

**National Drought Management Authority  
LAMU COUNTY  
DROUGHT EARLY WARNING BULLETING FOR AUGUST 2019**



A Vision 2030 Flagship Project



**AUGUST 2019: EW PHASE**

**Drought Status: ALERT**



**Maandalizi ya mapema**

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- The County received below normal average off seasonal rainfall during the Month under review.
- The vegetation condition Index (VCI-3Month) was showing an increase of 12 percent compared to previous month.
- The VCI indicated normal vegetation greenness. However, the overall drought phase in the county was at Alert in August.
- Forage condition was fair to good across all livelihood's zones during the month.

**Socio Economic Indicators**

**Production indicators**

- All livestock species exhibited fair to good body condition.
- Maize crop wilted before maturity in all livelihood zones.
- Milk production decreased and is below the LTA compared to previous month of July.

**Access indicators**

- Terms of trade were favorable to crop farmers than livestock herds in mixed and pastoral livelihood zones respectively.
- Water access for both human and livestock was good and increased in all the livelihood zones.
- Milk consumption reduced when compared with previous month, it was lower than the long-term Average.

**Utilization indicators**

- The proportion of children at risk of malnutrition cases increased and above the normal range as indicated by percent of mid upper arm Circumference (MUAC).
- The average coping strategy decreased compared to previous month.

**Early Warning (EW) Phase Classification**

Livelihood Zone	Phase	Trend
Agro pastoral/Fishing	Alert	Worsening
Mixed farming/Irrigated cropping	Normal	Worsening
Fisheries /Mangroves	Alert	Worsening
Farming/Casual Labour	Normal	Worsening
Agro pastoral	Alert	Worsening
County	Alert	Worsening
Biophysical Indicators	Value	Normal Range/Value
Rainfall (% of Normal)	13.2	40 -80
VCI-3Month	58.57	<50
Forage condition	fair to good	Good
Production indicators	Value	Normal
Crop Condition (specify crop) Maize	fair to poor	Good
Livestock Body Condition	fair to good	Good
Milk Production	0.6litres	>3 Litres
Livestock Migration Pattern	Not Normal	Normal
Livestock deaths (from drought)	No death	No death
Access Indicators	Value	Normal
Terms of Trade (ToT)	102	84
Milk Consumption	0.4litres	>2litres
Return distance to water sources (HH).	3	<5 Km
Cost of water at source (20 litres)	5-10Kshs	<5Kshs
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	9.6%	<5%
Coping Strategy Index (CSI)	8.85	<0.95

**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> </ul>								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec

## 1.0 CLIMATIC CONDITIONS

### 1.1 Rainfall performance

- The onset of the off-season rainfall is below average across the county.
- Below average off season rainfall was received during the month under review, with low intensity compared to the previous months as recorded in the first dekad of August as in figure 1a below.
- The current NDVI value is below the historical NDVI values as shown in figure 1b.

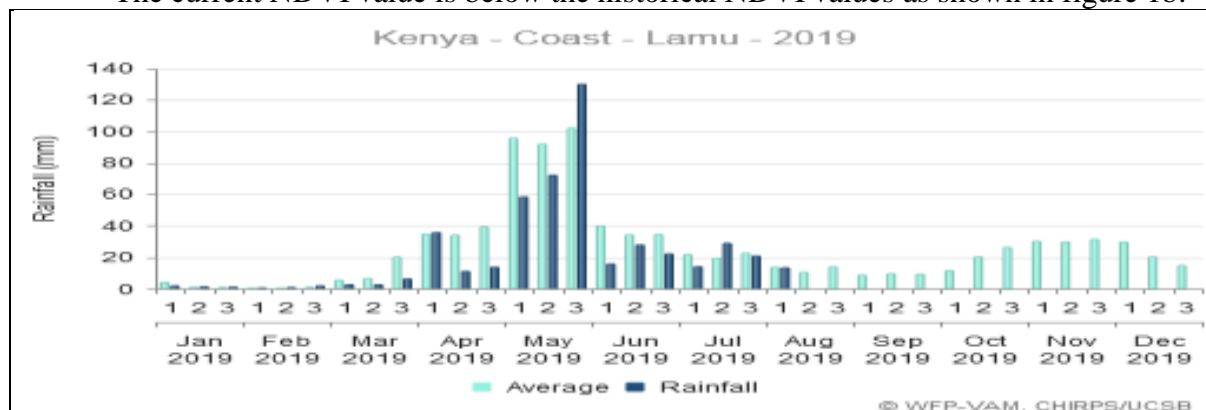


Figure 1a: Rainfall Satellite data. (Source: WFP-VAM, CHIRPS/UCSB)

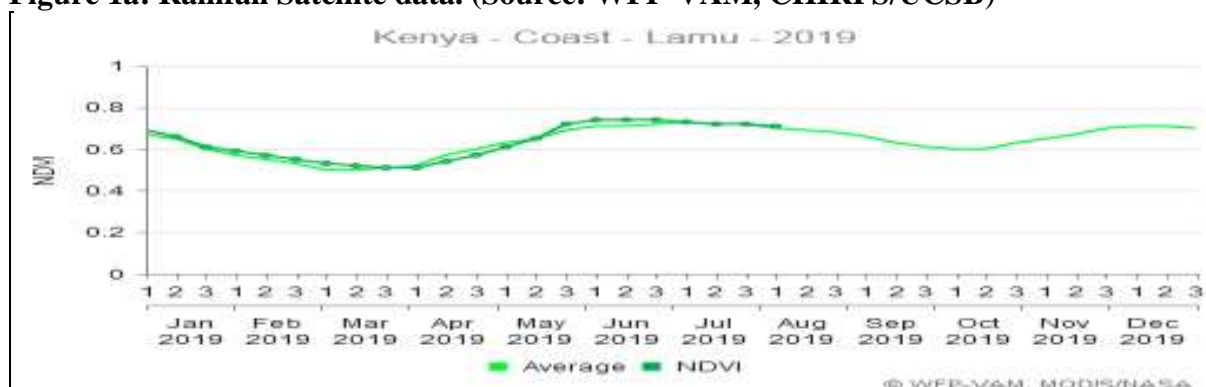


Figure 1b: NDVI data. {Source: wfp-Vam}

### 1.2 Amount of rainfall and spatial distribution

- According to VAM WFP rainfall and vegetation data, the County received a total of 13.2mm of rainfall in the month of August during the first dekad.
- This was a decrease of 69 percent rainfall compared to previous month; however, this was below the long-term average of the three dekad, which is 37.5mm as in the figure 1a above.
- This 13.2 mm of rainfall was lower than the amount of 25.3mm received in, for the same period during the previous year.
- The rainfall received was poor, both in spatial and temporal distribution in all parts of the livelihood zones of the county.

### 1.3 Other hazards.

- No hazards report during the month under review.

## 2.0 VEGETATION CONDITION

### 2.1 Vegetation Condition Index (VCI)

- The vegetation condition index for the month of August increased by 12 percent compared to the previous month. This was due to above average precipitation received during the previous month.
- The vegetation condition index for the month of August was 58.57 compared to 51.27 in the previous month.
- The VCI indicated vegetation normal greenness in the County.
- The VCI-3Months is below the long-term average and the previous year as shown in the figures 2a, 2b and 2c below.

