

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



A Vision 2030 Flagship Project



**AUGUST 2017 EW Phase**



**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- The month of August was characterized by poor rainfall performance coupled with intervals of sunny and dry weather conditions.
- The Vegetation Condition Index (VCI) was 28.44 indicating a moderate deficit vegetation condition compared to the long term average.
- The water recharge levels and availability were below normal.

**Socio Economic Indicators (Impact Indicators)**

**Production Indicators**

- The condition of pasture and browse was poor and deteriorating characterized by poor regeneration attributed to the late onset of the long rains its intermittent distribution.
- Livestock body condition for cattle was poor to fair while that of small stock was fair across all the livelihood zones.
- Farming activities reported in the month of August were harvesting of pigeon peas and land preparation for the short rains planting.

**Access Indicators**

- Livestock prices indicated a fair but stable trend in all livelihoods.
- Food commodity prices remained dropped in most livelihood zones due to the ongoing harvesting and supplies from other Counties.
- Milk production and consumption per household was 0.80 litres and 0.74 litres respectively compared to an average production of 1.26litres and an average consumption of 1litre.

**Utilization Indicators**

- Percentage of children at risk of malnourishment whose MUAC was below 135mm was 9.6 percent for the period under review which was higher than the long-term average of 7.6 percent.

**Early Warning Phase Classification**

| Livelihood Zone                           | EW PHASE              | TRENDS                    |
|---|-----------------------|---------------------------|
| Mixed Farming                             | Alert                 | Deteriorating             |
| Marginal Mixed Farming                    | Alert                 | Deteriorating             |
| Rainfed cropping                          | Alert                 | Deteriorating             |
| County                                    | Alert                 | Deteriorating             |
| <b>Biophysical Indicators</b>             | <b>Value</b>          | <b>Normal Range/Value</b> |
| VCI-3month (Tharaka)                      | 28.44                 | >35                       |
| Water Sources                             | Fair                  | Declining                 |
| <b>Production Indicators</b>              | <b>Value</b>          | <b>Normal</b>             |
| Livestock Migration Pattern               | Towards the park      | No Migration              |
| Livestock Body Conditions                 | Fair to Poor          | Fair                      |
| Milk Production                           | 0.80Litres            | >1.26 Litres              |
| Livestock deaths (from drought)           | Deaths Reported       | No death                  |
| <b>Access Indicators</b>                  | <b>Value</b>          | <b>Normal</b>             |
| Terms of Trade                            | 52                    | <78                       |
| Milk Consumption                          | 0.74 Litres           | >1Litre                   |
| Water for Households                      | Fair                  | Good                      |
| <b>Utilization indicators</b>             | <b>Value</b>          | <b>Range/Value</b>        |
| MUAC                                      | 10                    | <7.3                      |
| Coping Strategy Index (CSI)               | 15                    | <52                       |
| Food Consumption (Marginal Mixed Farming) | 20 Percent Acceptable | >80 Percent Acceptable    |

**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>▪ Kidding (Sept)</li> <li>▪ Increased HH Food Stocks</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 |

# BIO-PHYSICAL INDICATORS

## 1.0 MEASURING DROUGHT HAZARD

### 1.1 METEOROLOGICAL DROUGHT

#### 1.1.1 Actual Rainfall

- Rainfall across the county over the month of August was in falls of between 0mm across all livelihood zones.
- With reference to the long-term average, rainfall performance was below normal in comparison to a long term average in the month of August.

