

**National Drought Management Authority  
LAMU COUNTY  
DROUGHT EARLY WARNING BULLETIN FOR AUGUST 2017**



A Vision 2030 Flagship Project



**AUGUST 2017 EW PHASE**

Drought Status: **NORMAL**



Shughuli za kawaida

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- Off seasonal rainfall was experienced during the month.
- The vegetation condition Index VCI-3Month) was 56.27 in the month of August from 50.86 in July which is normal.
- The VCI indicated vegetation condition showed greenness above normal. The situation overall drought phase in the county was at normal in August.

**Socio Economic Indicators**

**Production indicators**

- The body condition for both cattle and goats was good because of improved pasture and browse.
- Milk production increased from 1.8litres in July to 2.2litres in August.

**Access indicators**

- The average Term of Trade increased for the month of August to 138 compared to 56 in July.
- Average return household watering distance decreased from 8Km in July to 3.2 Km in August due to below normal rainfall.
- Milk consumption in August was still low at 1 litre lower than the long term Average.

**Utilization indicators**

- The proportion of children at risk of malnutrition decreased from 5.1 percent in July to 5.0 percent in August which was slightly lower than the long-term mean of 5.2 percent.
- The average coping strategy Index was 5.33 in August, a decrease from 6.63 in July.

**Early Warning (EW) Phase Classification**

LIVELIHOOD ZONE	EW PHASE	TRENDS
Agro pastoral/Fishing	Normal	Stable
Irrigated cropping	Normal	Stable
Fisheries /Mangroves	Normal	Stable
Farming Casual Labour	Normal	Stable
Agro pastoral	Normal	Stable
County	Normal	Stable
<b>Biophysical Indicators</b>	<b>Value</b>	<b>Normal ranges</b>
Rainfall Amount(mm)	11.17mmmm	80-120
VCI	56.27	35 to 50
Water Distance	3.2km	< 6.2
<b>Production indicators</b>	<b>Value</b>	<b>Normal ranges</b>
Livestock Migration Pattern	Not Normal	Normal
Livestock Body Conditions	Good	Good
Livestock Death from Drought	No death	No death
Milk Production	2.2 Lts	>12.75Lts
<b>Access Indicators</b>	<b>Value</b>	<b>Normal ranges</b>
Terms of Trade (ToT)	138	89.22
Milk Consumption	1 Lts	>15.87Lts
<b>Utilization indicators</b>	<b>Value</b>	<b>Normal ranges</b>
Coping strategy index-CSI	5.33	<14.5
MUAC	5.0%	<5.0%

**Seasonal calendar**

<ul style="list-style-type: none"> <li>▪ Short rains harvests</li> <li>▪ Short dry spell</li> <li>▪ Reduced milk yields</li> <li>▪ Increased HH Food Stocks</li> <li>▪ Land preparation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Planting/Weeding</li> <li>▪ Long rains</li> <li>▪ High Calving Rate</li> <li>▪ Milk Yields Increase</li> </ul>	<ul style="list-style-type: none"> <li>▪ Long rains harvests</li> <li>▪ A long dry spell</li> <li>▪ Land preparation</li> <li>▪ Increased HH Food Stocks</li> <li>▪ Kidding (Sept)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Short rains</li> <li>▪ Planting/weeding</li> <li>▪ Increase Milking</li> <li>▪ Livestock mating</li> <li>▪ kidding</li> </ul>	<ul style="list-style-type: none"> <li>▪ Coping Strategy Index</li> <li>6.63</li> <li>&gt;56</li> </ul>							
Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec

## 1.0 CLIMATE CONDITION

### 1.1 RAINFALL PERFORMANCE

#### 1.1.1 Actual Rainfall

- According to VAM WFP rainfall data, the County received an average rainfall of 11.17mm in the Month of August, however this was higher than the same period last year's rainfall of 10.5 mm.
- The current amount of rainfall received in August was lower than Long term average of 13mm.

#### Rainfall satellite data: Rainfall performance for Lamu-August 2017 Vs the long term

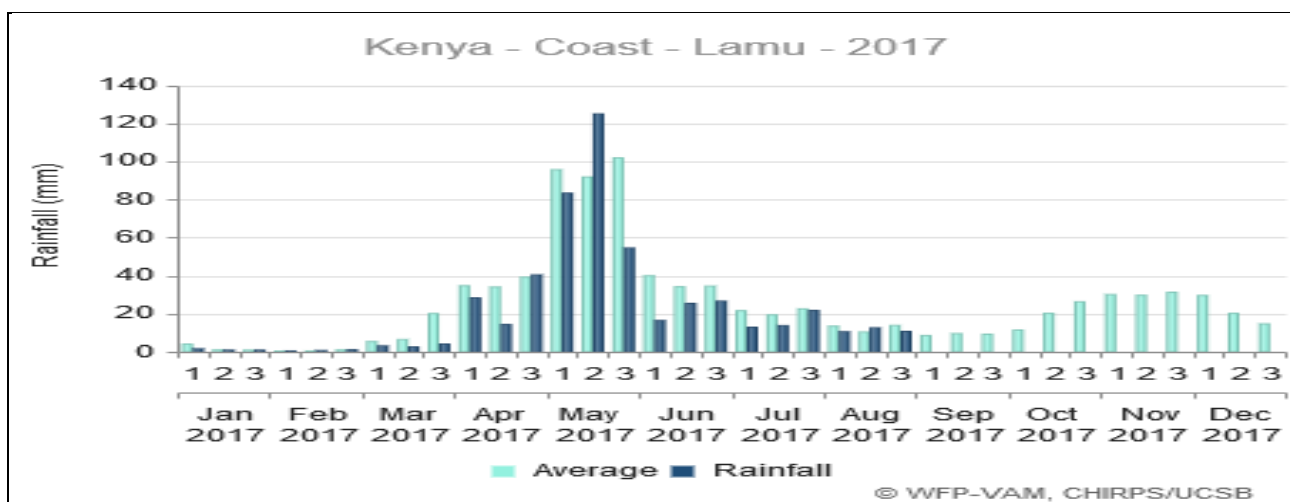


Figure1: Rainfall Performance for Lamu in August 2017. (Source: WFP-VAM)

#### 1.1.2 SPATIAL DISTRIBUTION

- Rainfall received in the month of August across the County, reduce the impacts of drought. The below normal rainfall was received across all parts of the county.

#### 1.1.3 TEMPORAL DISTRIBUTION

- The month was characterized by insignificant showers which were unevenly distributed in the County.

