

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



A Vision 2030 Flagship Project



**SEPTEMBER 2017 EW PHASE**

**Drought Status: NORMAL**



**Shughuli za kawaida**

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- Off seasonal rainfall was received during the month.
- The vegetation condition Index (VCI-3Month) was 55.01 in the month of September showing a decrease from 56.27 in August.
- The VCI indicated vegetation condition greenness that was above normal. The overall drought phase in the county was at normal in September.

**Socio Economic Indicators**

**Production indicators**

- The body condition for both cattle and goats was good to fair because of improved pasture and browse.
- Milk production increased from 2.2litres in August to 2.8litres in September.

**Access indicators**

- The average Term of Trade decreased for the month of September to 121 compared to 138 in August.
- Average return household watering distance decreased from 3.2km in August to 2.2 Km in September due to off seasonal rainfall received.
- Milk consumption in September was at 0.9 litre lower than the long term Average of 17.55 litres.

**Utilization indicators**

- The proportion of children at risk of malnutrition decreased from 5.0 percent in August to 4.9 percent in September which was slightly lower than the long-term mean of 5.0 percent.
- The average coping strategy Index was 6.72 in September, an increase from 5.53 in August.

**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)           | 17.5mm       | 80-120               |
| VCI                           | 55.01        | 35 to 50             |
| Water Distance                | 2.2km        | < 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               | 2.8 Lts      | >12.75Lts            |
| <b>Access Indicators</b>      | <b>Value</b> | <b>Normal ranges</b> |
| Terms of Trade (ToT)          | 121          | 89.22                |
| Milk Consumption              | 0.9 Lts      | >15.87Lts            |
| <b>Utilization indicators</b> | <b>Value</b> | <b>Normal ranges</b> |
| Coping strategy index-CSI     | 6.72         | <14.5                |
| MUAC                          | 4.9%         | <5.0%                |

**Seasonal calendar**

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

## 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 17.5mm in the Month of September.
- This was higher than the amount of 13.7mm received same period last year.
- However, the current amount of rainfall received was lower than Long term average of 18mm.

#### Rainfall and NDVI satellite data: Rainfall performance for Lamu-September 2017 Vs the long term

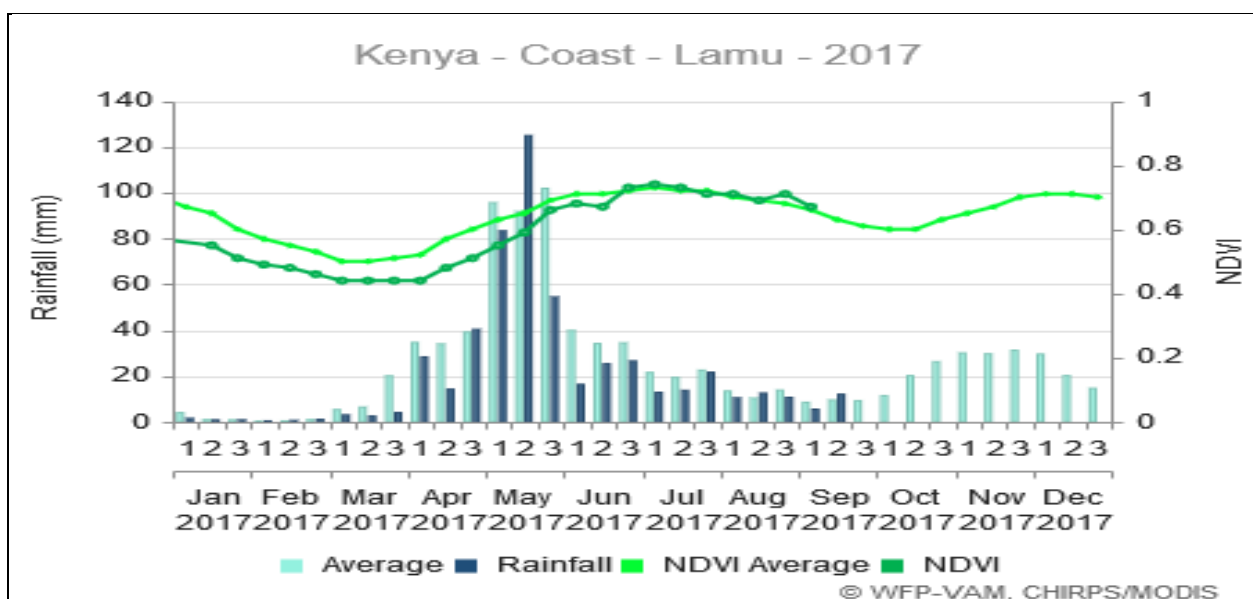


Figure1: Rainfall Performance for Lamu in September 2017. (Source: WFP-VAM)

#### 1.1.2 SPATIAL DISTRIBUTION

- Off-season rainfall received in the month of September in County continue to improve the recovery from negative impacts of recent drought.
- The below normal rainfall was received across some 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 September was 55.01 for the County which is normal compared to the previous September of the same period last year.
- The VCI indicated vegetation greenness as above normal both in Lamu East and West Sub-Counties as shown by the VCI table below.

