

**National Drought Management Authority**  
**LAMU COUNTY**  
**DROUGHT EARLY WARNING BULLETING FOR SEPTEMBER 2018**



A Vision 2030 Flagship Project



**September 2018: EW PHASE**

**Drought Status: NORMAL**



**Shughuli za kawaida**

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- The County received insignificant off season precipitation during the Month.
- The vegetation condition Index (VCI-3Month) was showing a decrease of 6% compared to previous month.
- The VCI indicated vegetation greenness above normal. The overall drought phase in the county was at Normal in September.
- Forage condition was good across all livelihoods zones during the month.

**Socio Economic Indicators**

**Production indicators**

- All livestock species exhibited well to fair body condition and on improving trend.
- Maize crop is in different stages of growth from flowering and grain filling,
- Milk production increased by 18% compared to previous month of August.

**Access indicators**

- Terms of trade were favorable to goat sellers in pastoral livelihood zone.
- Water access for both human and livestock was good and stable in all the livelihood zones.
- Milk consumption slightly increased and higher than the long term Average.

**Utilization indicators**

- The proportion of children at risk of malnutrition cases decreased slightly 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	Normal	Stable
Mixed farming/Irrigated cropping	Normal	Stable
Fisheries /Mangroves	Normal	Stable
Farming/Casual Labour	Normal	Stable
Agro pastoral	Normal	Stable
County	Normal	Stable
Biophysical Indicators	Value	Normal Range/Value
Rainfall (% of Normal)	< 15	80 -120
VCI-3Month	72.08	<50
Forage condition	Good	Good
Production indicators	Value	Normal
Crop Condition(specify crop)Maize	Good	Good
Livestock Body Condition	Good to fair	Good
Milk Production	2.6	>3 Litres
Livestock Migration Pattern	Normal	Normal
Livestock deaths (from drought)	No death	No death
Access Indicators	Value	Normal
Terms of Trade (ToT)	140	84
Milk Consumption	1.3	>2litres
Return distance to water sources	2.2	<5 Km
Cost of water at source (20 litres)	5-10	<5Kshs
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	5.0%	>5%
Coping Strategy Index (CSI)	8.82	<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

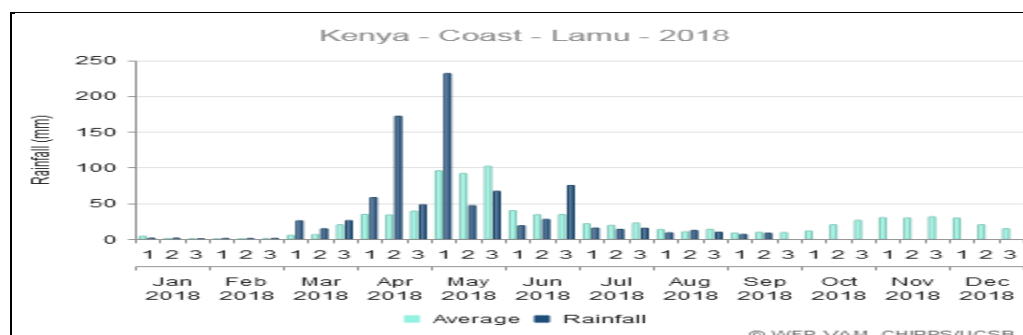
## 1.0 CLIMATIC CONDITIONS

### 1.1 Rainfall performance

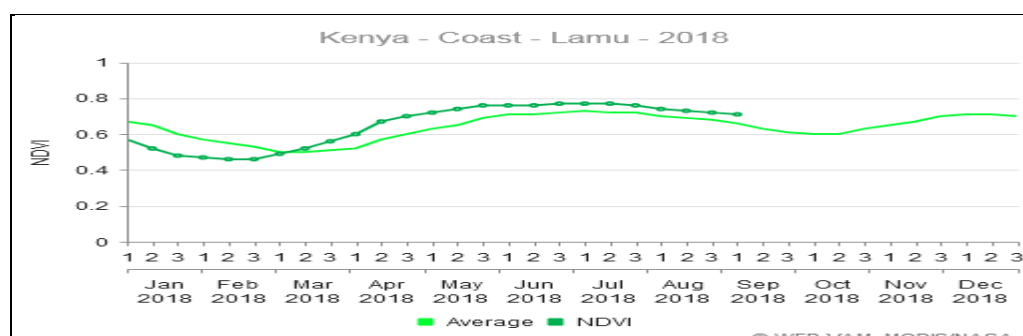
Off-season showers continued being received during the month under review, with less intensity compared to the previous month as recorded in the first to third dekad of September as in figure 1 below. The rains ceased towards the end of September.