## 2.0 IMPACTS ON VEGETATION AND WATER

### 2.1 Vegetation Condition

#### 2.1.1 Vegetation Condition Index (VCI)

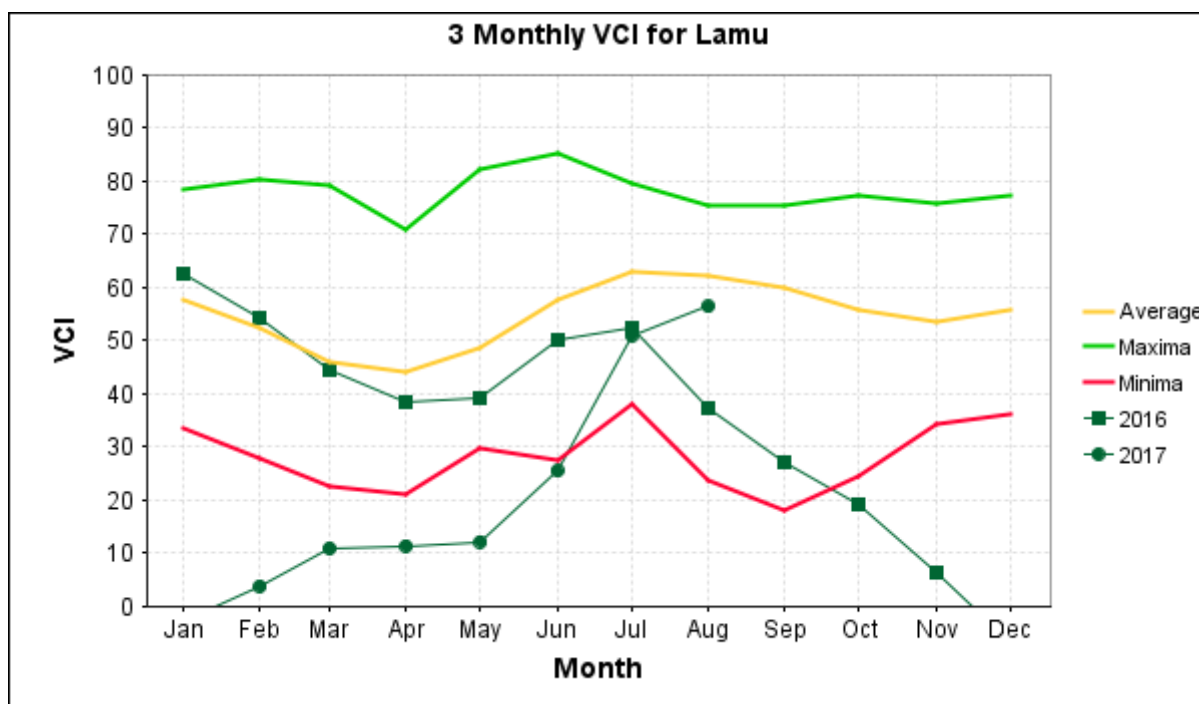
- The vegetation condition for the month of August is 56.27 for the County which is normal compared to the previous August of the same period and the vegetation condition is stable.
- The VCI indicated vegetation greenness above normal both in Lamu East and West Sub-Counties as shown by the VCI table below.

#### July 2017 VCI (3M) Table

ADMINISTRATIVE UNITS		VCI as at 31 <sup>st</sup> July 2017	VCI as at 28 <sup>th</sup> August 2017
County	Sub County		
LAMU	County	50.86	56.27
	Lamu East	50.16	55.35
	Lamu West	51.27	56.81

Figures Below show three month Vegetation Condition Index (VCI) matrix for Lamu County  
 {Source: Boku University, Austria}

Figure 2: VCI for Lamu



#### NDVI for Lamu

- NDVI slight changed from the previous month of July that indicated 0.71 in August shows a reduction from the previous Month of July of 0.73, however this was higher than the Long term average of 0.67
- The vegetation index (NDVI) is currently stable.

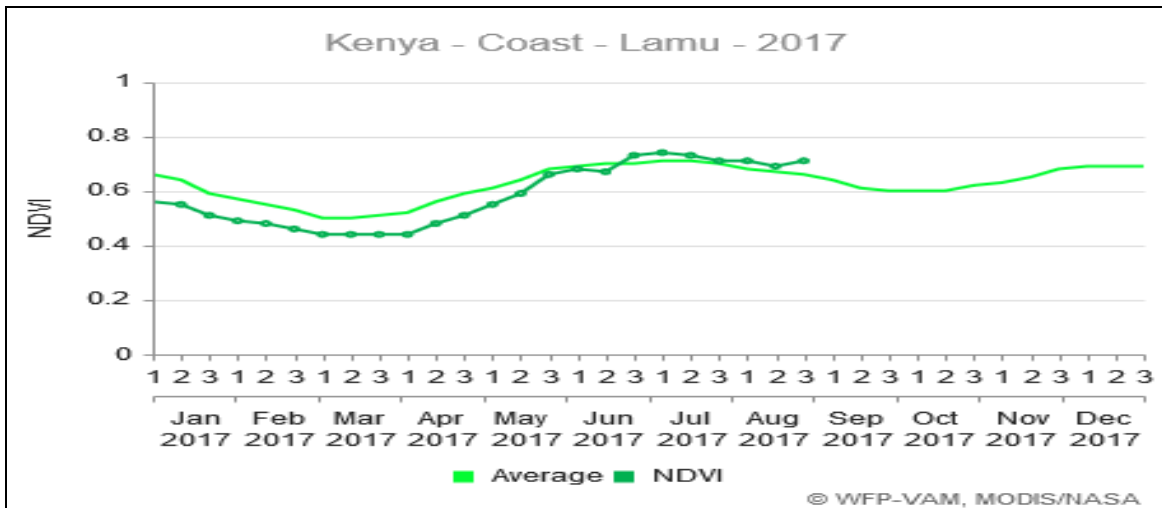
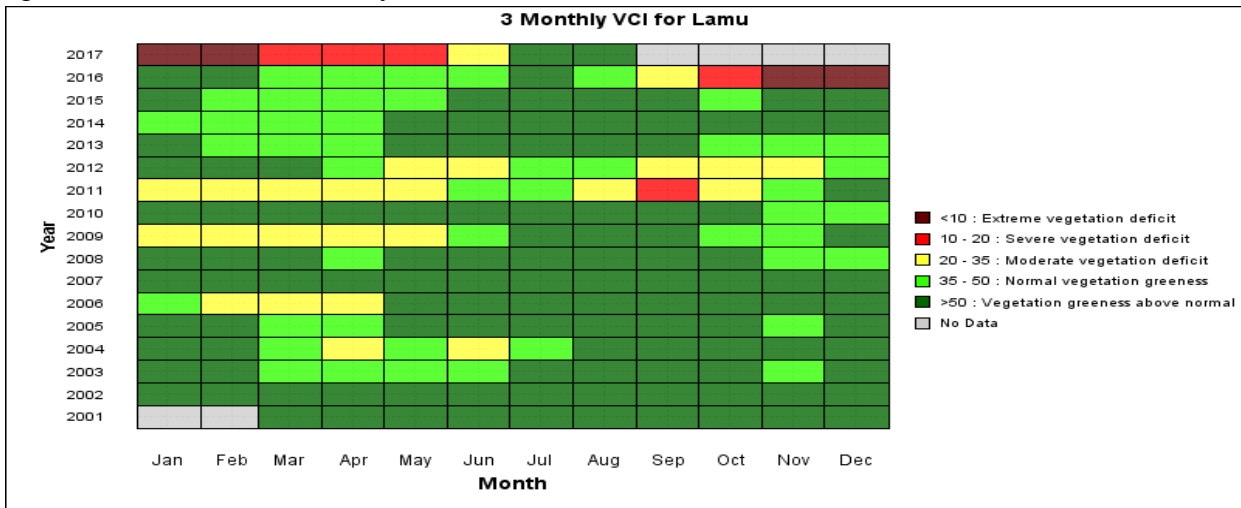


Figure 3: NDVI for Lamu in the month of August 2017. (Source: WFP-VAM)

Figure 4: VCI for Lamu County



**OBSERVATIONS**

**Pasture and Browse Conditions**

**2.1.2 Pasture**

- Pasture condition was good across all livelihood zones and improving in both quality and Quantity. The available pasture is expected to last for two Month due to the presence of huge influx of livestock from neighboring counties.

**2.1.3 Browse**

- The quantity and quality of browse was good across all livelihood zones for the month of August. The available browse amount is normal compared to a normal year and the situation is improving. The browse is expected to last for two to three months.

**HYDROLOGICAL DROUGHT**

**2.2 Water Sources and Availability**

**2.2.1 Main water sources**

- State of water sources in the County was good across most livelihood zones but the condition is still improving.