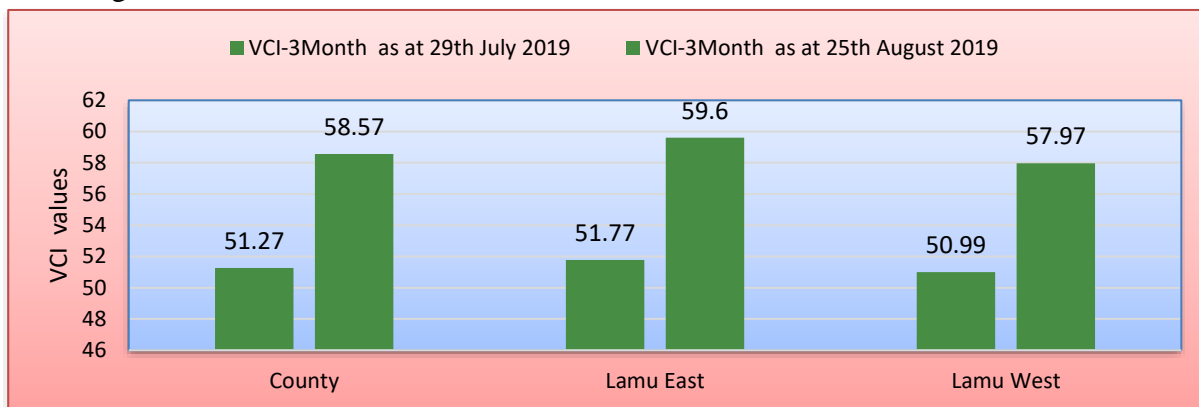


Figure 2a: VCI (3M)

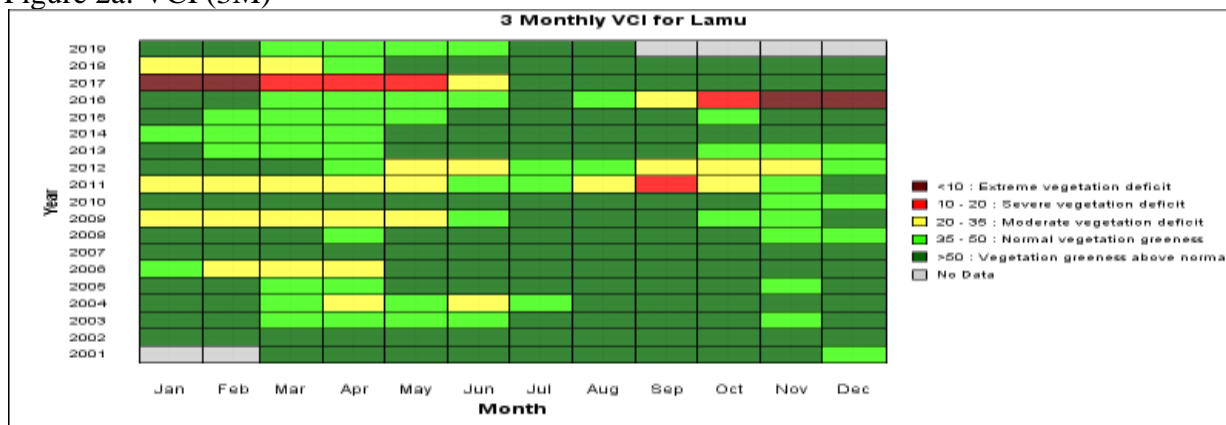


Figure 1b: VCI-Lamu County {Source: Boku University, Austria}

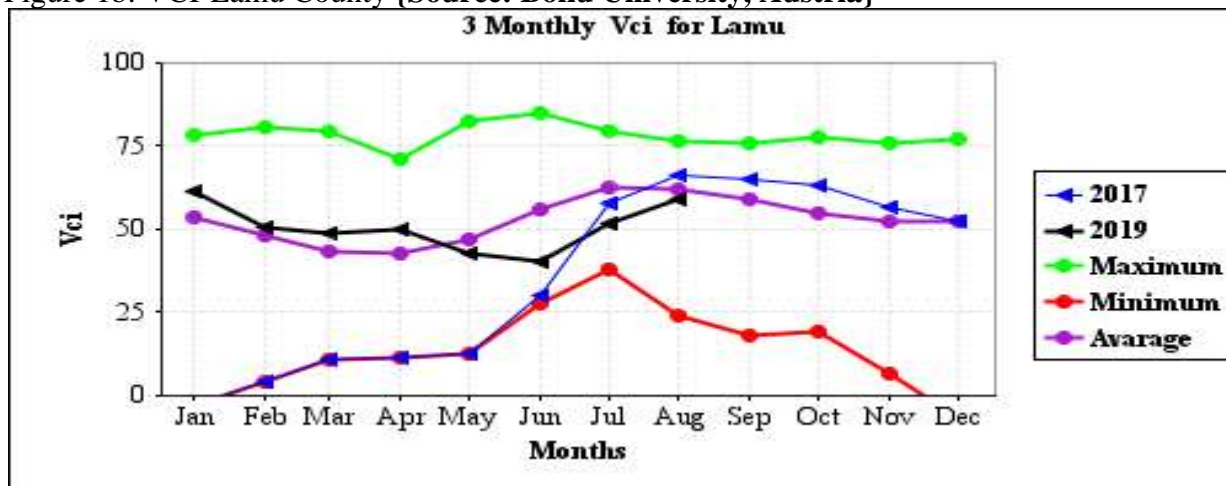
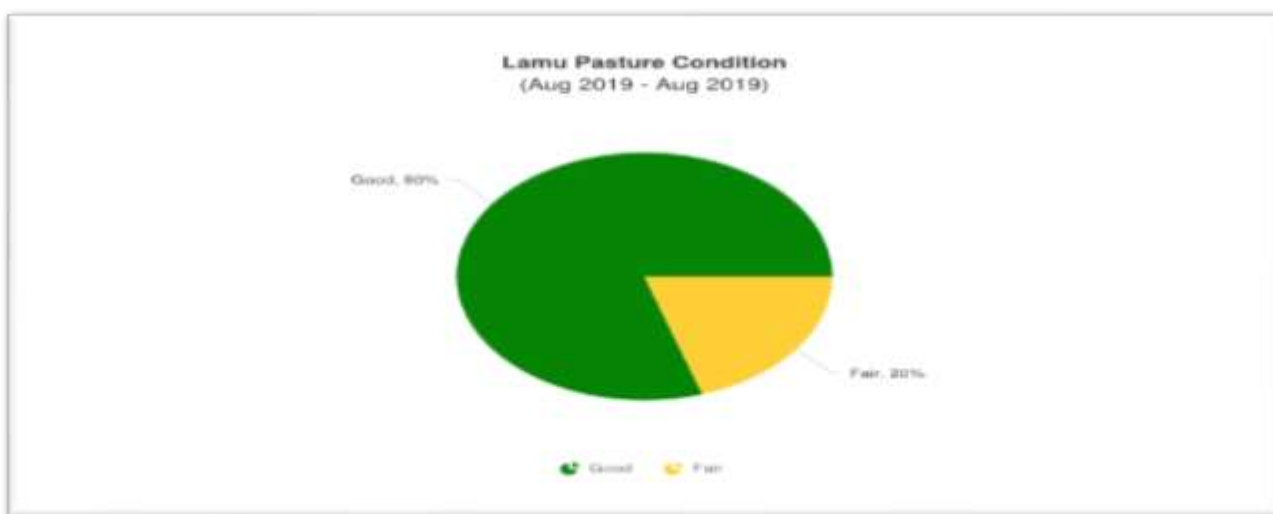