The current NDVI values is above the historical NDVI values, thus improving with the precipitation during the off season rainfall.

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



**Figure 2: NDVI data. (Source: wfp-Vam)**



### 1.2 Amount of rainfall and spatial distribution

- According to VAM WFP rainfall data, the County received a total of 14.9 mm of rainfall in the Month of September.
- This was a decrease of 49% compared to previous month and below the normal rainfall as in figure 1 above.
- This 14.9mm of rainfall was the same amount of 14.9 mm received in same period of the previous year.
- The off season showers received was poor both in spatial and temporal distribution in all parts of the livelihood zones of the county.

### 1.3 Flooding or any other hazards

- No floods and hazards report during the month under review.

## 2.0 VEGETATION CONDITION

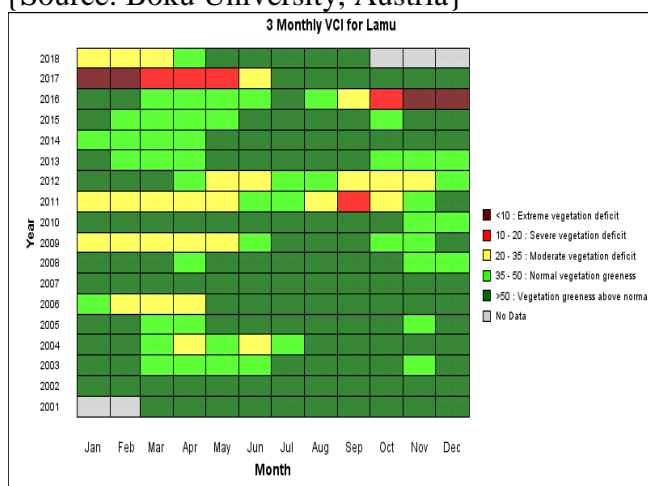
### 2.1 Vegetation Condition Index (VCI)

- The vegetation condition index for the month of September decreased by 6% compared to the previous month. This was due to low precipitation received during the Month.
- The vegetation condition index for the month of September was 72.08 compared to 76.41 in the previous month.
- The VCI indicated vegetation greenness above normal in the County.
- The VCI-3Months is above the long-term average and the previous month as shown in the figures 3, 4 and table1 below.

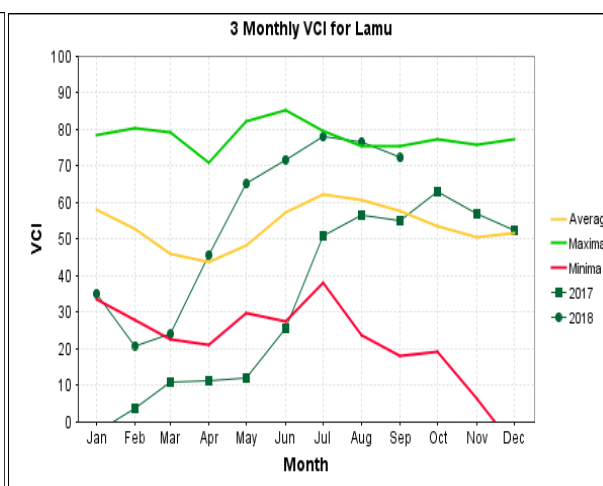
**Table 1:September 2018 VCI (3M)**

ADMINISTRATIVE UNITS		Vegetation greenness	
County	Sub-County	VCI-3Month as at 27 <sup>th</sup> August 2018	VCI-3Month as at 28 <sup>th</sup> September 2018
LAMU	County	76.41	72.08
	Lamu East	73.11	71.39
	Lamu West	78.32	72.48

Figures below show three Months Vegetation Condition Index (VCI) matrixes for Lamu County {Source: Boku University, Austria}