- The main water sources in the month of August were: Natural ponds- 18.2percent, Shallow wells – 27.3 percent, Pans and dams-9.1percent, Traditional water well at 9.1 percent and piped water system at 9.1 percent.

### Sources of water for Lamu County, August 2017

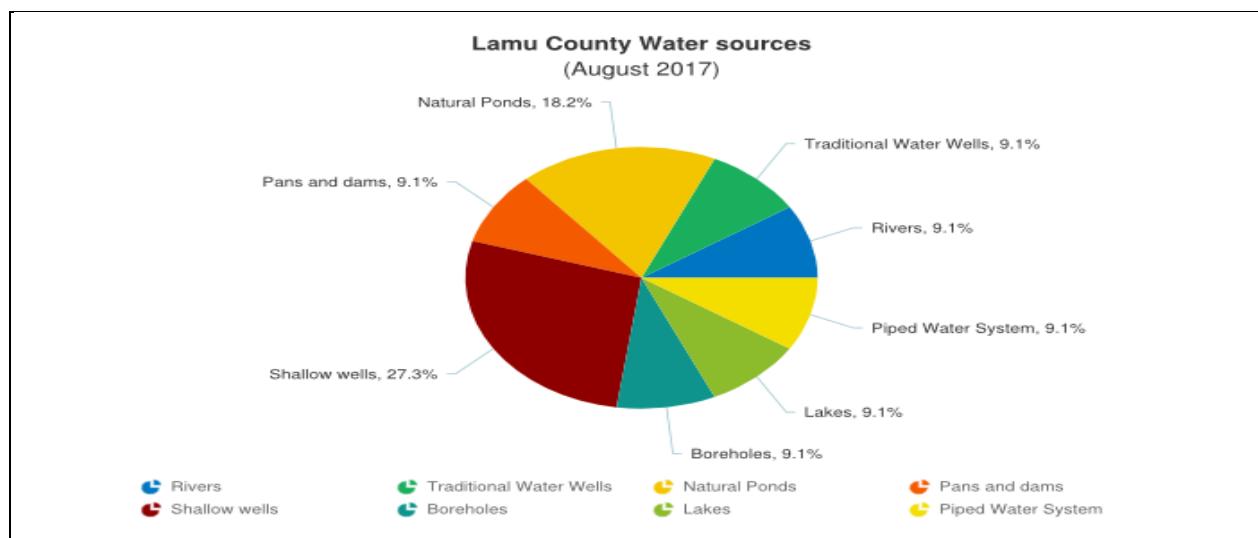


Figure 5: Main sources of water

### 2.2.2 Availability of water for household consumption

- Average Household watering return distance was 3.2Km in August from 8Km in July. This was due to increase off seasonal rainfall amount which led to increase in water levels.
- Household Return Water distances per livelihood zone were as follows: the Agro pastoral - 4.4Km, Fishing & Mangrove Harvesting 3.1Km and for Mixed Farming Zone it was 2.3 Km and irrigated farming 4.8Km.
- The 2012-2016 average household water distances for August was 2.4 Kilometers which was lower than the current average household watering distance for August. This shows that the current average household water distance for August was above the long term average.

#### Average House Hold Water Distance August 2017 vs. Long Term 2012-2016

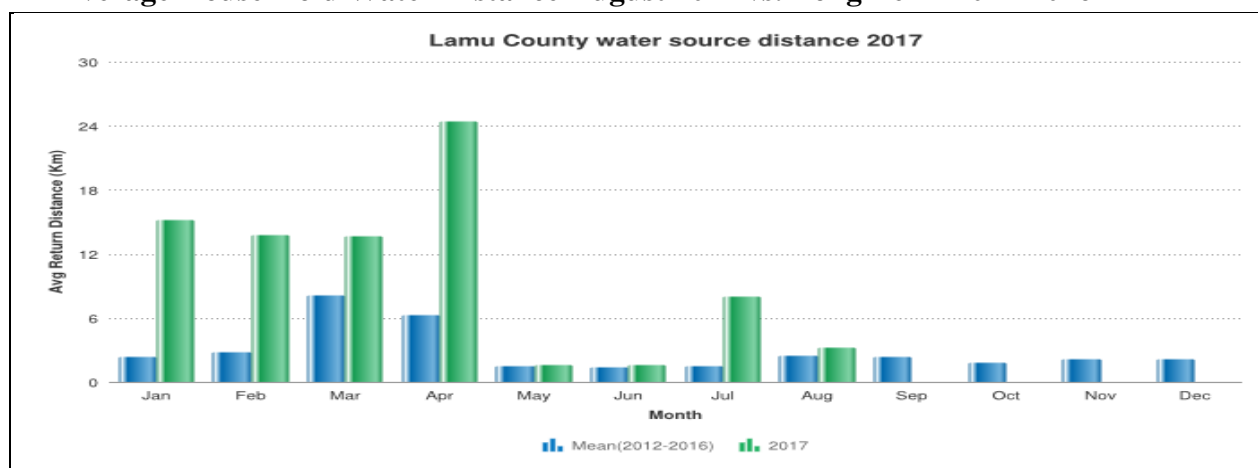


Figure 6: House hold water distance

n=150

### 2.2.3 Livestock access to Water

- Livestock average distance to water source from grazing Area was 2.8 kilometres in the month of August from 2 kilometers in the month of July. This increase from last month's distance was due to the rainfall which led to improvement in browse and pasture near to water sources.
- The current average grazing water distance for August of 2.8 Km was lower than the year 2012-2016 long-term average of 3.15 Kilometers.

### Water Source from Grazing Area August 2017 in Kilometers vs. Long Term 2012-2016

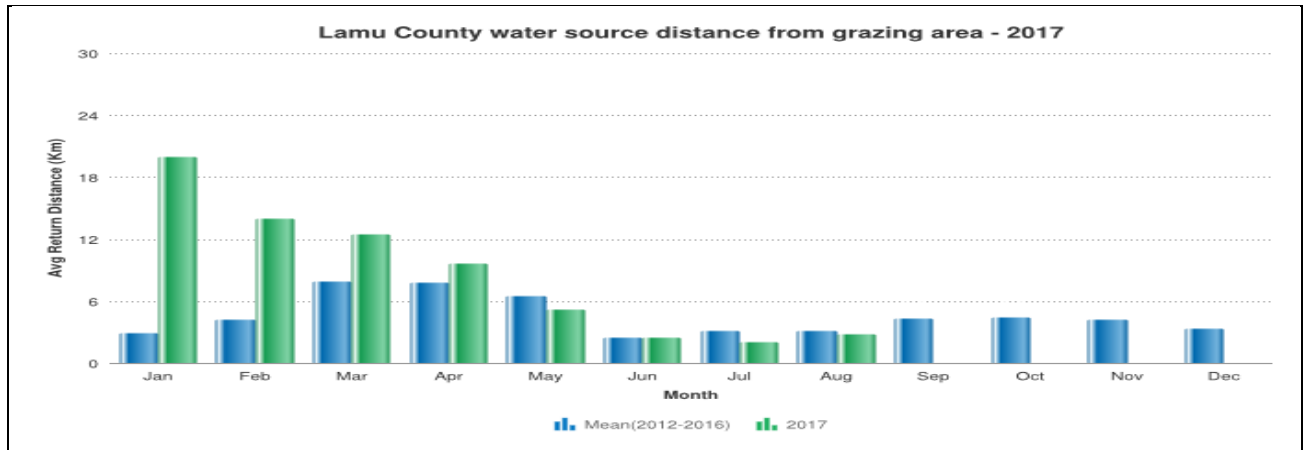


Figure 7: Grazing Distance-Km

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### 2.3 Household Income

The main household income for the month of August was as follows: Employment 15%, sale of Livestock/Livestock products 9%, Casual labour 61% and trade 15% respectively.