Figure 2c: VCI-Lamu County {Source: Boku University, Austria}

## OBSERVATIONS-PASTURE AND BROWSE CONDITION

### 2.1.2 Pasture

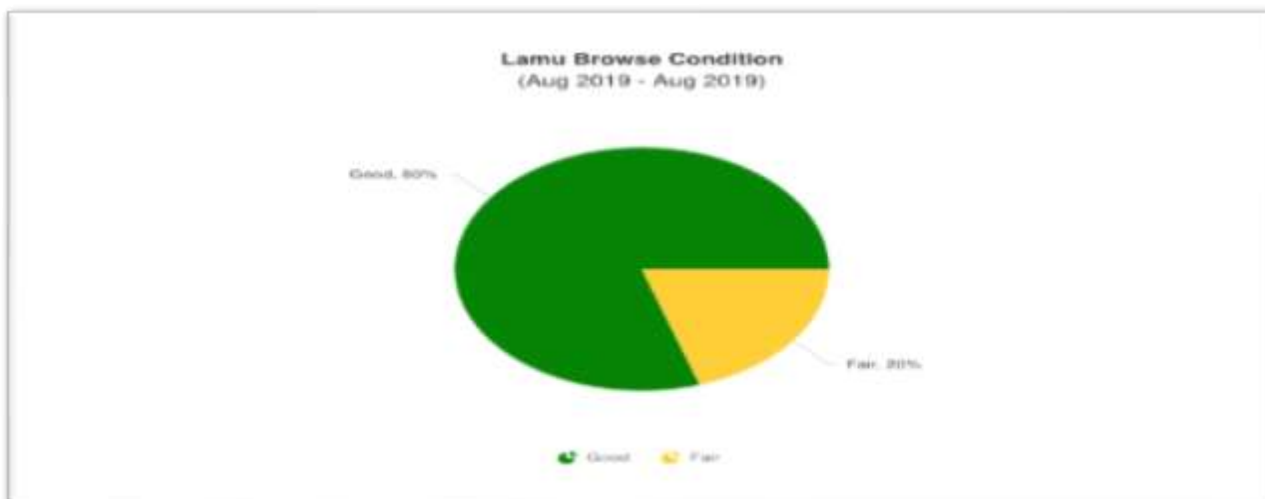
- Pasture condition was good across all livelihood zones both in quality and quantity.
- 80 percent of Community members interviewed stated that pasture was good while 20 percent indicated that pasture was fair but with improving trend as in figure 3.
- Pasture condition by livelihood zones was as follows; Agro pastoral is very good, mixed farming is good and fishing/ mangrove was good as well.
- The available pasture is expected to last three month due to the presence of in-migrant livestock from neighbouring counties. The current pasture situation is within the normal range.



**Figure 3: Pasture condition**

### 2.1.3 Browse conditions

- The quantity and quality of browse was good across all livelihood zones.
- Community members interviewed indicated as follows; 80 percent of the respondents stated that browse was good while on improving trend due to the off seasonal rains and low rate of transpiration as in the figure 4.
- Browse condition by livelihood zones was as follows; Agro pastoral and mixed farming was good while fishing/ mangrove was also good.
- The browse is expected to last more than three months. The current browse condition is within the normal range compare to previous year.

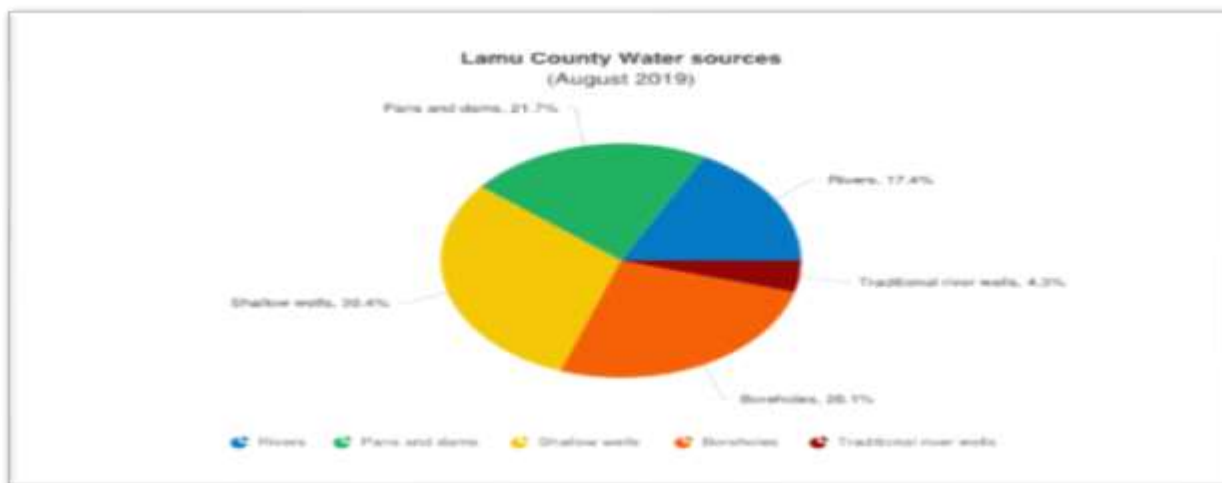


**Figure 4: Browse conditions**

## 2.2.0 HYDROLOGICAL DROUGHT

### 2.2.1 Water Sources and Availability

- The state and condition of water sources in the County was good across most livelihood zones except for patte island where the rainfall performance was within the normal long term average.
- However, the current water situation improved compared to previous month.
- The main water sources in the month of August; Pans and dams 21.7percent,shallow wells 30.4percent,Boreholes 26.1percent,Rivers 17.4percent and Traditional river wells 4.3percent, as shown in the figure 5 .
- The status of main sources of water has improved at this time of the year.

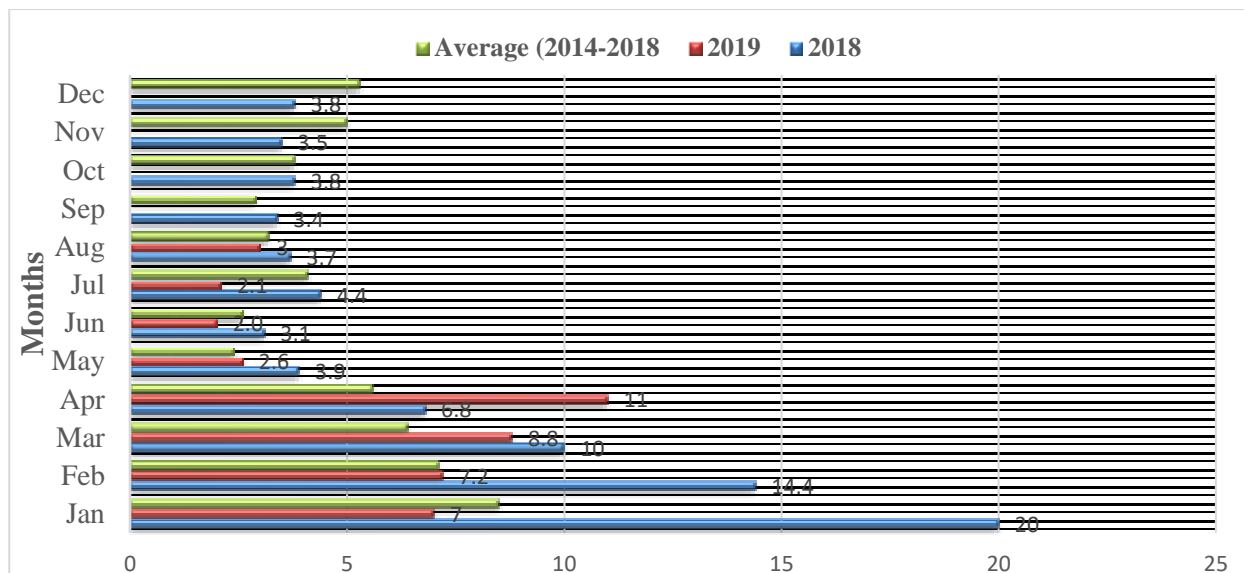


**Figure 5: Main sources of water**

### 2.2.2 Household access and Utilization

- Average household watering return distance was 3Kilometres, which was a slight increase and below long-term average, compared to previous month.
- This below LTA was due to low off seasonal rainfall received which led to increase in water distances.
- Household return water distances per livelihood zone were as follows; the Agro pastoral 5.5Kilometres, Fishing & Mangrove Harvesting 1.6Kilometres and for Mixed Farming Zone it was 1.8Kilometres and irrigated farming 1.3Kilometres respectively.

