dried up causing increased concentration in the remaining water sources. Some boreholes that have broken down thus affecting access to water. The most concentrated water points include Kitise Water Project, Mbala borehole and Ngamione Earth Dam in Kitise/Kithiku Ward, Kathonzweni Water Project and Kathamboni Earth Dam in Kathonzweni Ward. Other water points with high concentration are in Emali/Mulala, Nguu/Masumba, Makindi Nguumo and Kikumbulyu North and Kikumbulyu South wards.

Distances to water sources and waiting time and cost of water

The return distance to water points in the mixed farming coffee/dairy livelihood zone was 0.5 to 1 kilometre, which is normal. Water cost also remained at Ksh.3 per 20litre jerrican. In parts of the mixed farming crop/livestock and the marginal mixed farming livelihood zones there was an increase in distances to water points due to drying up of some water sources. The drying up of some water sources also led to more concentration in remaining water point leading to an increase in waiting time across the livelihood zones. Water consumption decreased across the livelihood zones due to increased waiting time and distances especially in the marginal mixed farming zone (Table 10).

Table 10: Distance to water sources, cost, waiting time and water consumption

Ward / livelihood zone	Return Distance to Water for Domestic Use (Km)		Cost of Water at Source (Ksh. Per 20litres)		Waiting Time at Water Source (Minutes)		Average Water Consumption (Litres/person/day)	
	Normal	Current	Normal	Current	Normal	Current	Normal	Current
Mixed farming coffee dairy	0.5-1	0.5-1	3	3	20	30	20	25
Mixed farming crops and livestock	1-2	3-7	3-5	3-5	20	30	20	15
Marginal mixed farming	5-10	6-15	3-5	3-5	30	48	20	10-15

3.4 Trends of key food security indicators

Table 11 compares food security indicators during the 2017 LRA and the short rains assessment conducted in February 2017.

Table 11: Food security trends in Makueni County

Indicator	Livelihood Zone	Short rains assessment, Feb 2017	Long rains assessment, July 2017
IPC Phase classification	Marginal mixed Mixed farming crop/livestock	Phase 2(Stressed Phase)	Phase 2 (Stressed Phase) Parts of mixed farming crop/dairy and mixed farming coffee/dairy in IPC Phase 1 (Kaiti and parts of Kilome Sub County)
Maize stocks held by households	Mixed Farming Marginal Mixed Farming	20,445	4,675
Milk consumption (litres)	Average across livelihood zones	1	0.4-1
Food consumption scores	Cluster	Acceptable (77) Borderline (18) Poor (5)	Acceptable (73.9), Borderline (18.3), Poor (7.9)
Water consumption (litres per person per day)	Mixed Farming Marginal Mixed Farming	15-20	10-25
Price of maize (Ksh. per kg)	Across livelihood zones	38	63
Terms of Trade	Across livelihood zones	83	57
Percentage of children at risk of malnutrition	Average across livelihood zones	6.9	5.8

3.5 Education Enrolment

The county has a total of 370 secondary schools, 899 primary schools and 1426 ECD schools. Enrolment for both girls and boys dropped marginally in term two compared to term one 2017. The main contributing factor for dropouts in ECD and primary schools was lack of feeding programmes in some schools. In secondary school, the main contributing factor was lack of school fee. Table 12 shows trends in enrolment. The dropout rates for girls and boys in ECD were 7.27 percent and 6.91 percent respectively while in primary schools the rates were 11.46 percent and 11.72 percent for girls and boys respectively.

Table 12: School enrolment trends

Enrolment	Term I 2017			Term II 2017 (includes new students registered and drop-outs since Term I 2017)		
	No. of Boys	No. of Girls	Total	No. of Boys	No. of Girls	Total
ECD	21,594	20,634	42,228	20,101	19,116	39,217
Primary	121,264	118,940	240,204	107,363	104,998	212,361
Secondary	35,647	36,933	72,580	31,226	32,400	63,626

School feeding programmes

Out of the 899 primary schools in the county, only 296 are under a school feeding programme with 77,319 beneficiaries. The other form of school feeding was children carrying food from home benefitting 12,325 (Table 13). There were disruption of feeding programmes in some school due to lack of water and inadequate funds. Lack of school feeding programmes in schools adversely affected school attendance.