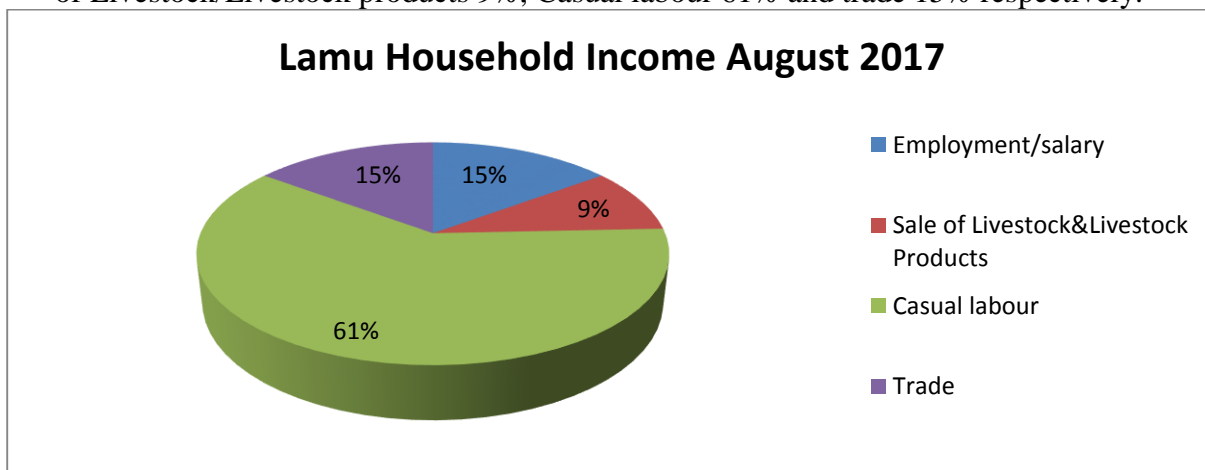


Figure 8: Household source of income

### 2.4 Implication on Food Security

- The prevailing off seasonal rainfall has led to recharging of water sources leading to improvement of pasture, browse and increased access to water for livestock.
- The decreases in distances to water sources have had a positive impact on the body condition of animals and household hygiene standards.
- Refilled water sources like boreholes, Rivers and Lakes in the Pastoral and Fishing and Mangrove zones which are the main water sources to communities living in the area have improved especially in Kizingitini, Pangani, Mangai and Lake Kenyatta.

### 3.0 PRODUCTION INDICATORS

#### 3.1 Livestock Production

##### 3.1.1 Livestock Migration Patterns

- There were huge influxes of Livestock migration from neighboring Counties of Tana River and Garissa through Gamba and Bodhei to mixed farming/Livestock livelihood zone of Witu and Hindi wards of Lamu west Sub-county during the Month under review.

##### 3.1.2 Livestock Body Condition

- Livestock body condition was good to fair for all species of livestock across all the livelihood zones. However, the condition is expected to improve further due of the pasture and browse.

##### 3.1.3 Livestock Diseases

- There were no incidences of diseases except vaccination of Rift Valley Fever was ongoing during the month of August.

##### 3.1.4 Milk Production

- Milk production increased from 1.8 litres in July to 2.2 litres in August. This was much lower than the long-term average of 17.44 litres in August.
- Mixed farming and Fishing Livelihood Zone produced an average of about <1 litre while the Agro pastoral Zone produced average of about < 4.5 litres.

Graph of milk production for the month of August 2017 is shown in the figure below

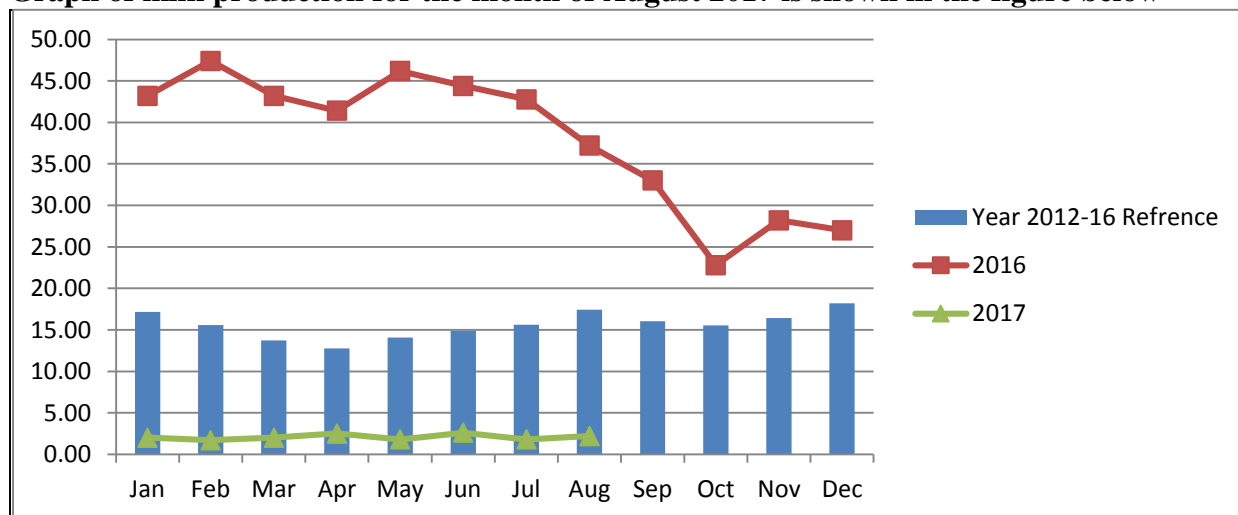


Figure 9: Milk production

n=150

### 3.2 RAIN FED CROP PRODUCTION

#### 3.2.1 Stage and condition of food crop

- The main crops grown are Maize, Cowpeas and Green grams in the County.
- In most farms long rains crop harvesting is ongoing especially for Maize and green grams and selling.

#### 3.3 Implications on Food Security

- The improving body condition of both cattle and goats across the livelihood zones has improved the prices resulting to increased income from livestock sales.
- The influxes of livestock from neighboring Counties of Garissa and Tana River can lead to increased diseases, reduction of water level and depleted pasture and browse.

## 4.0 MARKET PERFORMANCE

### 4.1 LIVESTOCK MARKETING

#### 4.1.1 Cattle Prices

- Average cattle market price in the month of August was Kshs 21,167 from Kshs 19,667 in July. This was increase from that of the previous month of July.
- This increase in price could be attributed to improved body condition due to improvement of both quality and quantity of pasture and browse and high market demand.
- The prices were distributed as follows: Mixed Farming/Irrigation- Kshs 9,000, Fishing and Mangrove Harvesting- Kshs 30,000, Agro pastoral- Kshs 12,500, Agro pastoral/Fishing Kshs 30,000 while Mixed Farming/Casual Labour was Kshs 21,000.
- The average market cattle price for the month of August was, however higher than the 2012-2016 long-term average price of Ksh.13, 204.