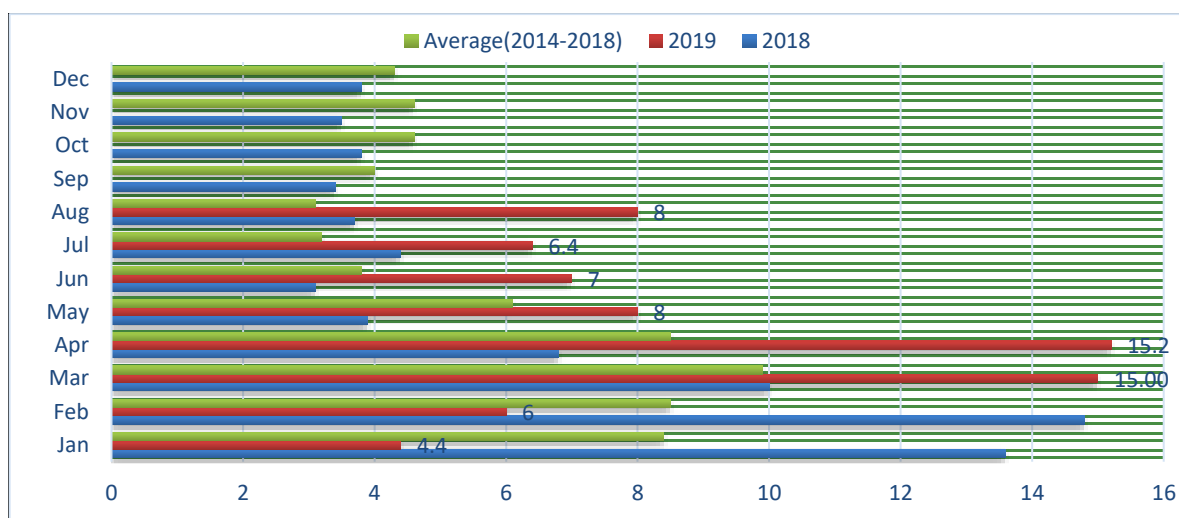
- The average household water distance for August was 3Kilometres which is below LTA as shown in figure 6 below.
- The average household water consumption per person per day is at 20-25liters in all livelihood zones. Water costs at source are 5-10 Kshs in town/villagecenters for 20 liters Jerrican.



**Figure 6: Household water distances-Kms**

### 2.3 Livestock access to Water

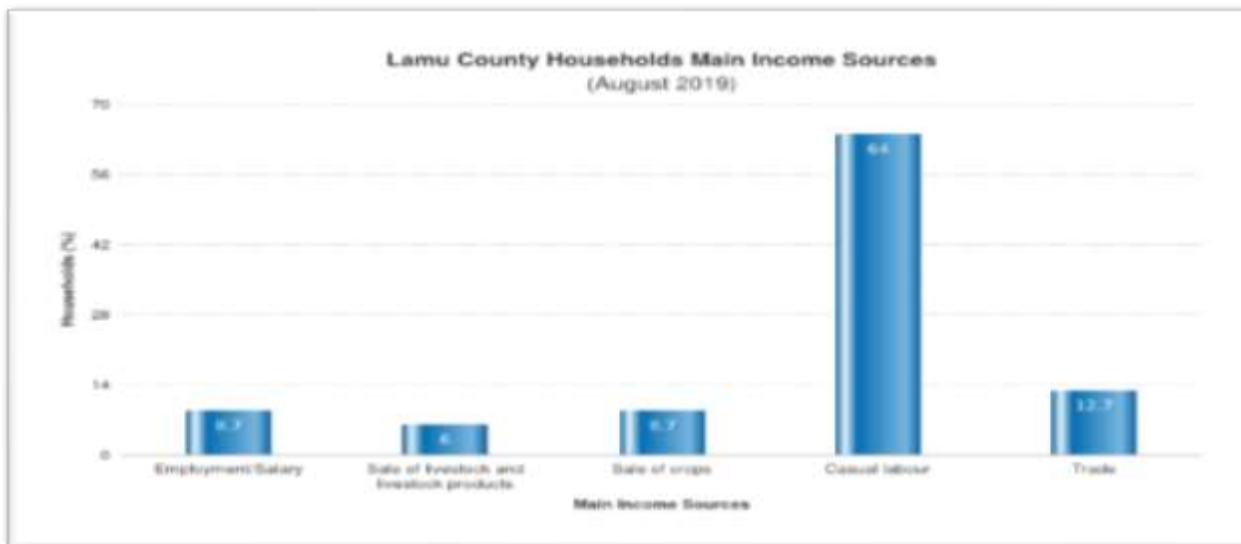
- Livestock average distance to water source from grazing Areas increased to 8Kilometres compared to the previous month of 6.4Kilometres as in figure 7.
- Grazing return water distances per livelihood zone were as follows: the Agro pastoral 4.6Kilometres, Fishing & Mangrove Harvesting 2 Kilometres and for Mixed Farming zone it was 2.4Kilometres and irrigated farming 5Kilometres respectively.
- The decrease of grazing water distance compared to last month was due to increase of water availability in grazing areas, however some grazing areas are currently flooded.
- Watering frequencies for livestock species was seven times per week.
- The current average grazing distance for August was 8Kilometers which is above the long-term average of 6.2 Kilometres.



**Figure 7: Grazing distance-Kms**

### 2.2.4 Household Income

- The main household income for the month of July was distributed as follows: Casual labour 64percent,trade 12.7percent,Employment 8.7percent, Sale of livestock 6percent and sale of crop 8.7percent in figure 8 below.
- However, casual labour and employment increased respectively by 3 and 1 percent , compared to the previous month of July.While Sales of livestock and its products improved.



**Figure 8: Household sources of income**

### 2.4 Implication to Food Security;

- Fishing and Mangrove livelihood zones have increased water salinity due to low recharge ,low level of water table of the shallow wells in the Islands.
- The distances to water sources have had a negative impact on the livestock body condition of animals and household hygiene standards.
- Crop production is expected to decline due to low off season rains performance.



### 3.0 PRODUCTION INDICATORS

#### 3.1.0 Livestock Production

##### 3.1.1 Livestock Migration Patterns

- There are cases of livestock in migration, however, the livestock that in-migrated from neighbouring counties of Tana River and Garissa were increasing on daily basis.

##### 3.1.2 Livestock Body Condition

- The livestock body condition was fair to moderately good for all for species across livelihood zones. This was attributed to increased quality and quantity of pasture and browse due to improved seasonal precipitations.
- However, due to pasture improvement the body conditions are expected to improve further.

##### 3.1.3 Livestock Diseases

- There were no cases of livestock diseases reported during the month under review.