Table 13: School-feeding programmes

Total no. of primary schools	Schools under SMP	HGSM	Other forms of school feeding	Total number of beneficiaries
899	296	77,319	12,325	95,914

HGSM: Home Grown School Meals, **ESMP:** Expanded School Meals Program, **RSMP:** Regular School Meals Program **CSMP:** Community School Meals Program

4.0 Food Security Prognosis

4.1 Prognosis assumptions

- Households will continue relying on markets due to low household food stocks from reduced crop production.
- Maize and prices of other food staple are likely to remain high throughout the scenario period constraining household food access.
- Prices of livestock are likely to decline until November as households increasingly seek income from livestock sales leading to oversupply in the market further constraining household purchasing power and food access.
- According to the Kenya Meteorological Department, the October-December short rains predicted to be normal to above normal with a timely onset.
- Forage will likely deteriorate up to October and improve from November after onset of the above average short rains, improving livestock body condition and productivity.
- Increased livestock in-migrations may occur between July and October as pastoralist communities from neighbouring counties of Kajiado and Narok continue searching for forage and water for their livestock. Risk of conflict will increase as the pastoralists compete for resources with the local communities.
- The above average short rains will drive increased agricultural crop production and casual labour opportunities. Income from casual labor will increase from September as planting activities commence and food availability will increase as short cycle crops become available in December.

4.2 Outlook for the next six months

Food security outcomes from August to October 2017

In the marginal mixed farming zone, pasture is poor or depleted while in the mixed farming crop/livestock livelihood zone, pasture is fair to good and is expected to deteriorate as the dry season progresses. Rangeland resources in these livelihood zones are likely to remain scarce through October 2017. Livestock body condition is expected to deteriorate further with a consequent reduction in milk production and livestock prices. Improvement in livestock body condition is expected from the month of November 2017 after the onset of the short rains in October 2017 with a consequent improvement in livestock productivity. In the mixed farming coffee/dairy livelihood zone, pasture is still in good condition and expected to last until the onset of the rains in October 2017.

Livestock prices are expected to decline from July through October as livestock body condition deteriorates compounded by increased supplies into the market as households sell more livestock to access food. The declining livestock prices and increasing prices for food commodities will lead to further deterioration of terms of trade.

The proportion of households with poor food consumption probably will increase in the marginal mixed farming zone and parts of the mixed farming crop/livestock livelihood zone in the period between August and October 2017, if no external food interventions are received, there is a likelihood of increase in the frequency and severity in application of coping mechanisms. The proportion of households employing insurance coping mechanisms such as relying on less expensive food, reducing meal frequency and limiting meals sizes at

meal time is expected to increase during the period, so will the number of households applying stress coping strategies. Increased risk of child malnutrition may be witnessed during the period. Food security related mortalities are however not expected. Water consumption is likely to reduce as recharge levels declines. Due to reduced farming activities, availability of on-farm labour is likely to reduce thus limiting available sources of on farm income. Harvesting of mangoes currently going on in parts of the mixed farming crop/livestock will boost food security in the areas.

Food security outcomes from November 2017 to January 2018

The current forecast indicates that short rains will be normal to above normal. Farmers are likely to utilize the rains to plant short season crops such as green grams, cowpeas, beans and early maturing maize varieties. Onset of the forecasted short rains probably will support regeneration of rangeland resources and improve livestock body condition and milk production. Milk availability and consumption is therefore expected to increase from November 2017 onwards. The earliest harvest for short season crops and maize is expected from the month of January through to February 2018. Improved food availability and consequent reduction in prices and improved livestock prices from January 2018 is expected to improve availability, terms of trade and access to food. Water stress is expected to reduce as water sources recharge after onset of the rains thus increasing water consumption at household level. The proportion of households employing either insurance or stress coping strategies is expected to reduce during the period so is the severity of coping mechanisms applied. Farm operations for the short rains from the month October is expected to increase opportunities for on-farm labour. Consequently, food consumption and nutrition status in the households is expected to improve. The percentage of households with poor food consumption is expected to reduce with a corresponding increase in the percentage of households with acceptable food consumption.