#### Lamu County Cattle prices August 2017 Vs Long term Average 2012-2016

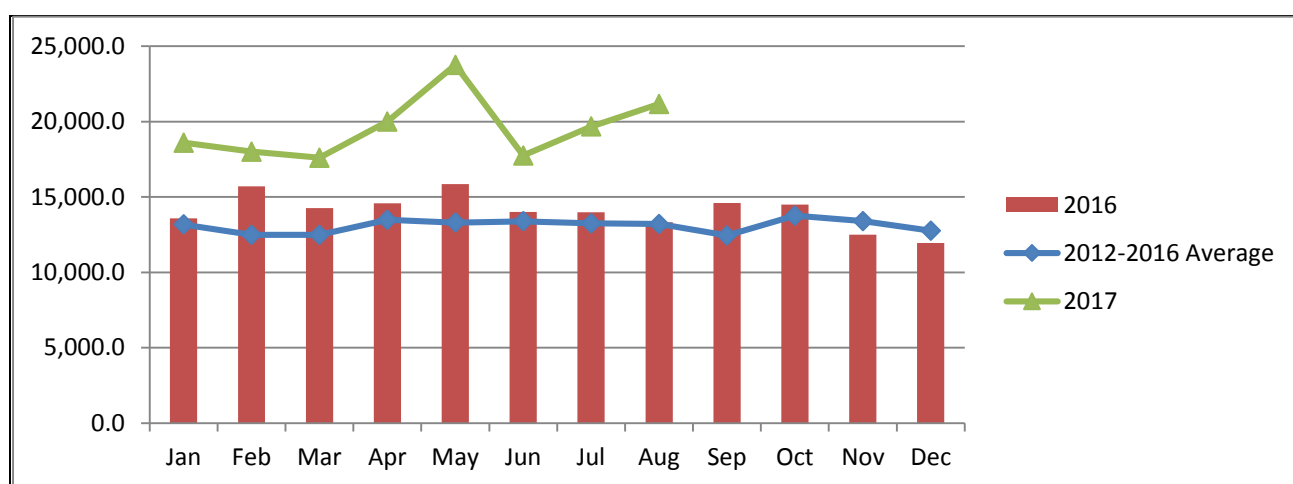


Figure 10: Cattle prices

#### 4.1.2 Small Ruminants Prices

#### 4.1.3 Goat Prices

- Goat prices increased from Kshs 3,825 in July to Kshs 4,125 in August. This increase in price of goats could be attributed to improve Body condition and high market demand.
- Agro pastoral Livelihood Zone recorded price of Kshs 3,500, Fishing and Mangrove Harvesting Zone recorded Kshs 5,000 and Mixed Farming/Casual Labour Zone recorded a price of Kshs. 6,000, Mixed Farming/Irrigation recorded price of Kshs 3,000 while the price for Agro pastoral/Fishing Zone was Kshs. 4,000.
- The long-term average goat price for the month of August was Kshs. 2,820 which was lower than the current average price for the month of August.



### Lamu County Goat prices August 2016 Vs. Long term Average 2012-2016

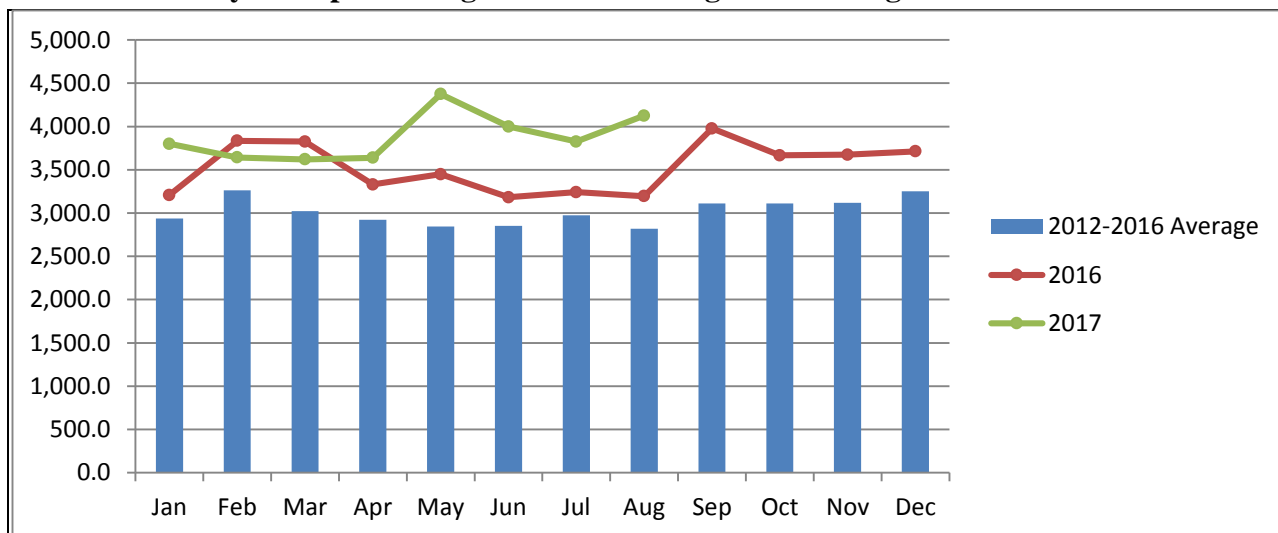


Figure 11: Goats prices

n=150

## 4.2 CROP PRICES

### 4.2.1 Maize price

- Average price of a Kg of maize in the Month of August was Kshs30.0/Kg a decrease from Kshs.68.3/Kg in July. The lower average maize price was attributed to long rains harvest that is ongoing leading to lower prices.
- The prices were distributed as follows: Kshs40 in Mixed Farming/Irrigated, Fishing/Mangrove Harvesting Kshs45, Agro Pastoral/Fishing Zone Kshs50, Mixed Farming/Casual Labour Kshs20 and Kshs30 in Agro Pastoral Livelihood zone.
- The average price of maize in August was higher than the long term-average price of Kshs34.

### Maize prices August 2017 Vs. Long term Average 2012-2016

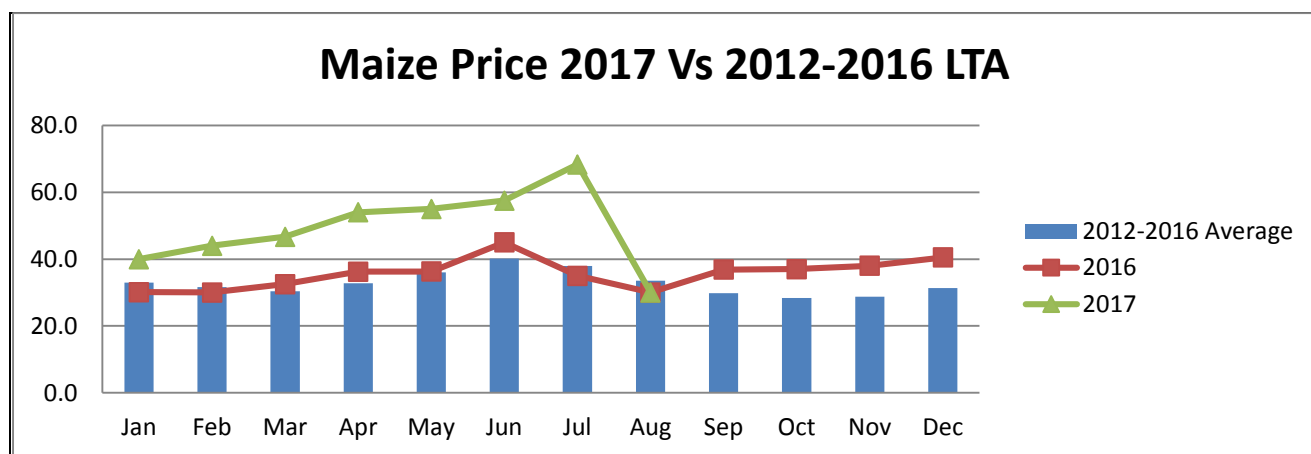


Figure 12: Maize prices

### 4.2.2 Beans

- Average price of Kg of beans increased slightly from Kshs106 in July to Kshs.110 in August. This increase in price was due to poor harvest as result of pest.
- The beans price was distributed as follows: Kshs90 in Mixed Farming/Irrigation, Agro pastoral/Fishing Kshs100, Mixed Farming/Casual Kshs100, and Agro pastoral Kshs100 and in Fishing/Mangrove Harvesting Livelihood Zone Kshs150.
- The long-term average price of beans was Kshs.86.8 which was lower than the current average beans price for the month of August.