#### 1.1.2 Spatial Distribution

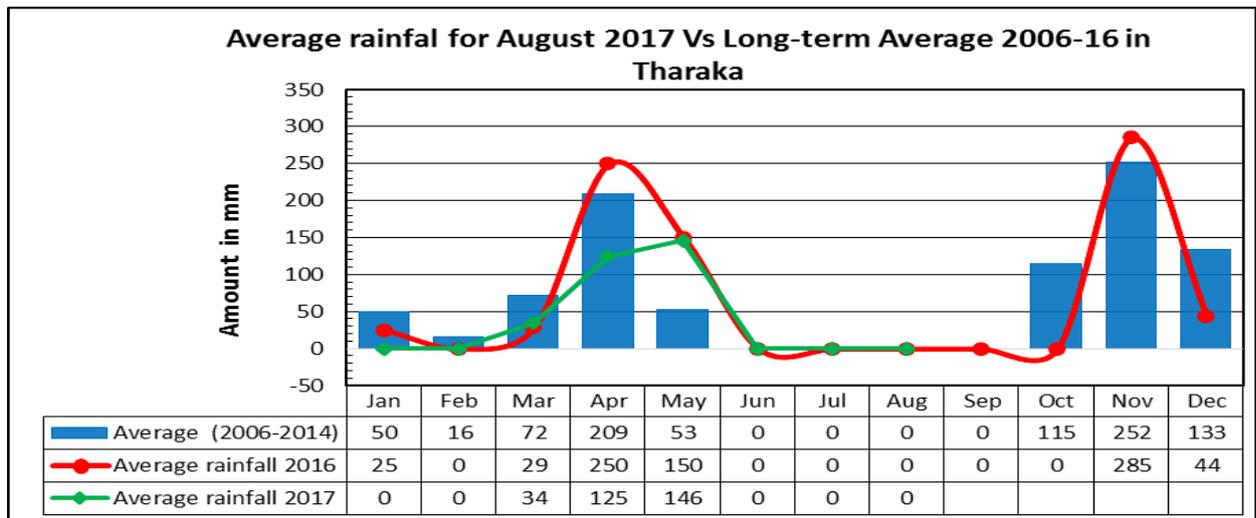
- The spatial distribution of rainfall across the County was poor and uneven as no rainfall was recorded in the county in all the 4 recording stations across all the livelihood zones.

#### 1.1.3 Temporal Distribution

- There was no rainfall recorded in the county for the month of August across all the livelihood zones.

#### 1.1.4 Rainfall Station data

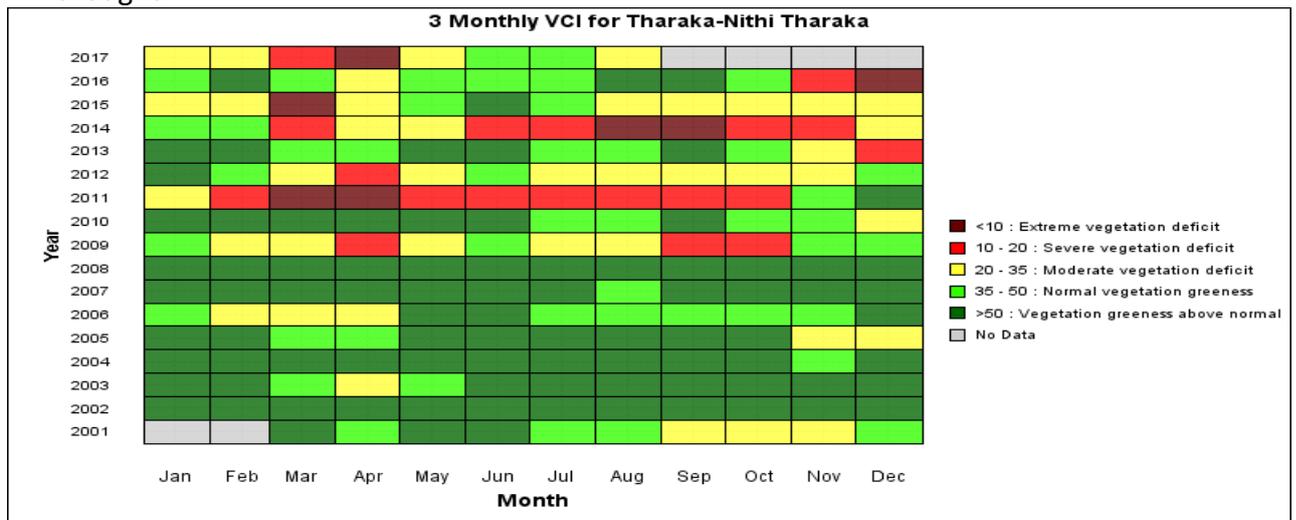
- The following graph shows the rainfall station data during the month of August.