5.0 Conclusion and Interventions

5.1 Conclusions

5.1.1 Phase classification

The county was classified to be in the Stressed Phase (IPC Phase 2) except parts of the mixed farming crop/livestock livelihood zone and the mixed farming coffee and dairy livelihood zone covering Kaity Sub County and parts of Kilome Sub County that are classified in the Minimal Phase (IPC Phase 1). Following successive poor seasons, there was a reduction in crop production and livestock productivity. The poor performance of the rains was compounded by escalating prices of major food staples and declining livestock prices which resulted in deterioration of TOT eroding the purchasing power of most poor households. The effects of the season on food security outcomes include reduced food consumption and increased risk of malnutrition among children.

5.1.2 Summary of findings

The following factors were identified to be affecting food security in the county: -

1. Poor performance of long rains season
2. Crop failure/reduced crop production
3. Domestic water stress
4. Inadequate water/pastures for livestock especially in the marginal mixed farming livelihood zone
5. Conflicts in some areas
6. Poor Terms of Trade

As the dry spell progresses, performance of the 2017 short rains and its impact on pastures and water resources, trends in prices of main food commodities, market operations in terms of stability and food supplies, livestock disease outbreaks, resource based conflict, malnutrition and outbreak of human diseases such as cholera needs monitoring.

5.1.3 Sub-county ranking

The sub county ranking indicates the level of the severity of food security in various sub counties with the sub county ranked No. 1 having the most severe food security situation. Table 14 shows food security ranking for sub counties in Makueni County.

Table 14: Sub county ranking

Rank	Sub County	Situation of food security drivers, contributing factors and outcomes
1	Kibwezi West	Water stress Total crop failure Depleted pastures and low milk production High cost of basic food staples and Poor terms of trade
2	Kibwezi East	Water stress Total crop failure Depleted pastures and low milk production High cost of basic food staples Poor terms of trade Irrigation along river banks
3	Makueni	Poor rainfall performance and decline in crop production Water stress due to low recharge levels Oranges in season
4	Mbooni	Below normal rainfall performance and water stress Some harvests of short season crops Low crop production in some areas
5	Kilome	Poor rainfall performance Low crop production but some harvests expected from some wards e.g Kilungu
6	Kaiti	Pastures and browse in good condition Reasonable harvest expected in some areas

5.3 Recommended Interventions

5.3.1 Food interventions

Table 15: Proposed percentages for the population in need of food assistance

Sub County	Ward	Population	% of population in need of food assistance	
			Lower limit	Higher limit
Kibwezi West	Mulala/Emali	25,657	20%	25%
	Nguu/masimba	23,764	30%	35%
	Makindu	42,094	30%	35%
	Nguumo	28,208	30%	35%
	Kikumbulyu South	26,368	30%	35%
	Kikumbulyu North	20,314	30%	35%
Kibwezi East	Thange	31,654	30%	35%
	Masongaleni	32,270	30%	35%
	Nzambani/Ivingoni	33,442	30%	35%
	Mtito Andei	34,354	30%	35%
Makueni	Mbitini	30,348	15%	20%
	Nzaui/Kalamba/kilili	37,042	15%	20%

	Muvau/kikumini	24,477	20%	25%
	Kathonzweni	31,277	25%	30%
	Mavindini	23,274	25%	30%
	Kitise/kithuki	22,054	25%	30%
	Wote	25,326	15%	20%
Mbooni	Tulimani	35,350	20%	25%
	Mbooni	33,774	15%	20%
	Kithungo/kitundu	28,185	10%	15%
	Kisau/Kiteta	37,059	15%	20%
	Kako/Waia	23,082	15%	20%
	Kalawa	27,174	30%	35%
Kilome	Kiima Kiu/ Kalanzoni	22,991	20%	25%
	Mukaa	26,525	10%	15%
	Kasikeu	38,348	10%	15%
Kaiti	Kee	26,649	10%	15%
	Kilungu	33,952	10%	15%
	Ilima	26,649	10%	15%
	Ukia	38,490	10%	15%