### Average Beans prices August 2017 by Markets vs. Long Term 2012-2016

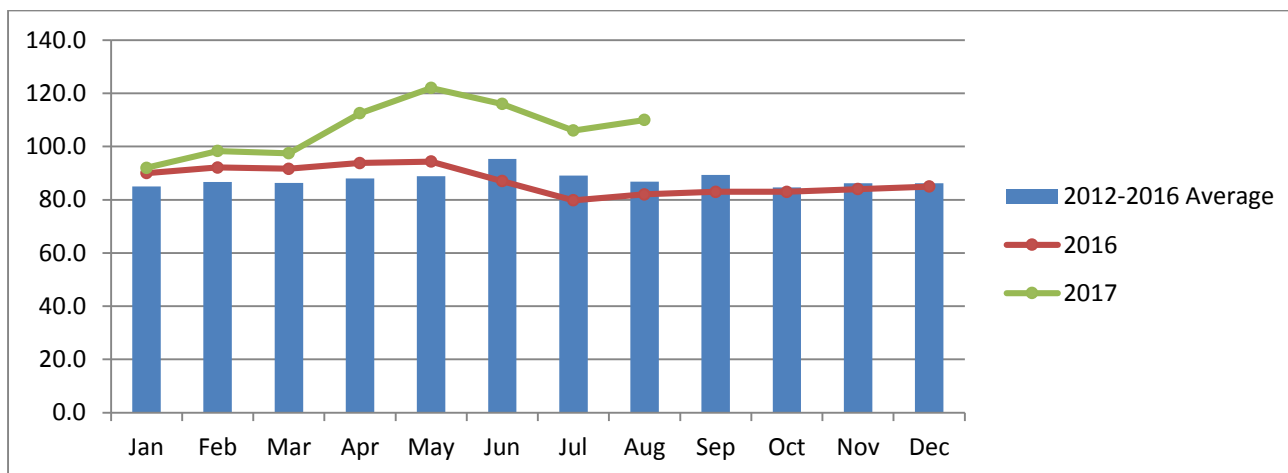


Figure 13: Beans prices

### Livestock Price ratio/Terms of Trade

- The average Term of Trade (ToT) for the month of August was 138kg increase from 56kg in the month of July. Sale of a goat in August would afford a household about 138 kg of maize. This showed the exchange ratio increased in favour of goat sellers to crop farmers. These increase indicated a decrease in maize price in relation to goat price.
- The ToT was 138.9 in Lamu West and 100 in Lamu East. The ToT for August was higher than the 2012-2016 LTA of 84.01.

### Term of Trade in August 2017 vs. Long term Average

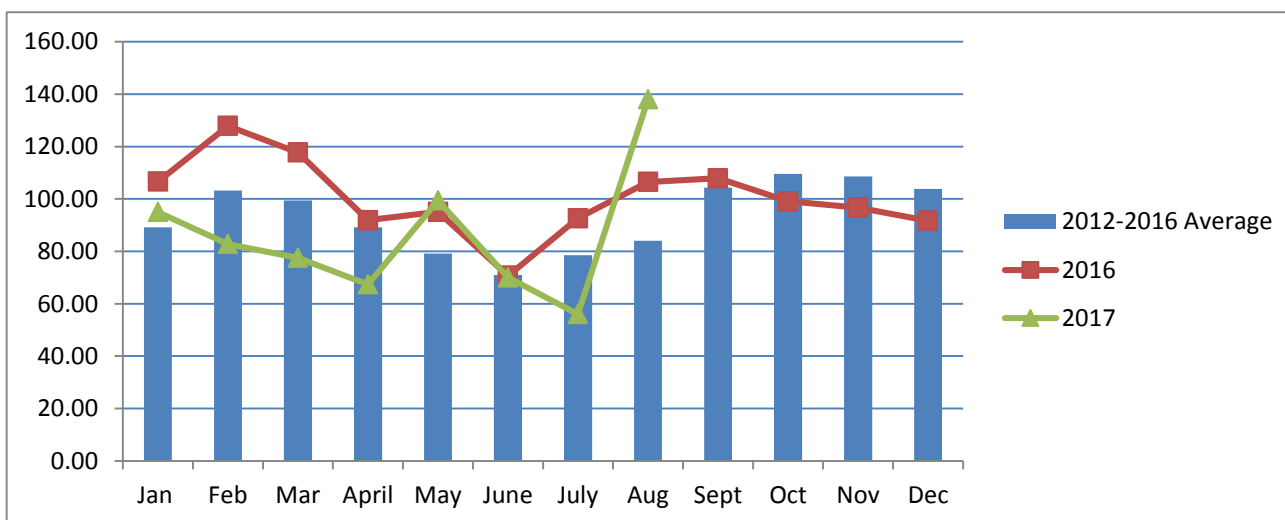


Figure14: Terms of Trade

### 4.4 IMPLICATION ON FOOD SECURITY

- The improving body condition of livestock have improved livestock prices for both Cattle and goats, therefore livestock keepers are able to get better value for their livestock contributing to food security in Agro pastoral zones .
- Maize prices are stable and low, with the sudden price decrease from August. This means that access to cereals is normal hence leading to food security at household level in Mixed farming and Agro pastoral livelihood zones.
- The terms of trade favors Livestock sellers than crop farmers due decreasing price of maize.

## 5.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk for Household Consumption

- Milk Consumption was 1.0 litre in the month of August which was the same as July. This decrease was due to low milk production in the County.
- August long term average milk consumption of 15.97 litres was much higher than the current average of milk consumption.

#### Household Milk Consumption August 2017 Average vs. Long Term Average 2012-2016

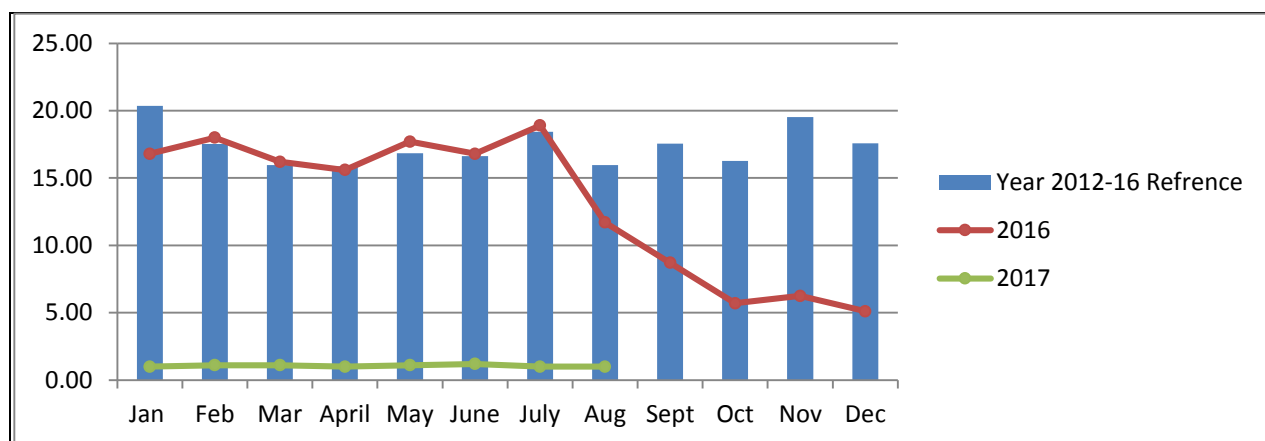


Figure 15: Milk Consumption

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## 5.2 HEALTH AND NUTRITION STATUS

### 5.2.1 MUAC

- The percentage of children aged between 6 months and 5yrs in the County with mid upper arm circumference of less than 135 mm decreased from 5.1 percent in July to 5.0 percent in August. This decrease in MUAC percentage for children could be attributed to increased interventions such as cash transfers programs and provision of CBS by Red cross which have increased access to food hence decreasing the rate of malnutrition levels amongst the children.
- This figure of 5.0 percent MUAC for August is stable compared to the year 2012-2016 long term average of 5.0 percent.