**Figure 3: VCI- Lamu county**

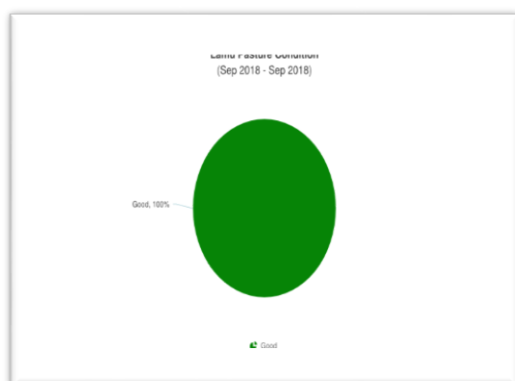


**Figure 4: VCI-Lamu County**

## OBSERVATIONS

### Pasture and Browse Conditions

#### 2.1.2 Pasture



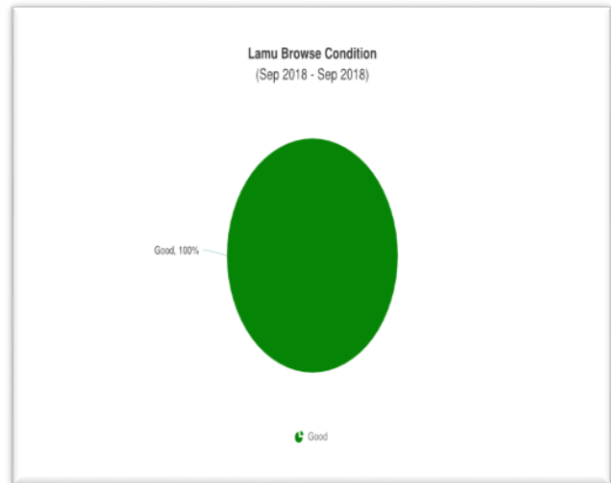
**Figure 5: Pasture condition**

Pasture condition was good across all livelihood zones both in quality and quantity.95 percent of Community members interviewed stated that pasture was very good while 5 percent indicated that pasture was good but with improving trend as in figure 5.Pasture condition by livelihood zones; Agro pastoral is good, mixed farming is good and fishing/ mangrove was good as well. The available pasture is expected to last not more than three months due to the presence of in-migrant livestock from neighbouring counties. The current pasture situation is within the normal range.

### 2.1.3 Browse

**Figure 6: Browse condition**

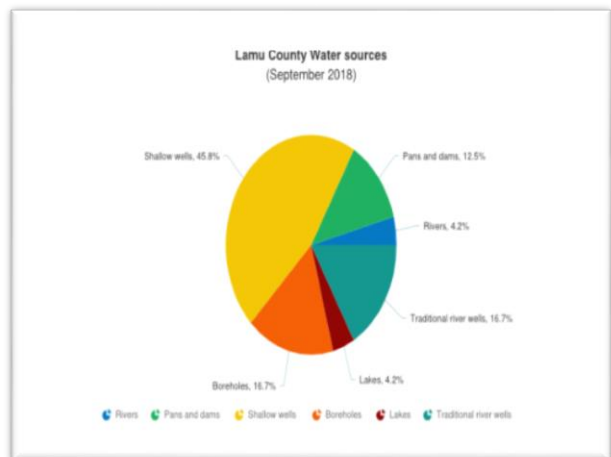
The quantity and quality of browse was good across all livelihood zones in the County. Community members interviewed indicated; 90percent of the respondents stated that browse was very good while 10percent stated it was good but on improving trend due to off seasons rains and low rate of transpiration as in figure 6. Browse condition by livelihood zones; Agro pastoral and fishing mangrove was very good while mixed farming was good. The available browse quantity is above normal compared to normal year. The browse is expected to last for more than four months. The current browse situation is above the normal range.



### 2.2.0 HYDROLOGICAL DROUGHT

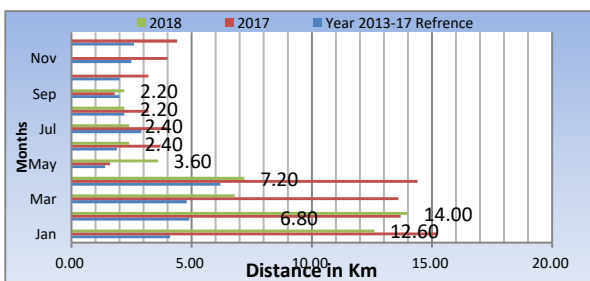
#### 2.2.1 Water Sources and Availability

The state and condition of water sources in the County was good across most livelihood zones except for Bahari ward where the rains performed poorly. However, the current water situation remained the same compared to previous month. The main water sources in the month of September:-Pans and dams-12.5percent, shallow wells-45.8percent, Boreholes 16.7percent, Traditional water wells-16.7percent, Lakes-4.2 and Rivers-4.2percent respectively as in figure 7 below. The status of main sources of water is above normal at this time of the year.



**Figure 7: Main source of water**

#### 2.2.2 Household access and Utilization



Average Household watering return distance was 2.2Km in September, remained stable compared to previous month. This was due to insignificant rainfall amount received which led to stability in water levels. Household return water distances per livelihood zone were as follows: the Agro pastoral - 4.1Km, Fishing & Mangrove Harvesting 1.8Km and for Mixed Farming Zone it was 1.4Km and irrigated farming 1.2Km respectively. The 2013-2017 average household water distances for September was 2.2 Kilometres which was higher than the current average household watering distance for September as in figure 8. The average household water consumption per person per day is at 15-20 litres in all livelihood zones. Water costs at source are 3-5Kshs in town/village centres for 20 litre Jerrican.