##### 3.1.4 Milk Production

- Milk production decreased from 0.7litres to 0.6litres when compared to previous month.
- The decrease was attributed due to depletion of forage condition as a result of in migration of livestock from neighbouring counties.
- Milk productions were distributed as follows: Mixed farming Produced 1.2litres, Fishing 1.0litres, and Irrigated 1.2litres while the Agro pastoral Zone produced average of 1.5 litres. Milk prices are retailing at an average price of Kshs.40-80 per Liter across the livelihood zones which is the normal milk price at these period of the year.

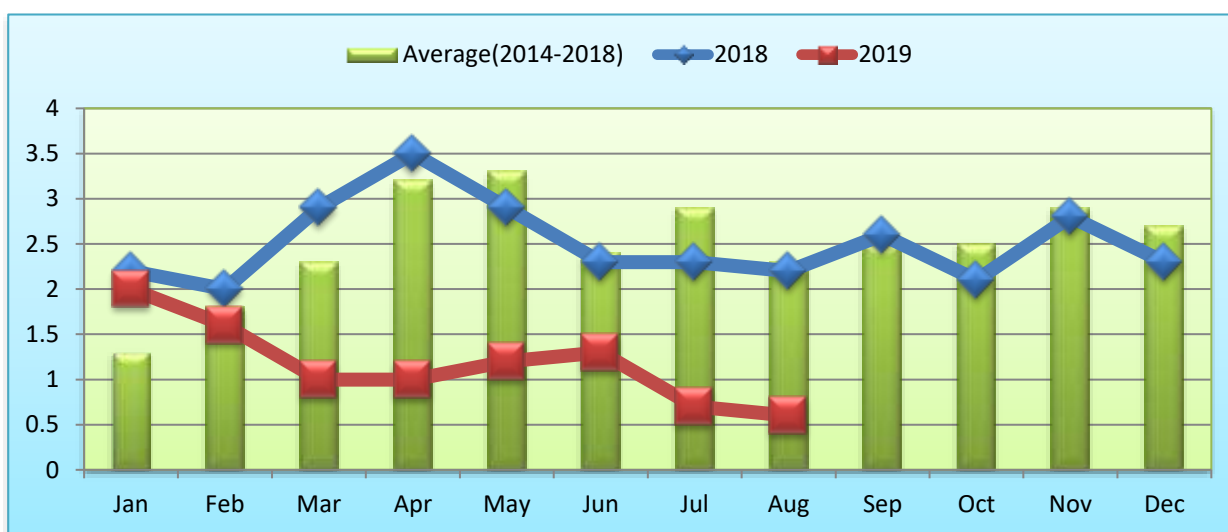


Figure 9: Milk production

#### 3.2 Rain fed crop production

##### 3.2.1 Stage and condition of food crop

- The main crops grown are Maize, Cowpeas, Green grams and Simsim in the County.
- Most crops (Maize) wilted before reaching the harvesting stage in all the livelihood zones.
- Under rain fed agricultural production the area planted with maize, cow peas and green grams was expected to improve when compared to the long-term averages.

##### 3.2.2. Crop Harvest

- Most of the crops wilted before maturity few crop farmers have harvest some though below average.

##### 3.2.3 Implications on Food Security;

- The improve body condition of livestock species except cattle across the livelihood zones increased the prices resulting to higher income for livestock farmers.



## 4.0 MARKET PERFORMANCE

### 4.1 Livestock marketing

#### 4.1.1 Cattle Prices

- Average cattle market price in the month of August decreased by 3percent compared to previous months as in figure 10 below.
- This decrease in price could be attributed to low demand and high supply of animals by local herds and in migrating satellite herds owing to improved water and pasture conditions.
- The cattle average market prices were distributed as follows: Faza Kshs 20,000, Witu Kshs 11,000, Kiunga Kshs 30,000, Mswakini 21,000 and Mokowe Kshs 22,000.
- The average market cattle price for the month of August was Kshs.23, 789 which was higher than the long-term average price of Kshs.17, 633.

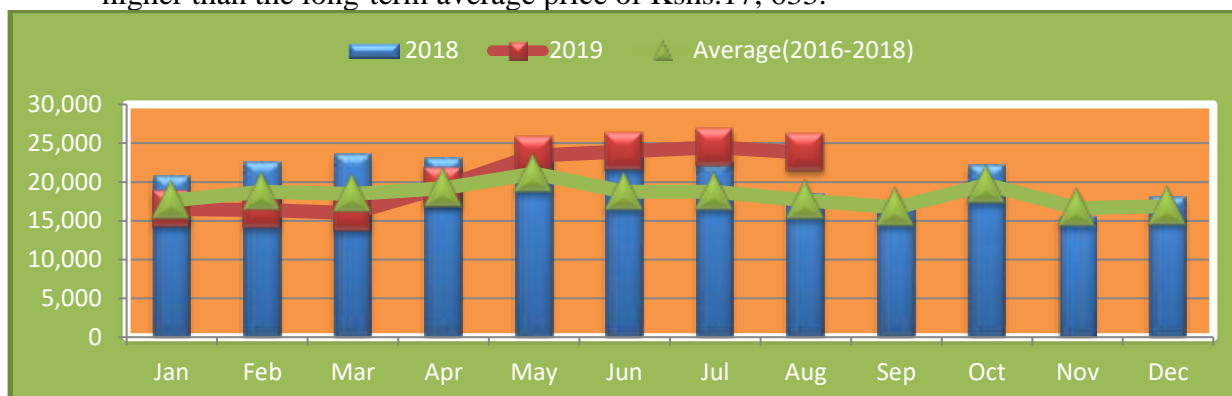
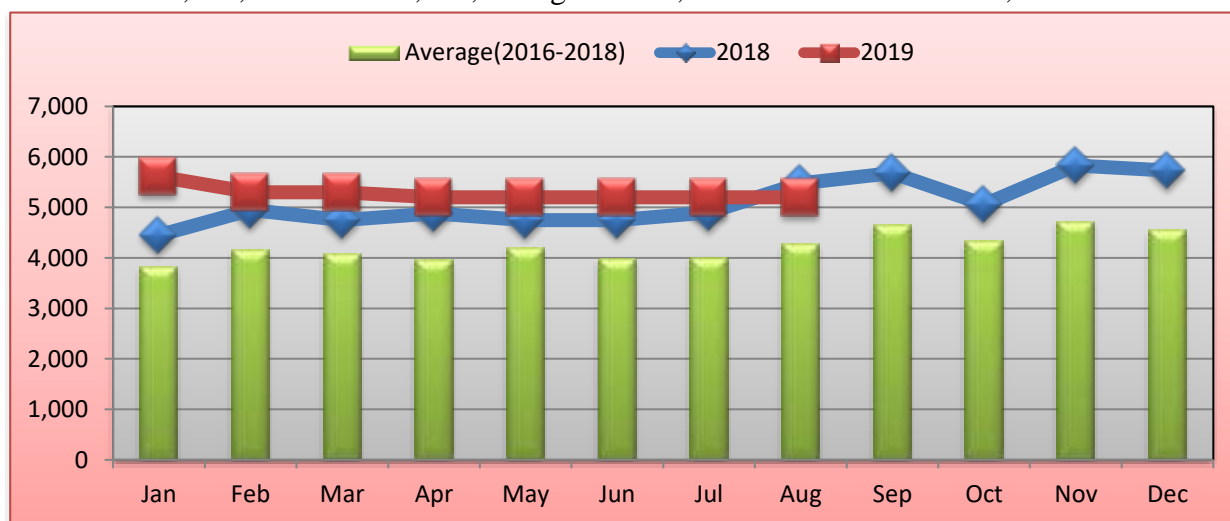


Figure 10: Cattle prices

#### 4.1.2 Small Ruminants Prices

#### 4.1.3 Goat Prices

- Goat prices remained the same in August (Kshs5, 200) compared to previous month of July (Kshs5, 200).
- This price was higher than the long term average by 18percent and the price recorded in previous year at a similar time and following seasonal trends as shown in figure 11.
- This stability in price of goats could be attributed to high market demand and improved body condition following the off season rains that has in turn improved browse situation across the county. The goat average market prices were distributed as follows: Mpeketoni Kshs 4,000, Witu Kshs 5,000, Kiunga Kshs 6,000 and Mokowe Kshs 4,900.