#### MUAC<135 mm % August 2017 vs. 2012- 2016 Long Term Average

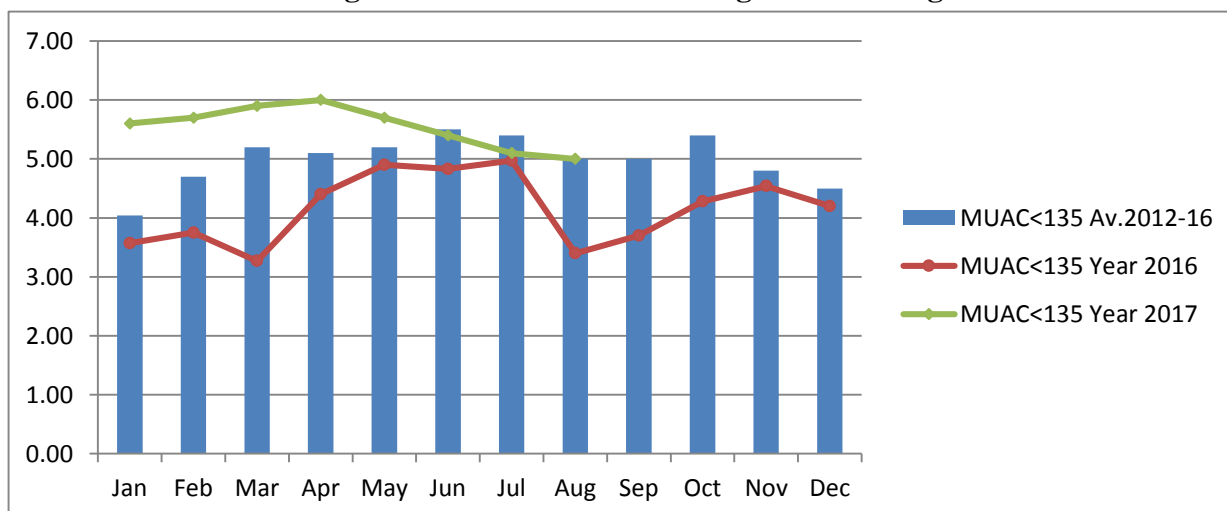


Figure 16: MUAC

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### 5.2.2 Health

- There were no cases of major disease outbreak both for children and general population in the County.
- However, the rates of Malnutrition are still high in the Agro pastoral Zones of Witu and Basuba ward.

### 5.3 FOOD CONSUMPTION SCORE (FCS)

- Agro pastoral and Mixed Farming livelihood zone had the highest number of Households with poor dietary diversity at 81.7 and 25 percent and 13.58 percent borderline for Month of July but improved for Month of August at 37.1, 10 percent and 3.7 percent for fishing livelihood.
- Households' percentage with poor FCS decreased significantly from 81.7 in July at Agro pastoral Zone to 37.1 in August.

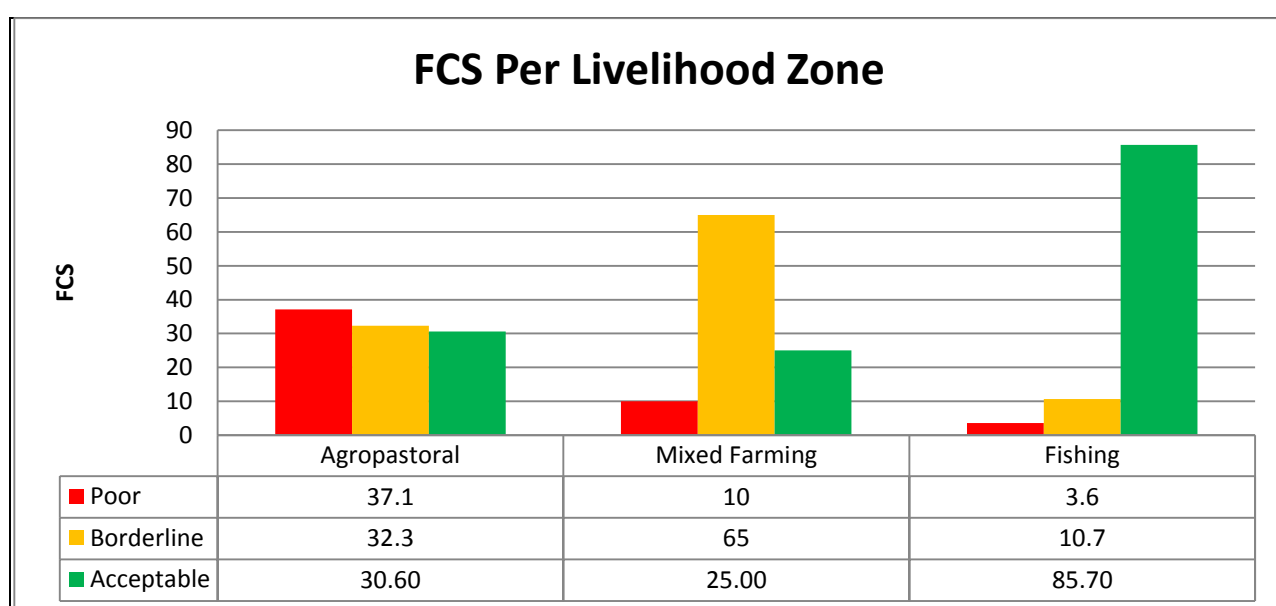


Figure 17: Food Consumption Score (FCS)

### 5.4 COPING STRATEGY INDEX

- The mean coping strategy Index in the Month of August slightly decreased to 5.33 from 6.63 in July indicating decreased coping strategies at household level.
- Agro pastoral Zone had CSI of 5.2; Mixed Farming livelihood zone had 3.8 while Fishing Livelihood zone had a copying strategy index of 7.
- Common coping strategies employed by food insecure households in the month of August were:
  - ✓ Opting for less preferred or cheaper meals.
  - ✓ Reduced quantity of food consumed by adults to ensure children to eat.
  - ✓ Reduction in the number of meals.
  - ✓ Purchase on credit/remittances from relatives.
  - ✓ Borrow food from friends or relatives.