**September 2017 VCI (3M) Table**

| ADMINISTRATIVE UNITS |            | VCI as at 28 <sup>th</sup> August 2017 | VCI as at 26 <sup>th</sup> September 2017 |
|----------------------|------------|--|---|
| County               | Sub County |  |   |
| LAMU                 | County     | 56.27                                  | 55.01                                     |
|                      | Lamu East  | 55.35                                  | 57.81                                     |
|                      | Lamu West  | 56.81                                  | 53.38                                     |

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

Figure 2: VCI for Lamu

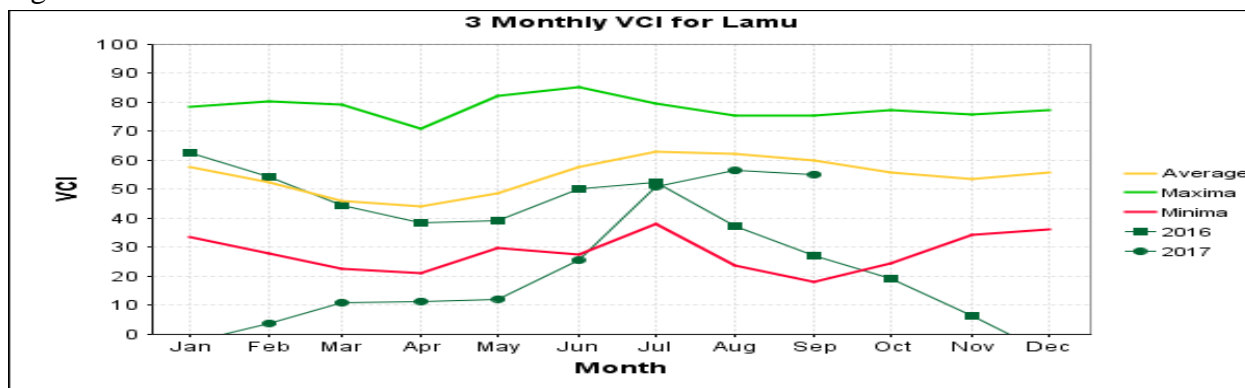
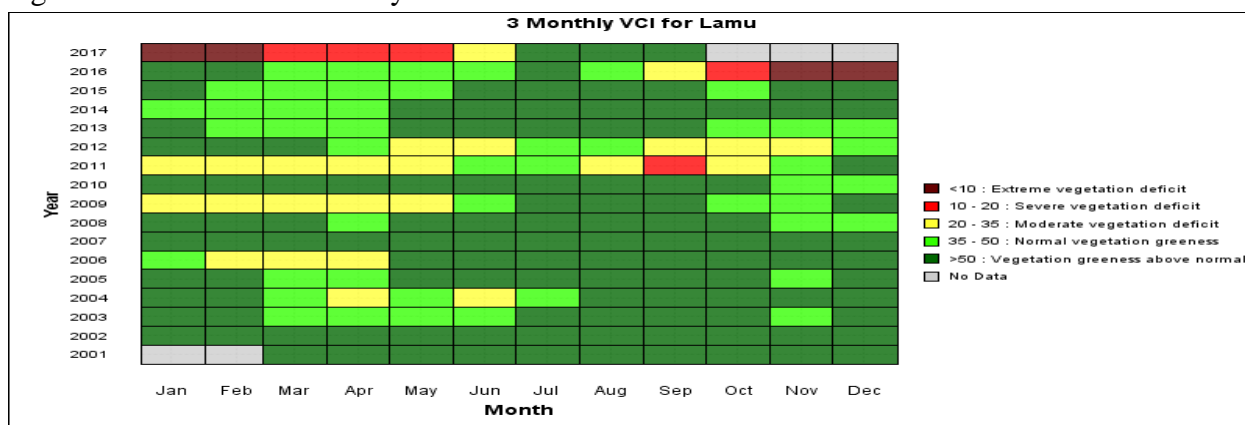


Figure 3: VCI for Lamu County



## OBSERVATIONS

### Pasture and Browse Conditions

#### 2.1.2 Pasture

- Pasture condition was good across all livelihood zones and improved in both quality and quantity.
- The available pasture is expected to last for about two months due to the presence of migrant livestock from neighboring counties.

### 2.1.3 Browse

- The quantity and quality of browse was good across all livelihood zones for the month of September. The available browse quantity is normal compared of atypical 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

- The state and condition of water sources in the County was good across most livelihood zones.
- The main water sources in the month of September were: Rivers -21.4 percent, Shallow wells -35.7 percent, Pans and dams -14.3percent, Boreholes -7.1percent, Lakes -7.1percent and piped water system at 14.3percent.