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**Figure 8: Household water distances**

### 2.2.3 Livestock access to Water

Livestock average distance to water source from grazing Area decreased to 3.4km compared to the previous month as in figure 9.

Grazing return water distances per livelihood zone were as follows: the Agro pastoral -5.7Km, Fishing & Mangrove Harvesting 2.6Km and for Mixed Farming Zone it was 2.1Km and irrigated farming 2.7Km respectively. The decrease of grazing water distance compared to last month was due to recedes of water level in flooded areas. Watering frequencies for livestock species was same. Most of the livestock species were watered daily due to high recharge levels of the open water sources. The current average grazing distance for September was 3.4Kilometers lower than the long-term average of 3.9 Kilometres.

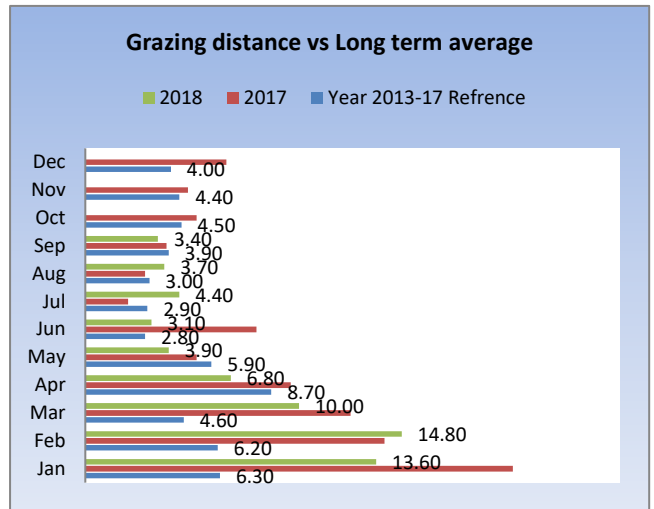


Figure 9: Grazing distance-Km

### 2.2.4 Household Income

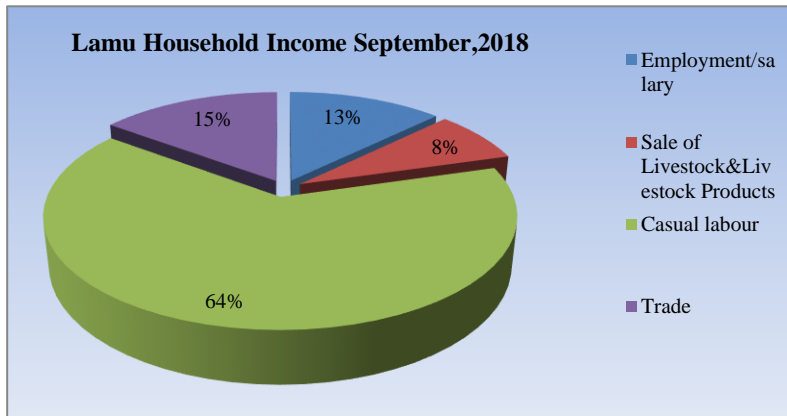


Figure 10: Household sources of income

The main household income for the month of September was as follows: Casual labour 64percent, Employment 13percent, trade 15percent sale of Livestock/Livestock products 8percent respectively as in figure10 below. However, casual labour and employment increased by one percent each compared to the previous month.

## 2.4 Implication to Food Security;

- The off season rainfall recorded during the month of September improved recharging of open water sources leading to reduced distance access to water for both livestock and domestics uses in Agro pastoral and Mixed farming zone.
- Fishing and Mangrove zones livelihood zones which were previously affected by salinity of water can access less salinity due to recharge of the shallow wells in the Islands.
- The distances to water sources have had a positive impact on the body condition of animals and household hygiene standards.

### 3.0 PRODUCTION INDICATORS

#### 3.1.0 Livestock Production

##### 3.1.1 Livestock Migration Patterns

There was in- migration of livestock from Ijara to mixed farming of Bargoni and Basuba area. The livestock belonging to the residents of Lamu that migrated in the month of April to Tana River have migrated back to Agro pastoral areas of Didewaride and Chalaluma of Witu ward.

##### 3.1.2 Livestock Body Condition

The livestock body condition was good to fair for cattle and good goats in both the Mixed farming and Agro Pastoral and fishing/Mangrove livelihood zones. This is attributed to increased quality and quantity of pasture and browse due to ongoing off season rainfall.

In comparison to similar periods during previous years, the body condition of all species was good and this is attributed to improving forage condition in all the livelihood zones. However, due to ongoing precipitation, the body conditions are expected to improve further.

##### 3.1.3 Livestock Diseases

There were no incidences of Livestock diseases reported during the Month.