**Lamu County Coping Strategies Index for August 2017 vs. the Month of August 2017**

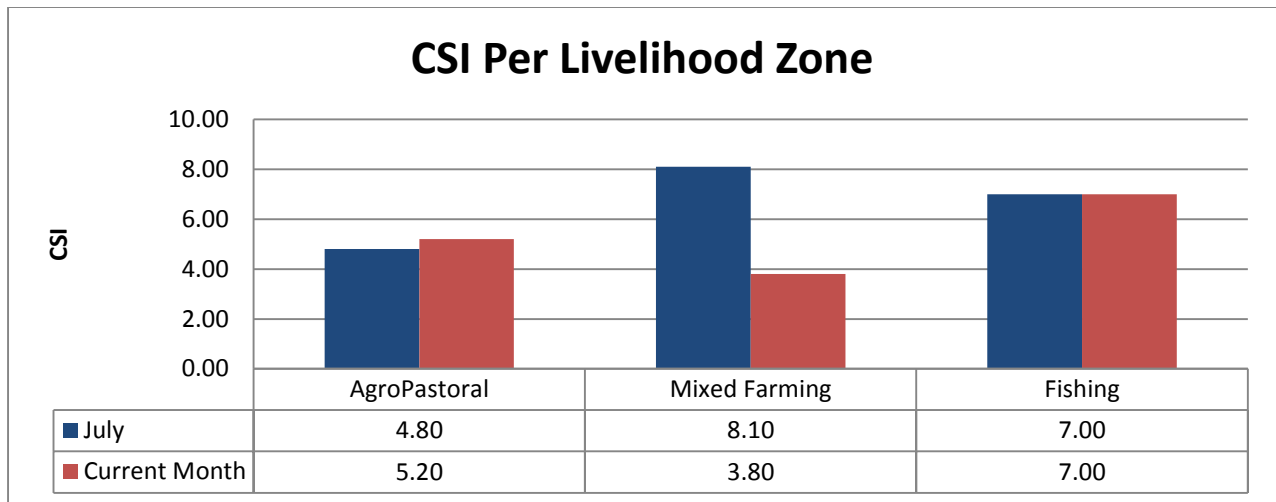


Figure 18: Coping strategies Index

**5.5 Implication on Food Security**

- Low milk consumption at household levels across all the Livelihood zones could lead to decreased dietary diversification and thereafter a negative impact on food security.
- The increase in the percentage of children under five, who are both at risk of malnutrition, have been increasing from July-August in areas of Agro pastoral Zones of Witu such as Sedemke, Pandanguo, Katsaka Kairo, Jimma and Chalaluma areas , resulted from decreased food insecurity and security related issues.

## **6.0 CURRENT INTERVENTION MEASURES (ACTION)**

### **6.1 NON-FOOD INTERVENTIONS**

#### **6.2 Drought Response Interventions**

- NDMA is currently conducting the treatment of Livestock against tsetse fly (Trypanosomiasis) and deworming in the County.

## **7.0 EMERGING ISSUES**

### **7.1 Insecurity**

- Tension is still high in Lamu County after the previous attacks by Al shabab where several lives were lost.

### **7.2 Migration**

- There were no abnormal cases of human migration during the month under review.

## **7.3 FOOD SECURITY PROGNOSIS**

- The state of drought is improving in the County due to near normal rainfall received. However, the county is in normal phase of the drought status.
- Water availability and accessibility situation has improved for households due to fair recharge of the open water sources and Djabias at 50-75percent of their capacity.
- Availability of water and pasture improve livestock body condition and hence reduce trekking distance, promote milk production and stabilize livestock prices.
- Nutritional status of the under-five, pregnant and lactating women is poor with several cases of Moderate Acute Malnutrition reported and expected to increase significantly as household food security remained low.
- The August 3-Month Vegetation Condition Index indicating greenness above normal for the entire County.
- Food prices expected to decrease due to harvest that is on ongoing especially Maize price.

## **8.0 RECOMMENDATIONS**

### **Water**

- Promotion of rain water harvesting, repair of Djabias, roof catchment areas, installation of gutters and tanks in Villages/Institutions.
- Create awareness on Public Health Education to different communities.
- Constructions of boreholes, water pans and dams for preparedness.

### **Livestock and Agriculture**

- Accelerate completion of Nagele Livestock market and or Linkage to Livestock markets to enable accelerated destocking at alarm and emergency phases.
- Livestock disease surveillance and control to curb spread of livestock diseases as in-migration from neighboring County of Tana River and Garissa.
- Provision of Veterinary and Livestock services extension staff in the County.
- Build Capacity of crop farmers to plant drought resistance food crops.
- Support control of Fall Army Worms in maize infestation in the county.

### **Health and Nutrition**

- Strengthen malnutrition screening and active case search as well as strengthen integrated management of acute malnutrition in the community.
- Enhance disease and nutritional surveillance.

### **Education**

- Support to schools feeding programmes for the most vulnerable communities focusing on the most vulnerable areas in the county.
- Provide Food for fees for students hailing from Vulnerable and poor families.

### **Peace and Security Sector**

- Peace and security meetings should be enhanced in the County and her neighboring counties of Tana River and Garissa.

### **Information Communication Technology**

- Promote use of ICT on Drought information sharing and development programmes.

## REFERENCE TABLES

**Table 1: Drought Phase Classification**

Normal	Alert	Alarm	Emergency
All environmental Agricultural and pastoral indicators are within the seasonal ranges	Meteorological drought indicators move outside seasonal ranges	Environmental and at least two production indicators are outside Long term seasonal ranges	All Environmental, Metrological and Production indicators are outside normal ranges.
<b>Recovery:</b> The drought phase must have reached at least Alarm stage. Recovery starts after the end of drought as signalled by the environmental indicators returning to seasonal norms; local economies starting to recover			

**Table 2: Standardized Precipitation Index (SPI)**

Color	SPI Values	Metrological Drought Category
	> +1.5 or more	Wet Conditions
	0 to +1.5	No drought
	-0.1 to -0.99	Mild drought
	-1 to -1.99	Severe drought
	<-2 and less	Extreme drought

**Table 3: Vegetation Condition Index Values (VCI)**

Color	VCI values 3-monthly average	Agricultural Drought Category
	≥50	Wet
	35 to 50	No agricultural drought
	21 to 34	Moderate agricultural drought
	10 to 20	Severe agricultural drought
	<10	Extreme agricultural drought

**Table 4: Livestock Body Condition**

Level	Classification	Characteristics (this describes majority of the herd and not individual isolated Stock)
1	Normal	Very Fat Tail buried and in fat
		Fat, Blocky. Bone over back not visible
		Very Good Smooth with fat over back and tail head
		Good smooth appearance
2	Moderate	Moderate. neither fat nor thin
3	Stressed	Borderline fore-ribs not visible. 12th & 13th ribs visible
4	Critical	Thin fore ribs visible
5	Emaciated	Very thin no fat, bones visible
		Emaciated, little muscle left



### **Definition of Early Warning Phases**

The EW phases are defined as follow:

**NORMAL:** The normal phase occurs when **biophysical drought indicators ( VCI and SPI) show no unusual fluctuations** hence remain within the expected ranges for the time of the year in a given livelihood zone, division or county

**ALERT:** The alert phase is when either the **vegetation condition index or the standard precipitation index (biophysical indicators) show unusual fluctuations below expected seasonal ranges** within the whole county/sub-county or livelihood zones.

**ALARM:** The alarm phase occurs when both **biophysical and at least three production indicators fluctuate outside expected seasonal ranges** affecting the local economy. The production indicators to be considered are livestock body condition, crop condition, milk production, livestock migration and livestock mortality rate.

If **access indicators** (impact on market, access to food and water) move outside the normal range, the status remains at “alarm” but with a worsening trend. Proposed access indicators include ToT, price of cereals, availability of cereals and legumes, and milk consumption. The trend will be further worsening when also welfare indicators (MUAC and CSI) start moving outside the normal ranges.

**EMERGENCY:** In the emergency phase, **all indicators are outside of normal ranges**, local production systems have collapsed within the dominant economy. The emergency phase affects asset status and purchasing power to extent that seriously threatens food security. As a result, coping strategy index, malnutrition (MUAC) and livestock mortality rates move above emergency thresholds

**RECOVERY: Environmental indicators returning to seasonal norms.** The drought phase must have reached at least Alarm stage. Recovery starts after the end of drought as signalled by the environmental indicators returning to seasonal norms while production indicators are still outside the normal seasonal range but local economies start to recover. The status changes to normal once the bio physical and production indicators are back to normal range.