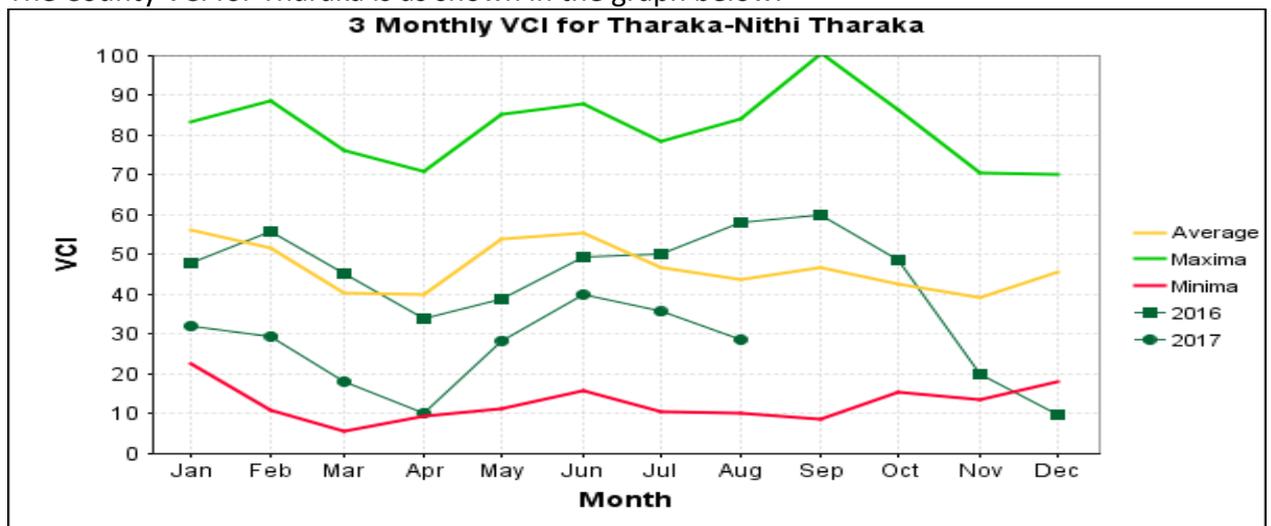
## 1.2 AGRICULTURAL DROUGHT

### 1.2.1 Vegetation Condition Index (VCI)

- The matrix below illustrates the period from January to August 2017, as classified based on VCI thresholds. The matrix shows a retrospective analysis of the vegetation condition related to drought.



- The County's vegetation condition was below normal at 28.44 compared to the long term average for the month of August. The vegetation condition was below normal in the two sub counties of Tharaka North and South which are under Tharaka Constituency.
- The County VCI for Tharaka is as shown in the graph below.



### 1.2.2 NATURAL VEGETATION AND PASTURE CONDITION

Field Observations (Pasture and Browse Conditions)

#### Pasture Condition

- Pasture condition in terms of quantity and quality was poor and this is attributed to the poor rainfall performance. The pasture condition was below normal compared to the long term average for the month of August.
- The available pasture in most grazing fields especially in the Marginal Mixed Farming is expected to be depleted in one to two months.
- There is notable migration of cattle from Marginal Mixed Farming Zone and also from Isiolo to the Meru National Parks. Resource based conflicts on pasture have been on the increase during the month of August.

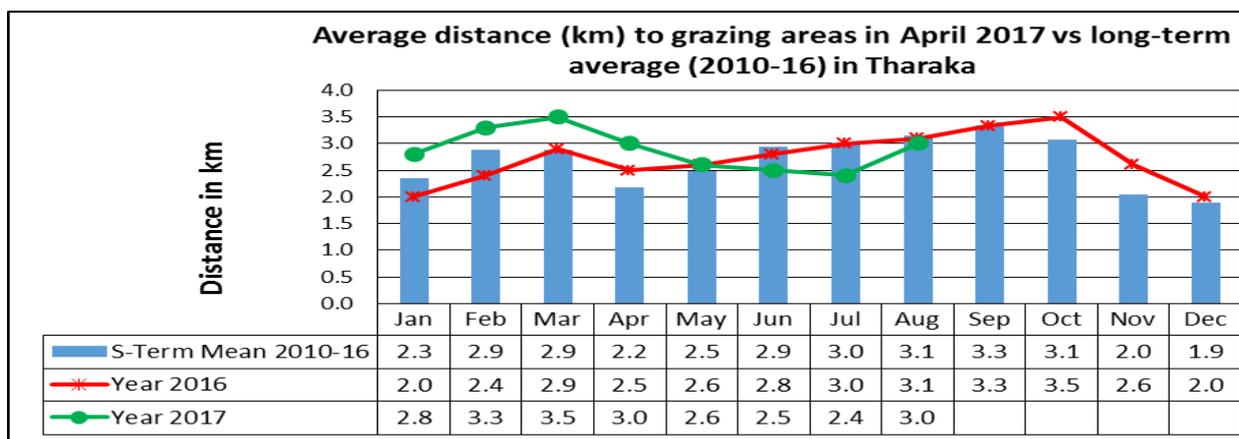
#### Browse Condition

- Browse condition in terms of quantity and quality was fair to poor and the condition is still worsening.