#### Sources of water for Lamu County, September 2017.

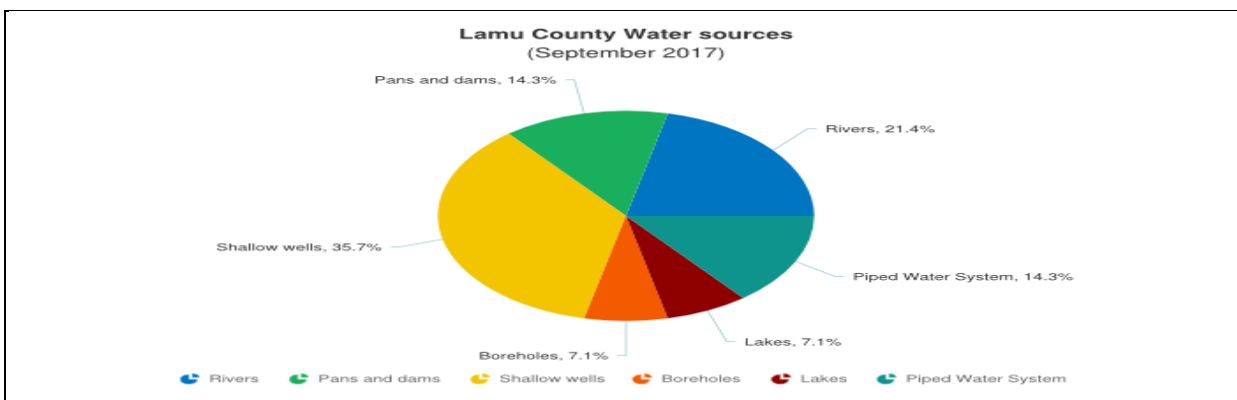


Figure 4: Main sources of water

#### 2.2.2 Availability of water for household consumption

- Average Household watering return distance was 2.2Km in September from 3.2Km in August. 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 - 7.5Km, Fishing & Mangrove Harvesting 2.8Km and for Mixed Farming Zone it was 14.2 Km and irrigated farming 3.5Km respectively.
- The 2012-2016 average household water distances for September was 2.3 Kilometers which was higher than the current average household watering distance for September. This shows that the current average household water distance for September was lower the long term average.

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

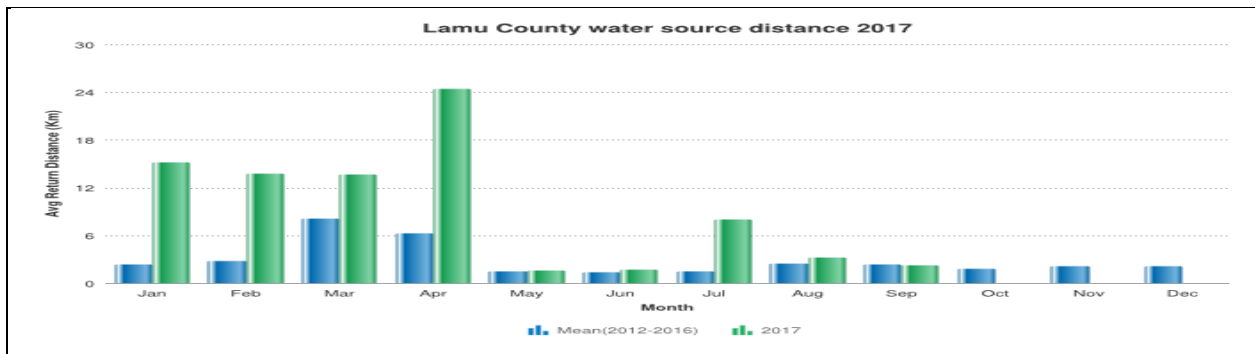


Figure 5: House hold water distance

n=150

### 2.2.3 Livestock access to Water

- Livestock average distance to water source from grazing Area was 3.0 kilometres in the month of September from 2.8 kilometers in the month of August. The slight increase from last month’s distance was due to low rainfall which led to low recharges to major water sources.
- The current average grazing water distance for September of 3 Kilometers was lower than the year 2012-2016 long-term average of 4.3 Kilometers.

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

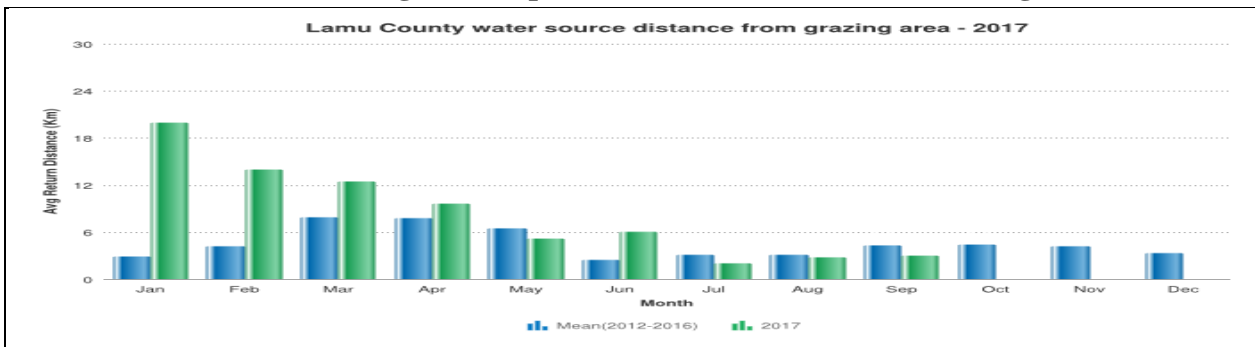


Figure 6: Grazing Distance-Km

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### 2.3 Household Income

The main household income for the month of September was as follows: Employment 18 percent, sale of Livestock/Livestock products 9 percent, Casual labour 54 percent and trade 11 percent and others 3percent respectively.