##### 3.1.4 Milk Production

Milk production slightly increased from 2.2litres in August to 2.6litres in September, 2018. This was lower than the long-term average of 2.5 litres in September as in figure 11. Milk productions were distributed as follows: Mixed farming Produced 1.8litres, Fishing 1.9litres, and Irrigated 1.8litres while the Agro pastoral Zone produced average of 2.5litres. Milk prices are retailing at an average price of Kshs.50-100 per Litre across the livelihood zones which is the normal milk price at these period of the year. The change of the household milk production recorded is due to animals returning back to their homestead.

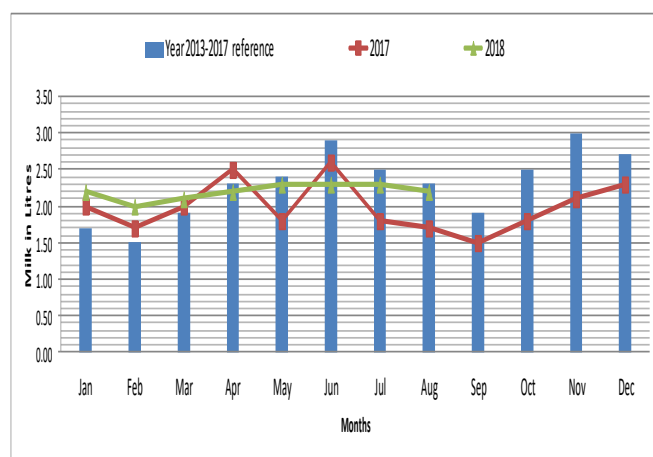


Figure 11: Milk production

### 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. Weeding is the main activity in the farms during the month under review. Farm crops are at flowering, grain filing stages in mixed farming livelihood zones. The general crops situation is fair despite the fall army worm infestations.

#### 3.2.2. Crop Harvest

The harvest of the long rains is below normal due heavy downpour, fall army worms infestation, under growth and poor corn output of the maize plants.

#### 3.2.3 Implications on Food Security;

The good body condition of livestock species especially goats across the livelihood zones increased the prices resulting to improved 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 September decreased by 7percent compared to previous month as in figure 12. This decrease in price could be attributed to low demand and

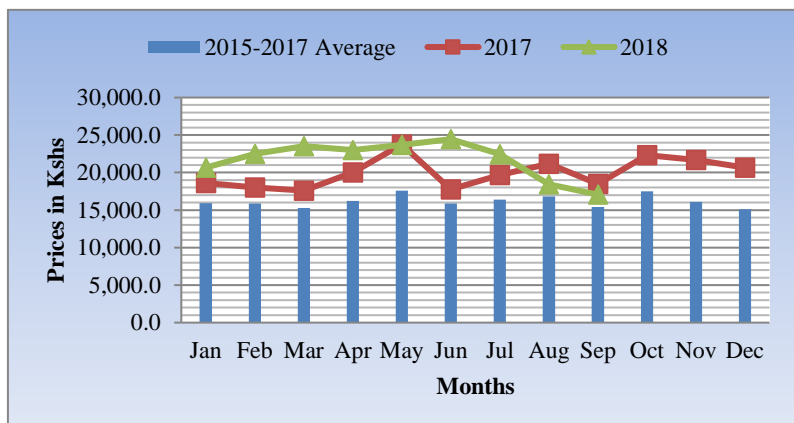


Figure 12: Cattle prices similar period last year.

closure of livestock market in Garsen due Rift Valley fever (RVF). The cattle average market prices were distributed as follows: Faza-Kshs19,000, Witu-Kshs17,167, Kiunga-Kshs16,000, Mswakini 18,000 and Mokowe-Kshs16,000. The average market cattle price for the month of September was, however higher than the long-term average price of Kshs.16, 800 and lower than the