- Most areas registered a decrease in *Vegetation Density* based on the Normalized Difference Vegetation Index (NDVI) since no rainfall was received in the month of August.
- In comparison to a normal year, the available browse amount was below normal.

### 1.2.3 Distance to Grazing Areas

- There was stability in the average distance to grazing areas where it increased from 2.4km recorded in July to 3km on the period under review attributed to reduction in pasture.
- The longest return distance to grazing areas was recorded in the Marginal Mixed Farming at 4 km, Rain fed Cropping and Mixed Farming livelihood zones recorded 2.6 km and 2.4km respectively.
- The distance to grazing areas remained 3.2 percent lower than the long term average of 3.0 km for this time of the year.

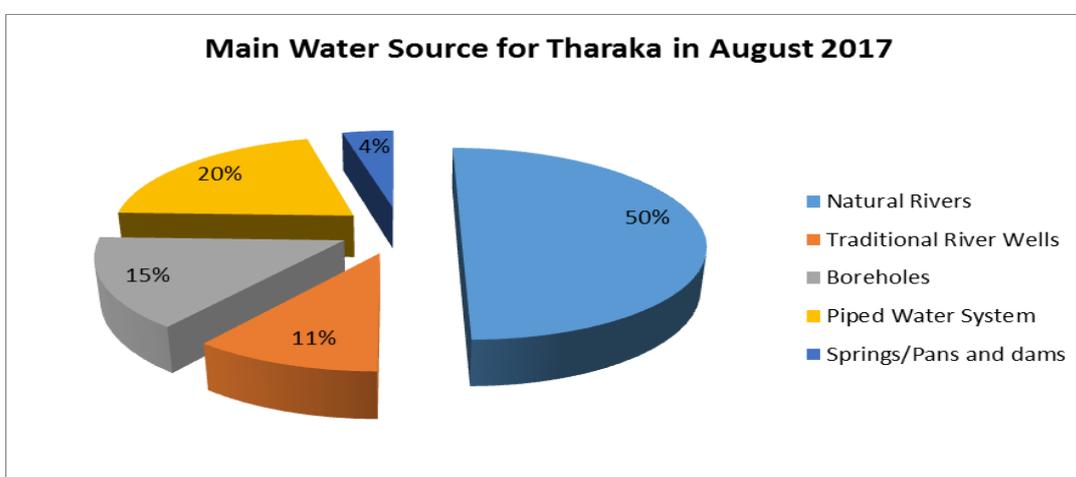


## HYDROLOGICAL DROUGHT

### 1.3 Water Sources and Availability

#### 1.3.1 Main Sources of Water

- The major sources of water for livestock and domestic use in Tharaka North and South Sub-Counties were Natural Rivers, boreholes, piped water system and traditional river wells.
- The areas with low water availability were mainly in Marginal Mixed Farming livelihood zone which includes Marimanti, Gituma, Chiakariga, Kamanyaki, Kamarandi, Maragwa, Kathangachini, Gatue and Kanjoro locations where all the seasonal rivers had dried up.
- Ground observations and reports show that the state of water sources was ranked at index 4 in reference to the scale below implying the water availability was below normal for the period under review. The chart below shows percentage water sources.



| INDEX | STATE OF WATER      | DESCRIPTION   |
|-------|---------------------|---|
| 1     | EMERGENCY SITUATION | All main water sources have dried up; only few boreholes still yielding significant amounts   |
| 2     | STRONGLY INADEQUATE | Surface water sources have dried up while the underground water sources are yielding very little amounts of water. Breakages of boreholes contribute to worsen the situation. Acute water shortage in many areas within the livelihood      |
| 3     | INADEQUATE          | Surface water sources have dried up while the underground water sources are yielding modest amounts of water. Concentration of livestock around few water points contribute to spread communicable diseases and to degradation of rangeland |
| 4     | DECLINING           | The water availability is below normal for the period, but showing declining trends.  |
| 5     | NORMAL              | The water availability is normal for the period   |
| 6     | GOOD                | The water availability is above normal for the period   |

## SOCIO-ECONOMIC INDICATORS

### 2.0 PRODUCTION INDICATORS

#### 2.1 Livestock Production

##### 2.1.2 Livestock Body Condition

- Livestock body condition for cattle was poor while that for shoats was fair across all the livelihood zones. This is attributed to poor state of pasture and fair browse condition coupled with increased distances to water sources.