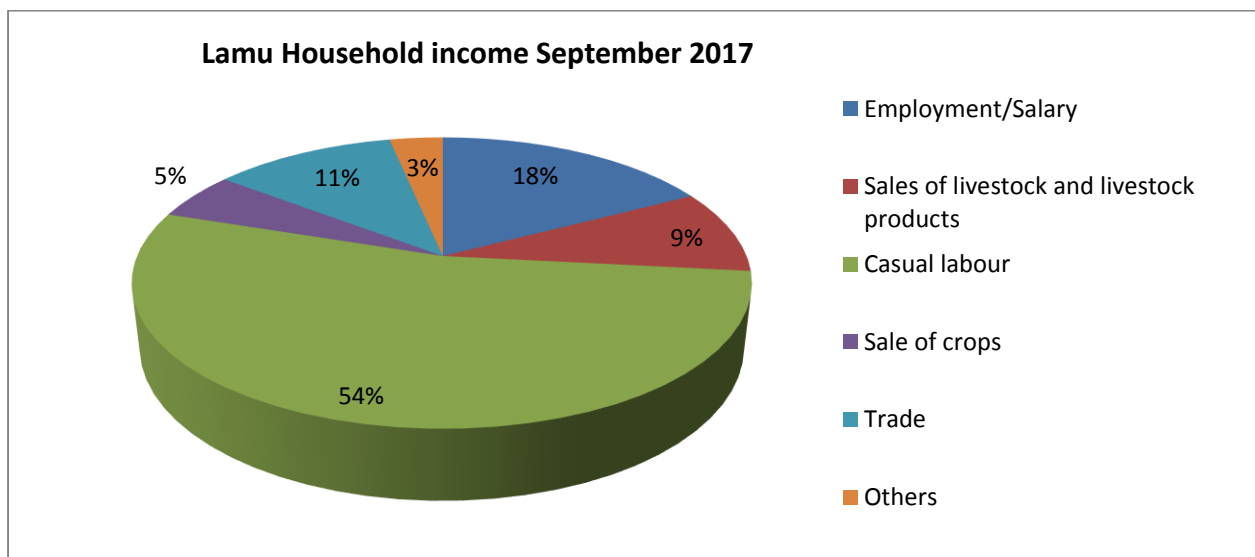


Figure 7: Household source of income

## 2.4 Implication on Food Security

- The prevailing off seasonal rainfall has led to recharging of major water sources leading to improvement of pasture, browse and access to water for livestock.
- The short distances to water sources have had a positive impact on the body condition of animals and household hygiene standards.
- Recharged water sources like boreholes, Rivers and Lakes in the Pastoral, 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

### 3.1.0 Livestock Production

#### 3.1.1 Livestock Migration Patterns

- There huge migrants herds of Livestock from neighboring Counties of Tana River and Garissa are still present, since drought conditions still prevail in their Home Counties 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 stable due to pasture and browse availabilities.

#### 3.1.3 Livestock Diseases

- There were no incidences of Livestock diseases reported during the month of September.

#### 3.1.4 Milk Production

- Milk production increased from 2.2 litres in August to 2.8 litres in September. This was much lower than the long-term average of 16.03 litres in September.
- Milk production were distributed as follows: Mixed farming Produced 13.7litres, Fishing 2.3litres, Irrigated 16.1litres while the Agro pastoral Zone produced average of 2.2litres.

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

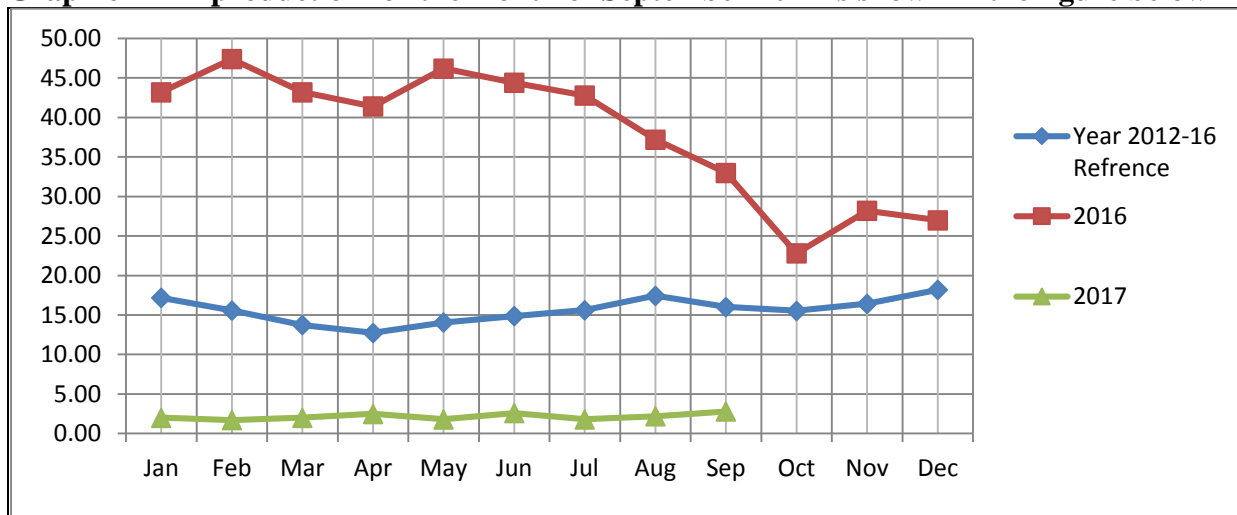


Figure 8: Milk production

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.
- Most farmers are preparing their farms for short rains planting.

#### 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 September was Kshs 18,500 from Kshs 21,167 Kshs in August. This was decrease from that of the previous month of August.
- This decrease in price could be attributed to low demand with few buyers in the markets.
- The cattle average market prices were distributed as follows: Faza 35.000 Kshs, Witu 11,000 Kshs, Kiunga 22,000 and Mokowe 22,000 Kshs respectively.
- The average market cattle price for the month of September was, however higher than the 2012-2016 long-term average price of Ksh.12,440.