#### 4.1.2 Small Ruminants Prices

#### 4.1.3 Goat Prices

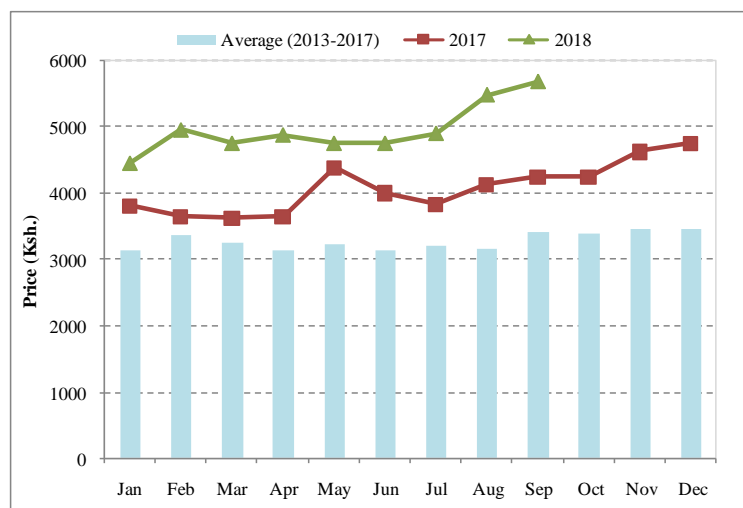
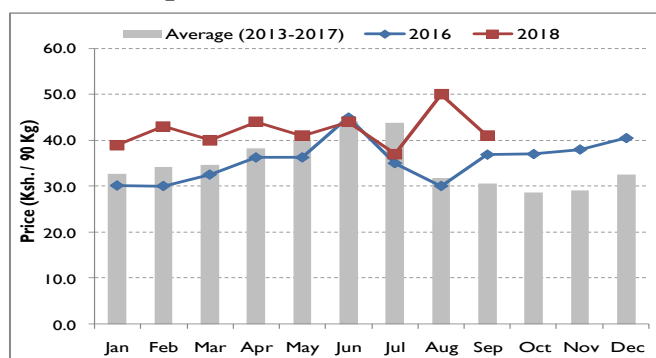


Figure 13: Goat prices

Goat prices increased by 4 percent in September compared to perious month of August.This price was higher than the long term average by 67percent and the price recorded in previous year at a similar time and following seasonal trends as shown in figure13. This increase in price of goats could be attributed to market demand. The goat average market prices were distributed as follows: Mpeketoni Kshs 4,500, Witu Kshs 4,667 Kiunga Kshs 8,000 and Mokowe Kshs 4,500.

### 4.2 Crop prices

#### 4.2.1 Maize price



In September Maize prices decreased from kshs 50 to 41 (18%), this was higher than the long term average of kshs 30. The decrease was due to some harvest as shown in figure 14. The prices were distributed as follows: Hindi centre Kshs 30, Patte Kshs 25, Witu Kshs 33, Mpeketoni Kshs 20 and Kiunga Kshs 50 respectively. However, price ranges is determined by commodity supply in different markets.

Figure 14: Maize prices

### 4.2.2 Beans

Average price of Kg of beans was Kshs 102 in September, a decrease compared to the previous month as in the figure 15 below. The decreased price was attributed to high production. The beans price was distributed as follows:

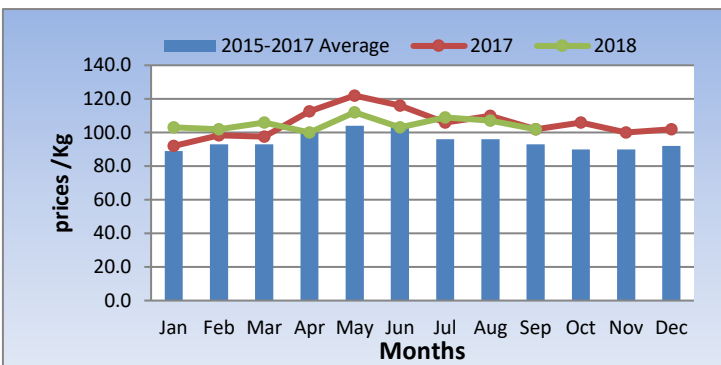


Figure 15: Beans prices

Mswakini /Hindi centre Kshs 140, Patte Kshs100 and Witu Kshs 95, Mpeketoni Kshs 80 and Kiunga Kshs 120. However, price ranges is determined by commodity supply in the different markets. The long-term average price of beans was Kshs 110 which is higher compared to the current beans price for the month of September.