5.3.2 Non-food interventions

Sub County	Intervention	Location	No. of beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
IMMEDIATE INTERVENTIONS							
LIVESTOCK							
County wide	Surveillance for outbreaks of livestock	All wards	20000	County government, partners	2m	0.5m	July-Sep, 2017
AGRICULTURE							
Kibwezi East, Kibwezi West Makueni, Mbooni	Relief seed distribution (early maturing crops)	All wards	30,000HHs	DOALF NDMA/Red cross, world vision	7 million		Short rain season (OND RAINS)
WATER							
Kibwezi East and West	Water trucking to 40 institutions	MFCL & MMF	20,000	CG, GOK, Partners	2M		Aug-Oct, 2017

	and community in water stress areas						
HEALTH							
All sub counties	Mass screening and referrals in hot spots	Community	12,000 children under 5 years; PLW	DoH; NDMA, KRCS	Ksh. 642,000	Human resources; equipment.	Aug – Sep 2017
All sub counties	Supplementary feeding of under-fives with moderate malnutrition	Health facility	2,059	DoH and partners	Ksh. 9,236,000		Aug – Oct 2017
MEDIUM TO LONG TERM INTERVENTIONS							
LIVESTOCK							
Countywide	Promotion of irrigated Pasture and fodder production	county wide	20000	GMC, PARTNERS	2M	0.5m	July-Sep,2017
Countywide	Promotion of pasture and fodder conservation	county wide	20000	GMC, PARTNERS	1M	-	July-Sep,2017

AGRICULTURE							
All sub counties	Up scaling of water harvesting for crop production	Masongaleni, Thange, Mtito Andei, Kambu, Ngwata, Kathekani	150,000 hh	DOALF, world vision, Africa sand dam, FAO	40 million	-	From JULY,2017
All sub counties	Promoting use of small scale irrigation projects	All Wards	60,000 Households	DOALF ,World vision, NDMA DWIE	100 million	18M	From July 2017 to October 2018.
Countywide	Establishment of a Strategic Grain Reserve for the County.	County wide	150000 households	County government	200 million	10M	January 2018 to February 2019.
WATER							
Makueni ,Kilome Kibwezi East and West,Mbooni,Kaiti	Rehabilitation of 30 No. strategic boreholes	All wards	70,000	CG, GOK, Partners	12.6million		Aug-Oct,2017
Kibwezi East and West	Sinking of boreholes	All wards	10,000	CG, GOK, Partners	10M		Aug-Oct,2017

All sub-counties	Construction of earth dams	All wards	60,000	CG, GOK, Partners	60M		Aug-Oct,2017
HEALTH							
All	Sensitize Community Health Volunteers on essential nutrition actions and WASH for 3 days (5 CUs/sub-county –4 sub-counties)	Kibwezi East, Kibwezi West, Kathonzwani (Makueni sub county) and Kalawa (Mbooni sub county)	1000	Department of Health (DoH), KRCS, NDMA	Ksh.3,000,000		August-Sept 2017
All	Community action days for Health Promotion on hand washing	Community; ECD centers Primary schools	20,000 HHs	DoH, KIWAASH, World Vision,	Ksh.2,000,000	Human resources; equipment;	August to Dec 2017

	and latrine use.						
All	Sensitize ECD teachers on vitamin A supplementation and growth monitoring.	Kilungu, kaiti, kilome Kathonzwani, mbooni East and west, makindu, kibwezi	1,658 teachers	DoH	Ksh. 920,000	Human resources; equipment	October 2017
EDUCATION							
Kilome, Makueni Kaiti, Kibwezi, Mbooni	Expansion of school meals programmes to more schools	Mukaa, Mbooni, Kathonzwani, Kilungu, Makindu, Non feeding zones in Mbooni.	Some schools in the mentioned sub-counties.	MoE	41.7M	None	July to Dec 2017
Mbooni	Installation of water tanks to schools	Tulimani, Mbooni Kitundu and Kalawa	41,266 Pupils/students	Ministry of water	17.3M	-	July to September 2017.