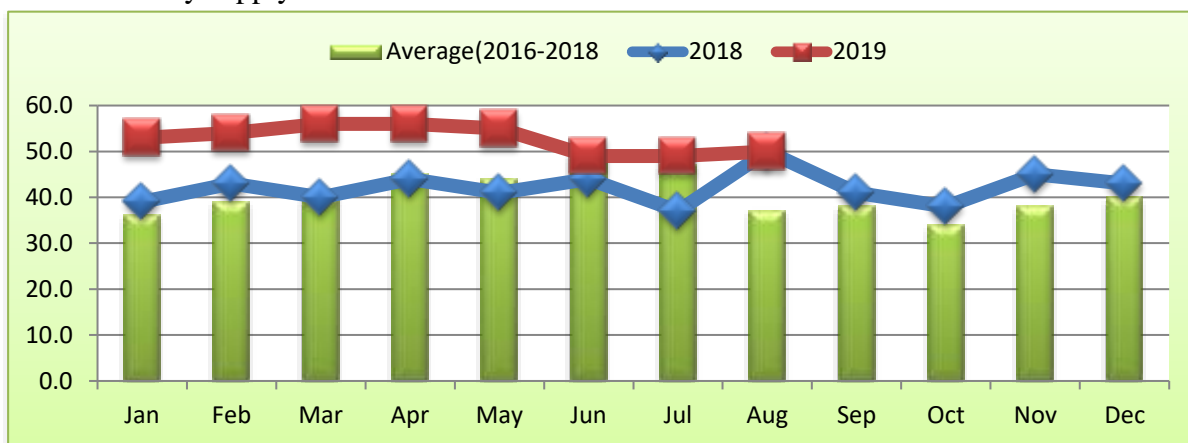


**Figure 11: Goat prices**

**4.2: Crop prices**

**4.2.1 Maize price**

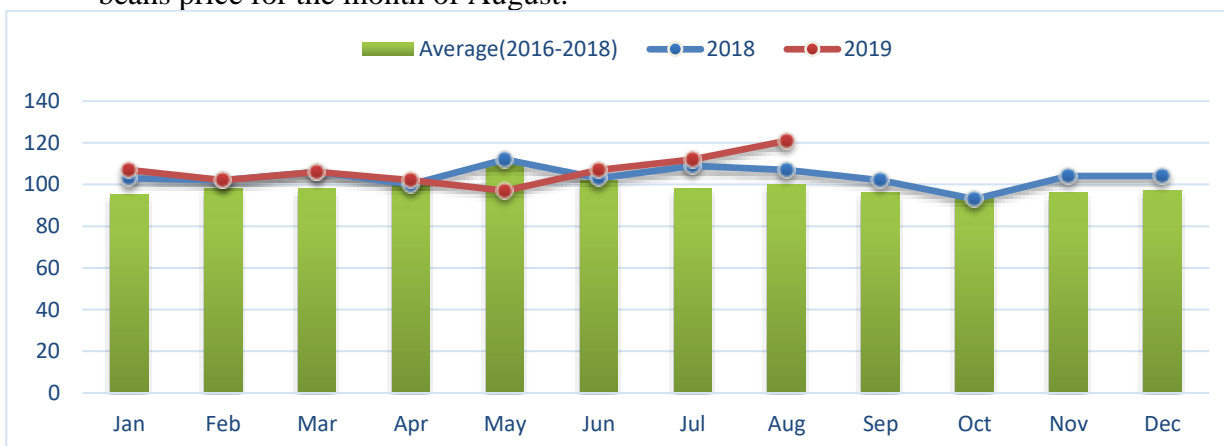
- The maize prices increased slightly from Kshs 49 to Kshs 50 compared to previous month of July as shown in the figure above.
- The increase of price was due to expected poor harvest during the off-season rains coupled with high demand as shown in figure 12.
- The prices were distributed as follows; Hindi centre Kshs 45, Patte Kshs 50, Witu Kshs 50, Mpeketoni Kshs 50 and Kiunga Kshs 50. However, price ranges are determined by commodity supply in different markets.



**Figure 12: Maize prices**

**4.2.2 Beans prices**

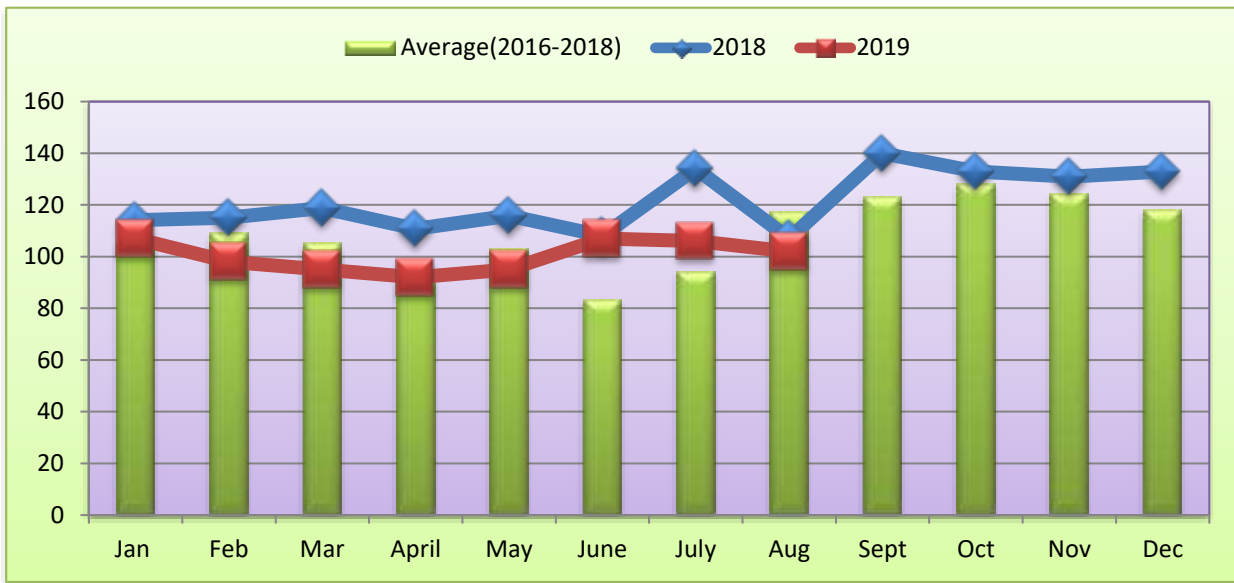
- Average price of Kilogram of beans was Kshs 121 in August, an increased compared to the previous month of July from Kshs 112 as in the figure 13 below.
- The increase in price was attributed to high demand and expected below average off seasonal yields. The beans price was distributed as follows: Mswakini /Hindi centre Kshs 100, Patte Kshs 120 and Witu Kshs 120, Mpeketoni Kshs 100 and Kiunga Kshs 140.
- However, price ranges is determined by commodity supply in the different markets. The long-term average price of beans was Kshs 100 which is lower compared to the current beans price for the month of August.