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

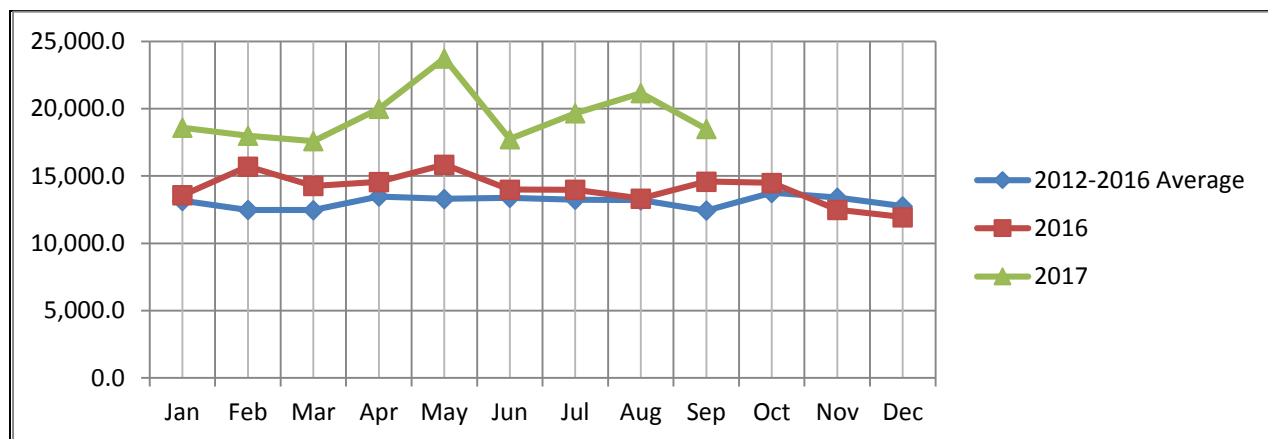


Figure 9: Cattle prices

### 4.1.2 Small Ruminants Prices

#### 4.1.3 Goat Prices

- Goat prices for medium size increased from Kshs 4,125 in August to Kshs 4,250 in September. This increase in price of goats could be attributed to improve Body condition and high market demand.
- The goat average market prices were distributed as follows: Mpeketoni Kshs 3,000, Witu Kshs 4000, Kiunga Kshs 5,000 and Mokowe Kshs 5000 respectively.
- The long-term average goat price for the month of September was Kshs. 2,820 which was lower than the current average price for the month of August.

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

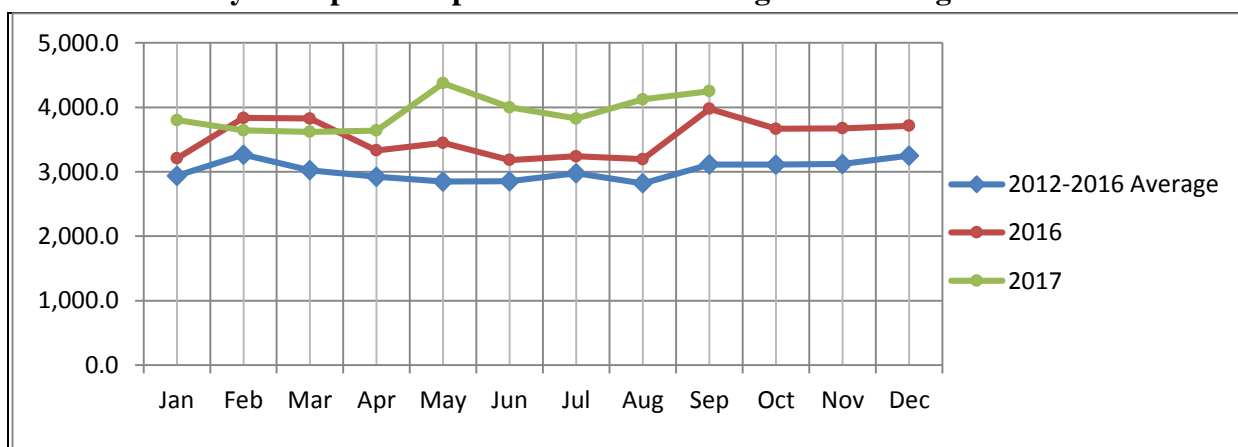


Figure 10: Goats prices

n=150

## 4.2 CROP PRICES

### 4.2.1 Maize price

- Average price of a Kg of maize in the Month of September was Kshs 35.0/Kg an increase from Kshs.30/Kg in August. The increased average maize price was attributed to high demand and low supply for the product leading to high prices.
- The prices were distributed as follows: Mswakini centre Kshs 20, Patte Kshs 30, Witu Kshs 35, Mpeketoni and Kiunga Kshs 40 respectively
- The average price of maize in September was higher than the long term-average price of Kshs 30.