ANNEXES

Ongoing interventions

Food interventions

- Therapeutic Integrated Management of Acute Malnutrition for the Under-fives,
- Pregnant and Lactating Mothers (Supplementary Feeding Program (SFP)),
- Out Patient Therapeutic Program (OTP) & Stabilization Centres) by MOH supported by several partners.
- Relief food distribution through Cash for Assets programme
- Food distribution to schools by the County Government

Non-food interventions

Sub-county	Interventions	Location	No. of beneficiaries	Proposed Implementers	Impacts on Food Security	Cost	Timeframe
LIVESTOCK							
Makueni (Mbooni, kaiti, kikwazi east and west)	Indigenous poultry commercialization project for increased food security and income generation	County wide	10000	GMC, FARMERS, PARTNERS	Food and Nutrition Security	10M	July-June 2016/17
All	Dairy value chain improvement programme.	County wide	20000	GMC, DFCS, FARMERS, KAVES, TECHNOSERVE	Food and Nutrition Security	10M	July-June 2016/17
All	Goats Value Chain Improvement Programme	County wide	10000	GMC, FARMERS, PARTNERS	Food Nutrition Employment	5M	July-June 2016/17
All	Soil And Water	County wide	10000	GMC, DFCS, FARMERS,	Increase d farm	5M	July-June

	Conservation For Range Management and Rehabilitation through – water			KAVES,TECHNOSERVE	output and productivity.		2016/17
All	Promotion of post-harvest value addition and agro processing of livestock products.	County wide	20000	GMC, PARTNERS.	FOOD AND NUTRITION SECURITY	20M	July-June 2016/17
AGRICULTURE							
Makueni, Kibwezi east, Kibwezi west and Mbooni	Promotion of drought escaping crops and Post-harvest management.	In all locations in the 4 sub counties	7,000	DOALF, FAO, World Vision NDMA Red Cross ASDSP.	Reduced losses post-harvest.	2.3M	Ongoing
All sub counties	Promotion of conservation technologies	All sub counties	14,480	DOALF, FAO, Lutheran world relief ASDSP.	Improved crop production and food security	3M	Ongoing
All sub counties	Crops value chains upgrading (green grams and mangoes)	County wide	20,000	DoAFS/ASD SSP	Improved production, Farm incomes and food security.	5.5 M	Ongoing
All sub counties	Introduction of a revolving fund for development	County wide	18 wards across the county	DALF DWIE.	It is at initial stages and expected	18 M	On going

	ent of household farm ponds)				d to have great impact in future.		
Makueni and Mbooni	Support to development of irrigation structures	Makueni and Mbooni	Kitise	DALF	Improved vegetable production and availability.	5 M	On going
			and	DWIE.			
			Kakowai wards.				
WATER							
Makueni,	Water trucking	Schools, dispensaries.	25,000	Tanathi Water Service Board		2M	May 2017(80% implemented)
Kilome							
Kibwezi East and West.							
All sub counties	Distribution plastic tanks	Schools, dispensaries	138-institutions	Tanathi Water Service Board	Access to water and food utilization	13M	. May 2017(50% implemented)
HEALTH							
All	Vitamin A Supplementation	All H/facilities and ECDE centers.	109,408	DoH	Improved child health and food utilization	Ksh. 683,800	Continuous
All	Zinc Supplementation	All H/facilities	24,857	DoH	Improved child health and food utilization	Ksh 109,720	Continuous
All	Management of Acute Malnutrition (IMAM)	All IMAM sites.	5,185	DoH	Improved child health and food utilization	Ksh. 27,480,500	Continuous
All	IYCN Interventi	All H/facilit	43,200	DoH	Improved child	Ksh. 2,255,52	Continuous

	ons (EBF and Timely Intro of complementary Foods)	ies			health and food utilization	0	
All	Iron Folate Supplementation among Pregnant Women.	All H/facilities	17,760	DoH	Improved child health and food utilization	Ksh. 1,590,528	Continuous
All	Disease surveillance.	Health facilities	300 facilities	DoH		Ksh. 100,000	Continuous
All	Free health services to the old +65 years	All wards		County Government.			
All	Medical						
EDUCATION							
Kibwezi West	Schools meals programmes	Kikumbulu/Masongaleni Ward(37 primary Schools and 22 secondary schools) All schools in Nguu/Masumba Ward.	39141	MoE/Deputy County Commissioner.	Food and Nutrition.	19.5M	May to July 2017