### 4.3 Livestock Price ratio/Terms of Trade

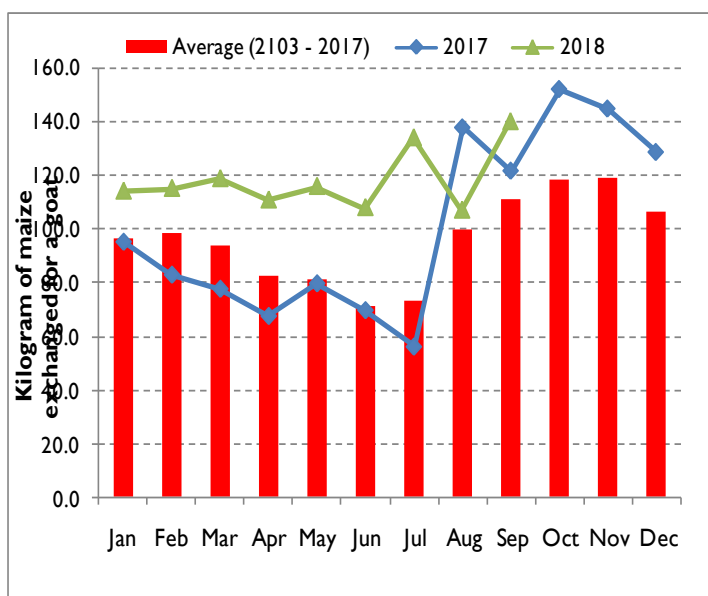


Figure 16: Terms of Trade

The terms of trade (TOT) decreased by 30percent compared to previous month of August as in figure 16 alongside. This was lower than the long term average by 26percent. Sale of a medium goat in August would cost a household about 108kg of maize. This showed the exchange ratio decreased in favour of crop farmers to goat sellers. However, this was determined by supply in the different markets. The ToT was 180Kg in Lamu West and 128Kg in Lamu East. The ToT for September was lower than the long term average of 111.2Kg.

### 4.4 Implication on food security;

- The good body condition of livestock have increased livestock prices especially for goats therefore livestock farmers are able to get better value for their livestock contributing to food security in Mixed and Agro pastoral zones.
- Maize prices decreased due to poor long rains harvest coupled with low supply in the markets.
- Farmers are able to sell livestock (especially goat) at good prices, hence improves food security at household level.
- The Terms of Trade was favorable to pastoral compared to crop farmers.



## 5.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk for Household Consumption

Milk Consumption was 1.3litres in the month of September, which was an increase compared to 1.0 litre during the previous month as in figure 17. Increased in milk consumption level is as a result of high production of the commodity. September long term average milk consumption was lower than the current average of milk consumption.

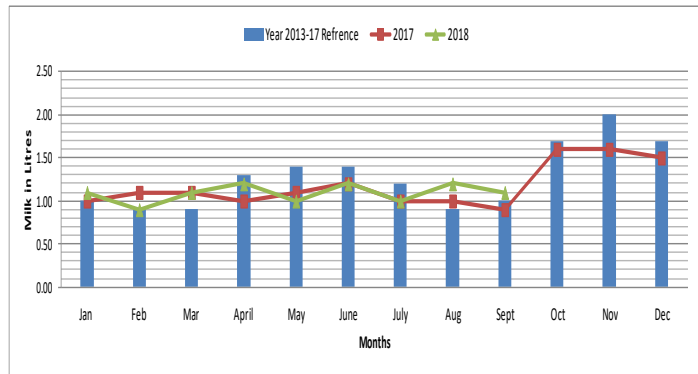


Figure 17: Milk consumption

### 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 decreased to 5.0 percent compared to previous month of August.

This decrease was attributed to decreased milk production and consumption at household level. The rates of Malnutrition cases reduced in Agro pastoral and Mixed farming Zones of Witu, Hindi wards. This figure of 5.0 percent MUAC for September was higher by 14percent compared to long term average of 4.4 percent as in figure 18.

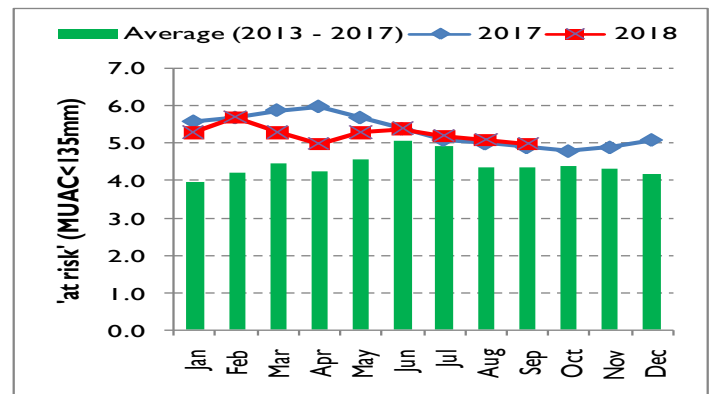


Figure 18: MUAC

#### 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

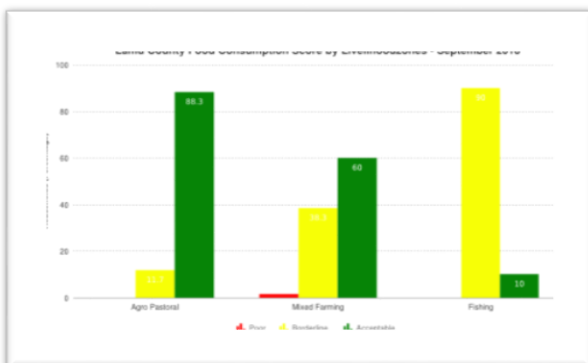


Figure 19: Food consumption score

Acceptable food consumption was noted in Agro pastoral and Mixed farming zone with 88.3 and 60 percent of households respectively, owing to availability of food in the markets; however households have low purchasing power.