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

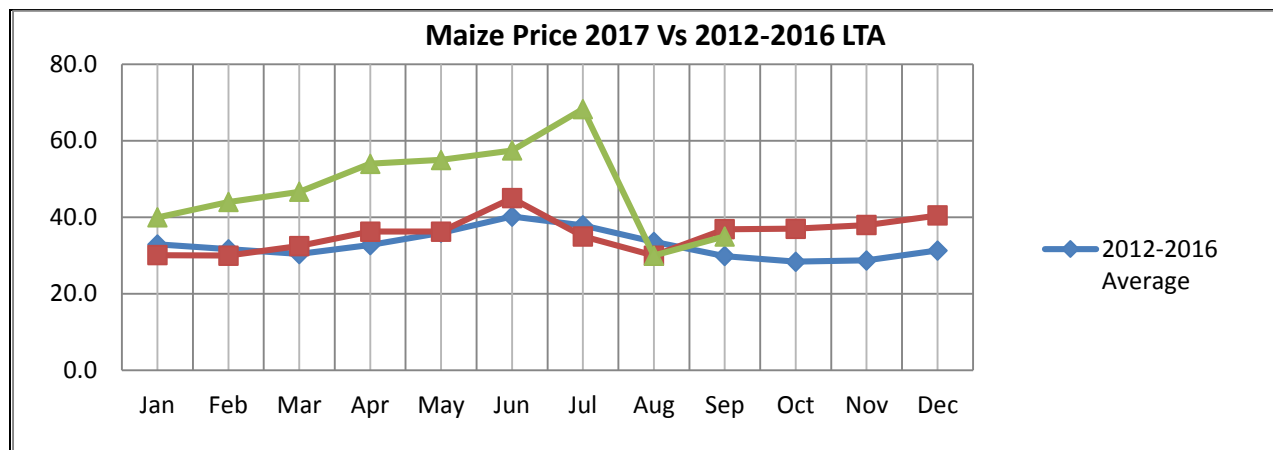


Figure 11: Maize prices

#### 4.2.2 Beans

- Average price of Kg of beans decreased from Kshs. 110 in August to Kshs.102 in September. This decrease in price was due to harvest of green grams by farm crops, hence lowering the price of beans.
- The beans price was distributed as follows: Mswakini centre, Patte and Witu Kshs 100, Mpeketoni Kshs 90 and Kiunga 120 Kshs respectively
- The long-term average price of beans was Kshs. 89 which was lower than the current average beans price for the month of September.

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

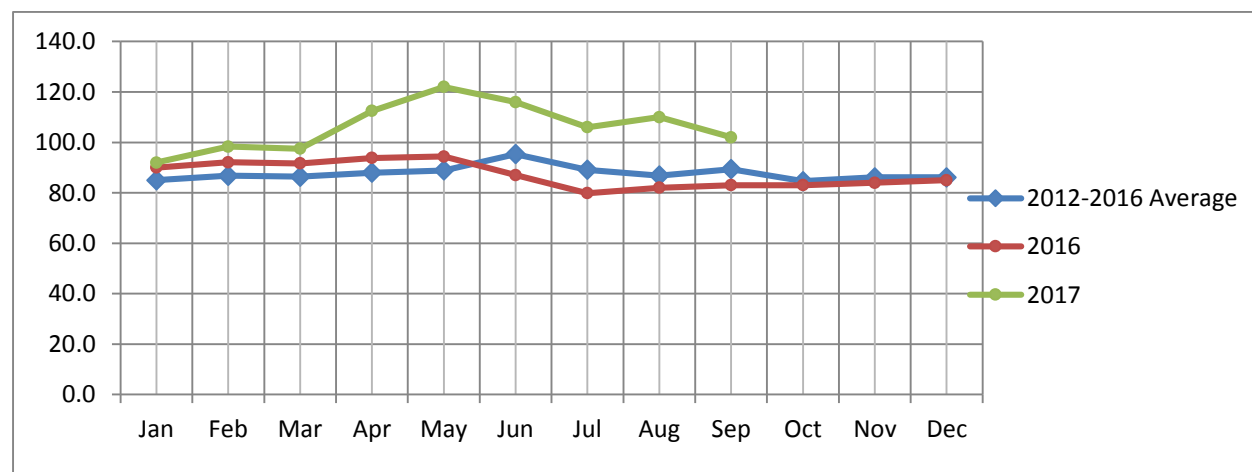


Figure 12: Beans prices

#### Livestock Price ratio/Terms of Trade

- The average Term of Trade (ToT) for the month of September was 121kg decrease from 138kg in the month of August. Sale of a goat in September would afford a household about 121 kg of maize. This showed the exchange ratio increased in favour of goat sellers to crop farmers.
- The ToT was 126 in Lamu West and 125 in Lamu East. The ToT for September was higher than the 2012-2016 LTA of 89.