**Figure 13: Beans prices**

**4.3 Livestock Price ratio/Terms of Trade**

- The terms of trade (ToT) of August (102Kgs) decreased by 4 percent compared to previous month of July (106Kgs) as in figure 14 below.
- This was lower than the long-term average by 13percent. Sale of a medium goat in August, would cost a household about 102kgs of maize.
- This showed the exchange ratio decreased in favour of crop farmers when compared to goat sellers.
- However, this was determined by supply in the different markets.
- The ToT was 89.4 Kilograms in Lamu West and 130 Kilograms in Lamu East.
- The ToT for August was higher than the long-term average of 117 Kilograms.



**Figure 14: Terms of Trade**

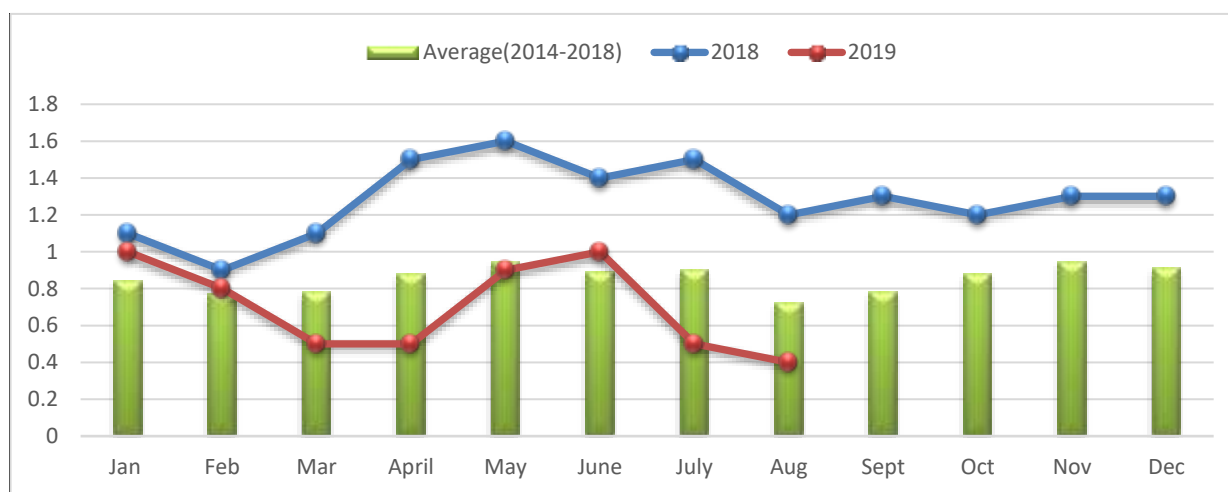
#### 4.4 Implication on food security;

- Maize prices increased due to cessation of the off season showers and high demand at the markets.
- Farmers are able to sell livestock at fair prices, hence improved food security at household level.
- The Terms of Trade was favorable to crop farmers when compared to livestock sellers since it slightly reduced.

## 5.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk for Household Consumption

- Average milk Consumption was 0.4 litres in the month of August, which decreased compared to previous month as in figure 15.
- Milk consumption was distributed as follows; Agro pastoral 1.0 litres, Mixed farming 0.5, irrigated cropping 0.8 litres and fishing 0.4 litres.
- The decrease in milk consumption level is as a result of reduction in milk production and household purchase of the commodity.
- August long term average milk consumption was lower than the current average.

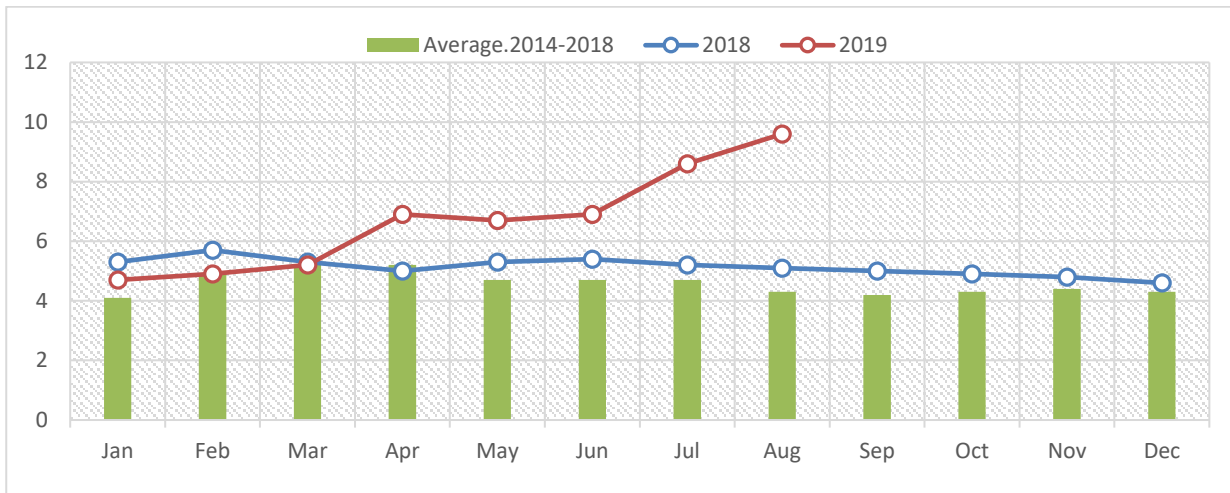


**Figure 15: Milk consumption**

## 5.2 Health and Nutrition status

### 5.2.1 MUAC

- The proportion of children under five at risk of malnutrition with Mid Upper Arm Circumference below 135mm increased to 9.6percent(11%) compared to previous month of July.
- The proportion of children under five with severe category was zero percent during the month under review, indicating decrease in the number of children with severe category.
- This was attributed to low production of milk and consumption at household level. The rates of malnutrition cases reduced in Agro pastoral and Mixed farming Zones of Witu, Hindi and Mpeketoni areas.
- The figure of 9.6 percent MUAC for August, was higher than long term average as in figure 16.



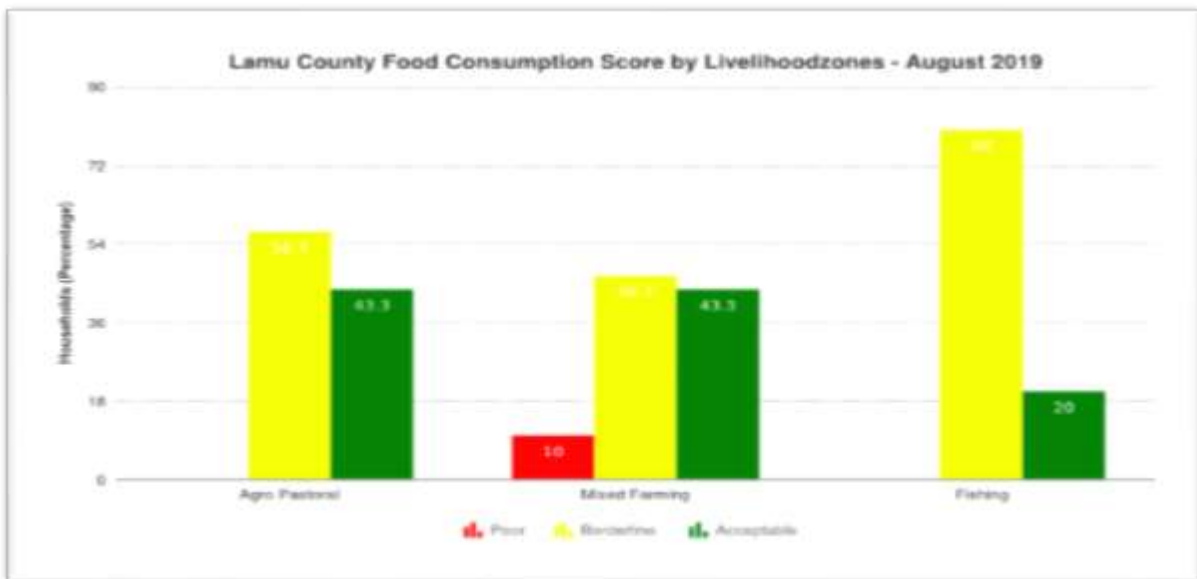
**Figure 16: MUAC**

### 5.2.2 Health

- There were no cases of major disease outbreak both for children and general population in the County.