Households' percentage with poor and borderline food consumption increased from zero to 1.7percent at mixed farming and 90percent in fishing /Mangrove livelihood zones respectively.

### 5.4 Coping strategy index

The mean coping strategy Index in the Month of September increased by 5percent (9.25) compared previous month (8.82) in August, indicating increased coping strategies at household level. Agro pastoral Zone had CSI of 7; Mixed Farming livelihood zone had 6.3 while Fishing Livelihood zone had the highest copying strategy index of 17.7 as figure 20 below. Common coping strategies employed by food insecure households in the month of September were; Reduction in the number of meals, Purchase on credit/remittances from relatives, Borrow food from friends or relatives, and Opting for less preferred or less expensive food.

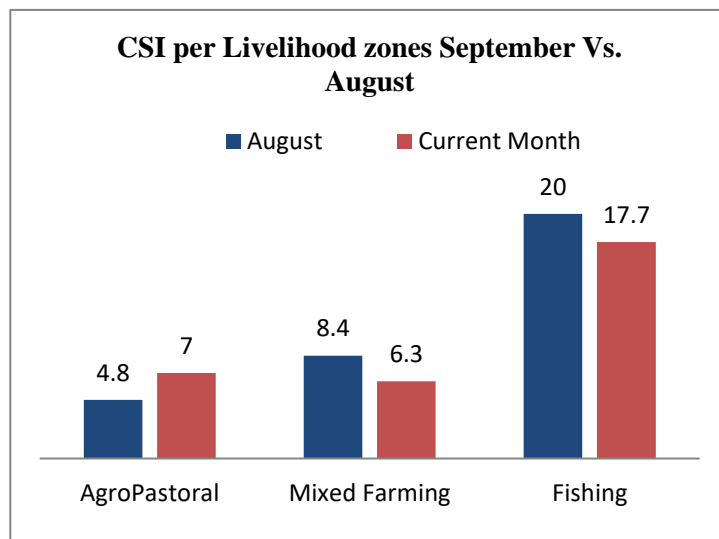


Figure 20: Coping strategy index

### 5.5 Implication on Food Security

- High milk consumption at household levels across all the Livelihood zones could lead to decreased dietary diversification and thereafter a positive impact on food insecurity.

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

### **6.1 Food and Non-food interventions**

### **6.2 Drought Response Interventions**

- Cash transfer by the Social protection department to 3000 households for older persons, Orphans and people with severe 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**

- 10 Al-Shabab militant were killed and 4 KDF injured during this month.

### **7.2 Migration**

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

### **7.3 Food security prognosis**

- The short rains performance is expected to be normal to above normal. Sources (KMD/FEWSNET)
- Markets will continue to operate normally despite poor infrastructure and insecurity.
- The improving livestock body condition expected to improve the purchasing power of farmers to access commodities in the markets hence improve food insecurity at household level.
- Cereal prices are expected to decrease while that of goat projected to increase, thus terms of trade expected to improve for livestock farmers.
- Nutrition status will improve in the coming months due improved milk production and consumption.
- Forage conditions projected continue improving and hence stabilize livestock body conditions, production and prices in coming months. Main Food commodities prices are expected to decrease.
- The September 3-Month Vegetation Condition Index indicating above normal greenness for the entire County and hence expected to decline further.
- Most of the open water sources are fully recharged, thus both household and livestock trekking distances will remain stable.

## **8.0 RECOMMENDATIONS BY SECTORS;**

### **8.1 Water**

- Water hygiene and sanitation standards must be observed in order to minimize chances of outbreak of water borne diseases.
- Constructions/rehabilitation of water pans/dam for preparedness.
- Conducting of hydro geological survey and drilling of boreholes.
- Promotion of rain water harvesting, repair of Djabias, roof catchment areas, installation of gutters and tanks in Villages and Institutions.

### **8.2 Livestock**

- Accelerate completion of Nagele Livestock market for Linkage to other Livestock markets.
- 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 so as to maximize production over the long rains season.
- 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.

### **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 coming short rains period.

### **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.

### **8.5 Education**

- Support to schools feeding programmes for the most vulnerable communities focusing on the most vulnerable areas in the county to minimize drop outs.
- Provide Food for fees for students hailing from Vulnerable and poor families.
- Provision of boarding facilities to vulnerable communities within the County.

### **8.6 Peace and Security Sector**

- Peace and security meetings should be enhanced in the County
- Inter Counties peace and security to be enhanced in order to avert future conflicts.

### **8.7 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.