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

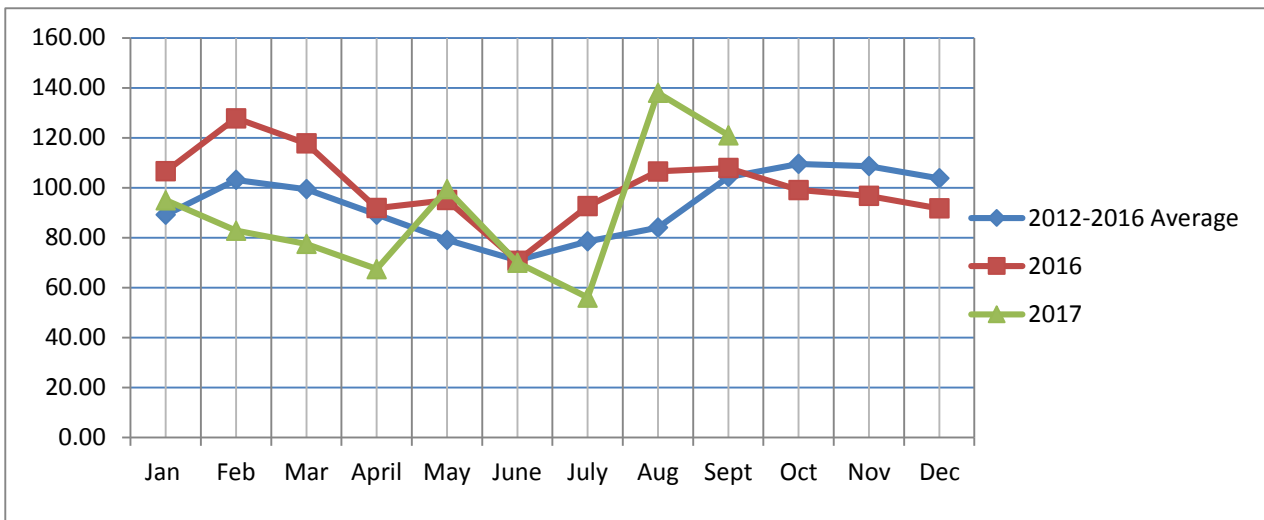


Figure13: Terms of Trade

#### 4.4 IMPLICATION ON FOOD SECURITY

- The improving body condition of livestock have improved livestock prices especially for 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 but increasing, with the sudden maize price increase in September. This means that access to cereals is still 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 low in maize price.

#### 5.0 FOOD CONSUMPTION AND NUTRITION STATUS

##### 5.1 Milk for Household Consumption

- Milk Consumption was 0.9 litre in the month of September which was slightly lower than the previous month. This decrease was due to low milk production in the County.
- September long term average milk consumption of 17.55 litres was much higher than the current average of milk consumption.

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

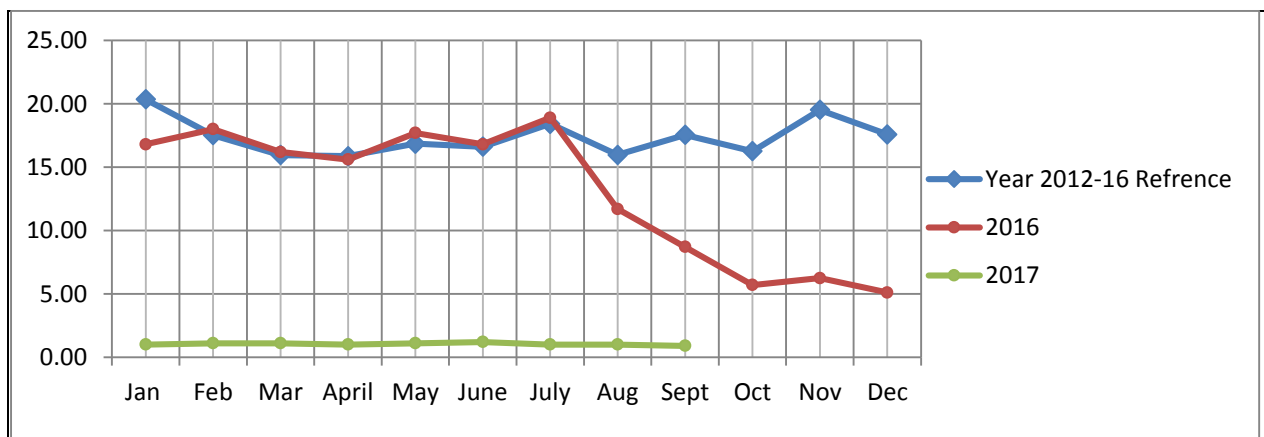


Figure 14: Milk Consumption

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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 5.0 percent in August to 4.9 percent in September. 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 4.9 percent MUAC for September decreased compared to the year 2012-2016 long term average of 5.0 percent.

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

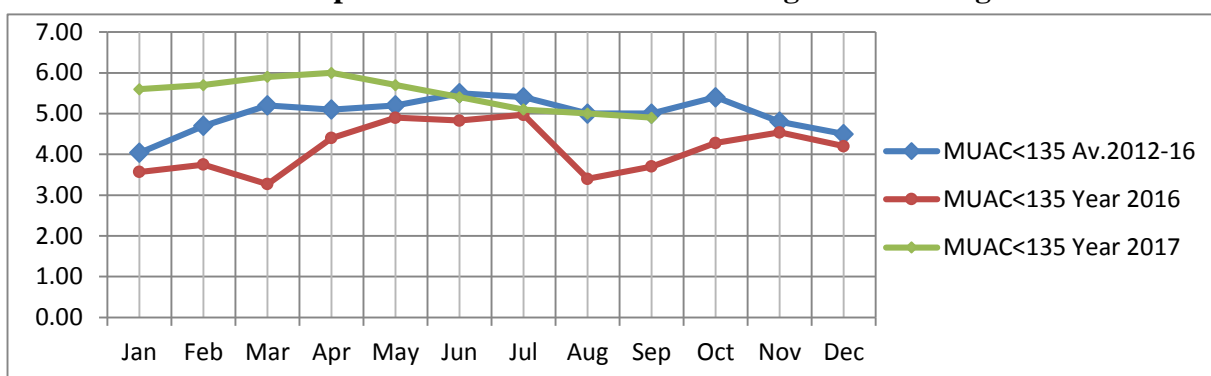


Figure 15: MUAC

n=150

### 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 cases are improving 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 27 and 17 percent and 18 and 27 percent borderline for Month of September but shows improvement for the Month of September for fishing livelihood.
- Households' percentage with poor FCS decreased significantly from 81.7 in September at Agro pastoral Zone to 27 in September.