### 5.3 Food consumption score

- The population with poor, borderline and Acceptable food consumption in the county was 4, 57 and 39 percent respectively.
- Acceptable food consumption was noted in Agro pastoral and Mixed farming zone with 43.3percent each owing to reduced availability of food at households’ level; however, households have low purchasing power, thus consuming two to three meals per day with three to four food groups as in figure 17 below.
- Households’ percentage with poor food consumption increased from 5 to 10 percent at mixed farming livelihood zones while an increase of borderline food consumption of 56.7 percent was noted in Agro pastoral livelihood zones.

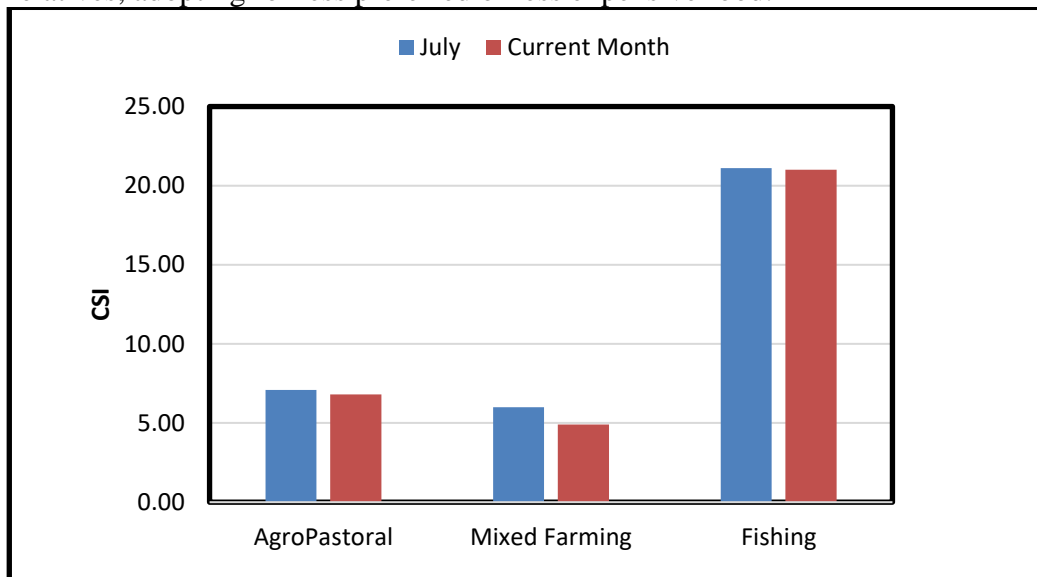


**Figure 17: Food consumption score**

### 5.4 Coping strategy index

- The mean coping strategy Index in the Month of August (8.85) decreased by six percent compared previous month in July (9.46) indicating decreased coping strategies at household levels.

- Agro pastoral Zone had CSI of 6.8; Mixed Farming livelihood zone had 4.9 while Fishing Livelihood zone had the highest coping strategy index of 21 as figure 18 below.
- Common coping strategies employed by food insecure households in the month of August were; Consumption of low-quality food, Purchase on credit, borrow food from friends or relatives, adopting for less preferred or less expensive food.



**Figure 18: coping strategy index**

### 5.5 Implication on Food Security

- The reduced milk consumption at household levels across all the Livelihood zones could lead to decreased dietary diversity and hence negative impact on food insecurity.
- Coping strategy decreased at mixed farming and Agro pastoral livelihood zones with the highest coping being the fishing zone, hence negative impact on food security at household level.

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

### **6.1 Food aid**

- No reports on food aid interventions.

### **6.2 Non-food interventions**

- NDMA Lamu has handed over the construction of Nagelle integrated drought resilience water (pan) project to the Contractor and construction is ongoing.
- Cash transfer by the Social protection department to 3,500 households for older persons, Orphans and people with disabilities respectively for the entire county. The cash transfer will improve the purchasing power of the households to access food of their preferences.

## **7.0 EMERGING ISSUES**

### **7.1 Insecurity**

- No insecurity incident reported during the month under review.

### **7.2 Migration**

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

### **7.3 Food security prognosis**

- Markets will continue to operate normally despite poor infrastructure and insecurity.
- Cereal prices are expected to increase while those of goat prices are projected to be stable, thus terms of trade expected to favour for livestock farmers.
- Forage conditions are projected to deteriorate further and hence worsen livestock body conditions, production and prices in coming months.
- The distance to water sources for both human and livestock is expected to increase.
- Water salinity is expected to worsen further due the decrease in water levels in fishing livelihood zone.
- Malnutrition cases are likely to increase over the period, as children access to milk low.
- Household food stocks are expected to improve further.
- Cases of livestock herders' and crop farmers conflicts are expected to increase due to huge influx from neighboring Counties of Tana River and Garissa.



## **8.0 RECOMMENDATIONS BY SECTORS;**

### **8.1 Water**

- Constructions/rehabilitation of water pans for preparedness.
- Conducting of hydro geological survey and drilling of boreholes.
- Promotion of rainwater harvesting, repair of Djabias, roof catchment areas, installation of gutters and tanks in Villages and Institutions.
- Provision of water treatment tabs to households mainly in Agro pastoral and mixed farming.

### **8.2 Livestock**

- Livestock disease surveillance, Vaccinations and control to curb spread of livestock diseases.
- Upscale efforts aimed at stock piling livestock feeds in strategic hay reserves for use during the dry season by providing farmer groups with pasture seeds to maximize production over the short rains period.
- Promote Pasture and fodder planting in the county during and after the short rains.
- Provision of hay band machines for harvesting.
- Promote livestock insurance services.
- Construction of vaccination crushes and cattle dips.

### **8.3 Agriculture**

- Build Capacity of crop farmers to plant drought resistance food crops.
- Mobilization and sensitization of farmers on crop insurance.
- Provision of seeds and fertilizers to farmers during the short rains period.
- Training communities on CMDRR.

### **8.4 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 in hot spot areas.
- Deworming exercise for both adults and children.
- Conduct SMART survey.

### **8.5 Education**

- Support to schools feeding programs for the most vulnerable communities focusing on the most vulnerable areas in the county to minimize dropouts.
- Provide Food for fees for students hailing from Vulnerable and poor families.
- Provision of water plastic tank to learning institution for preparedness.

### **8.6 Peace and Security Sector (Co-ordination)**

- Peace and security meetings should be enhanced in the County
- Inter Counties peace and security to be enhanced in order to avert future conflicts.
- Provision of relief food to vulnerable household in the County.

### **8.7 Information Communication Technology**

- Promote use of ICT on drought information (Forums) sharing and development programs.

**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)**

Colour	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)**

Colours	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 Warns**

### **The EW phases are defined:**

**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.