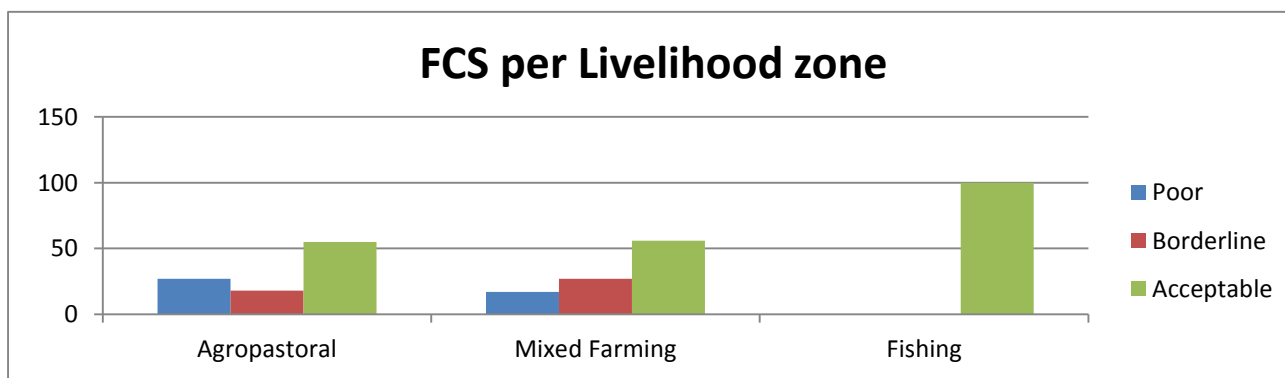


Figure 16: Food Consumption Score (FCS)

## 5.4 COPING STRATEGY INDEX

- The mean coping strategy Index in the Month of September increased to 6.72 from 5.53 in August, indicating increased coping strategies at household level.
- Agro pastoral Zone had CSI of 8.3; Mixed Farming livelihood zone had 5 while Fishing Livelihood zone had a copying strategy index of 7.
- Common coping strategies employed by food insecure households in the month of September 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 September 2017

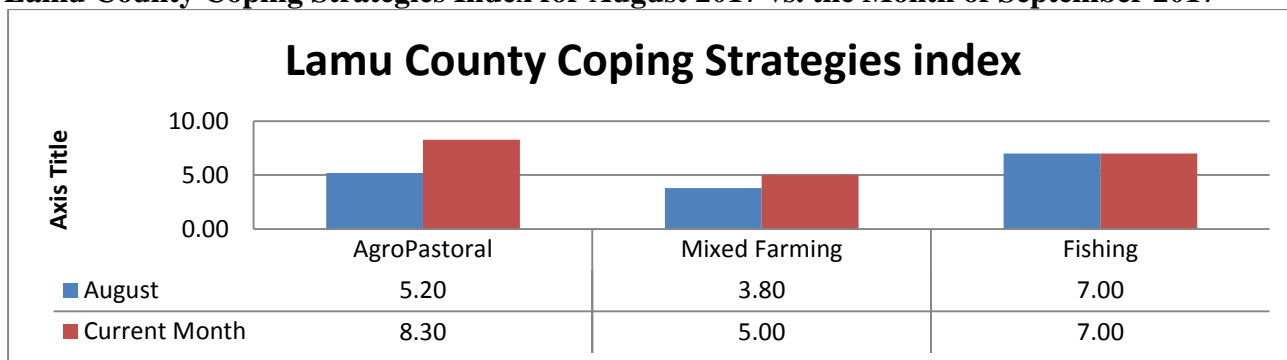


Figure 17: Coping strategies Index

## 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 decrease in the percentage of children under five, who are both at risk of malnutrition, have been improving from August to September in areas of Agro pastoral Zones of Witu such as Sedemke, Bargoni, Pandanguo and Chalaluma areas resulted of increased interventions such as cash transfers programs and provision of CBS by Red cross.

## 6.0 CURRENT INTERVENTION MEASURES (ACTION)

### 6.1 NON-FOOD INTERVENTIONS

#### 6.2 Drought Response Interventions

- Cash transfer by the Social Development department to 1600 households and 120 households for older persons and people with severe disabilities respectively.

## 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 in area of Bobo Hindi ward.

## **7.2 Migration**

- No Livestock migration is currently taking place during the Month of September.
- 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 at 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.
- 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 September 3-Month Vegetation Condition Index indicating greenness above normal for the entire County.
- Food prices expected to increase due to low long rains 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.
- Constructions of boreholes, water pans and dams for preparedness.

### **Livestock and Agriculture**

- Accelerate completion of Nagele Livestock market 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.
- Provision of relief seeds, fertilizers and subsidized tractor services for crop farmers.

### **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.
- Provision of boarding facilities to vulnerable communities within the County.

### **Peace and Security Sector**

- Peace and security meetings should be enhanced in the County and her neighboring counties of Tana River and Garissa to avoid Livestock and Crop farmers conflict.

### 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, Meteorological 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        | Agricultural Drought Category |
|-------|-------------------|-------------------------------|
|       | 3-monthly average |                               |
|       | $\geq 50$         | 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.