| BODY CONDITIONS   | SCORE    | WARNING STAGE                |
|---|----------|------------------------------|
| <b>Emaciated, little muscle left</b>  | <b>1</b> | <b>Emergency</b>             |
| <b>Very thin no fat, bones visible</b>  | <b>2</b> |                              |
| <b>Thin fore ribs visible</b>   | <b>3</b> | <b>Alert Worsening/Alarm</b> |
| <b>Borderline fore-ribs not visible. 12<sup>th</sup> &amp; 13<sup>th</sup> ribs visible</b> | <b>4</b> | <b>Alert</b>                 |
| <b>Moderate. Neither fat nor thin</b>   | <b>5</b> | <b>Normal/Alert</b>          |
| <b>Good smooth appearance</b>   | <b>6</b> |                              |
| <b>Very Good Smooth with fat over back and tail head</b>                                    | <b>7</b> | <b>Normal</b>                |
| <b>Fat, Blocky. Bone over back not visible</b>  | <b>8</b> |                              |
| <b>Very Fat Tail buried in fat</b>  | <b>9</b> |                              |

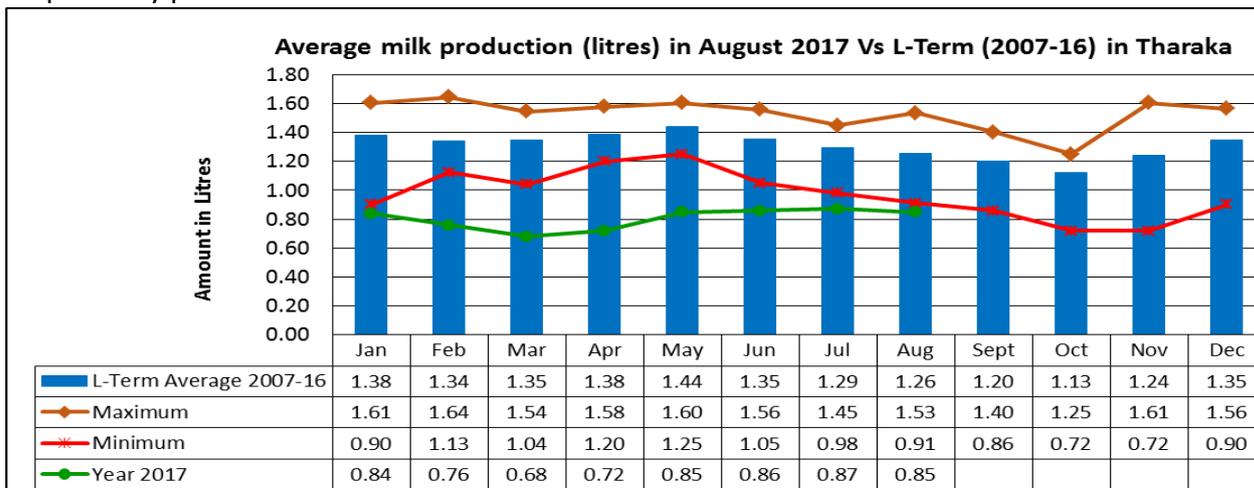
- For most livestock, current body condition can be rated at index 5 as per the threshold scale above

##### 2.1.3 Livestock Diseases and Migration

- There were several incidences of infection and death of goats from sheep and goat pox in Tharaka North sub-county. Other diseases reported during the period under review were Contagious Caprine Pleuropneumonia (CCPP), Trypanosomiasis, and Heart Water diseases, which are endemic across all livelihood zones.
- Livestock Migration is from the Marginal Mixed Farming Zones towards the Meru National park. Livestock from the neighbouring counties of Isiolo are also migrating towards the park and in other grazing field in the County. This has led to increased tension and Resource based conflict.

### 2.1.4 Milk Production

- Milk decreased from an average production of 0.87 litres in July to 0.85 litres per household in August.
- The highest milk production was recorded in the Marginal Mixed Farming livelihood zone at 1 litre while Mixed Farming livelihood and Rain fed livelihood zone had 0.86 litres and 0.69 litre respectively per household.



- Milk production per household was 29 percent lower than the 10-year average attributed to the reduced TLUs in addition to poor condition of pasture and browse coupled with relatively long distances to water sources.

## 2.2 Crop Production

### 2.2.1. Timeliness and Status of Crops

- Farming activities over the month under review included harvesting and crop storage. Crops been harvested were mainly pigeon peas.
- Crops were at the harvesting stage in the Mixed Farming and Rain fed Cropping livelihood zones as opposed to the Marginal Mixed Farming zone where there was total crop failure.
- Crops planted were green grams, sorghum, millet, cowpeas and groundnuts.

### 2.2.2. Pests and Diseases

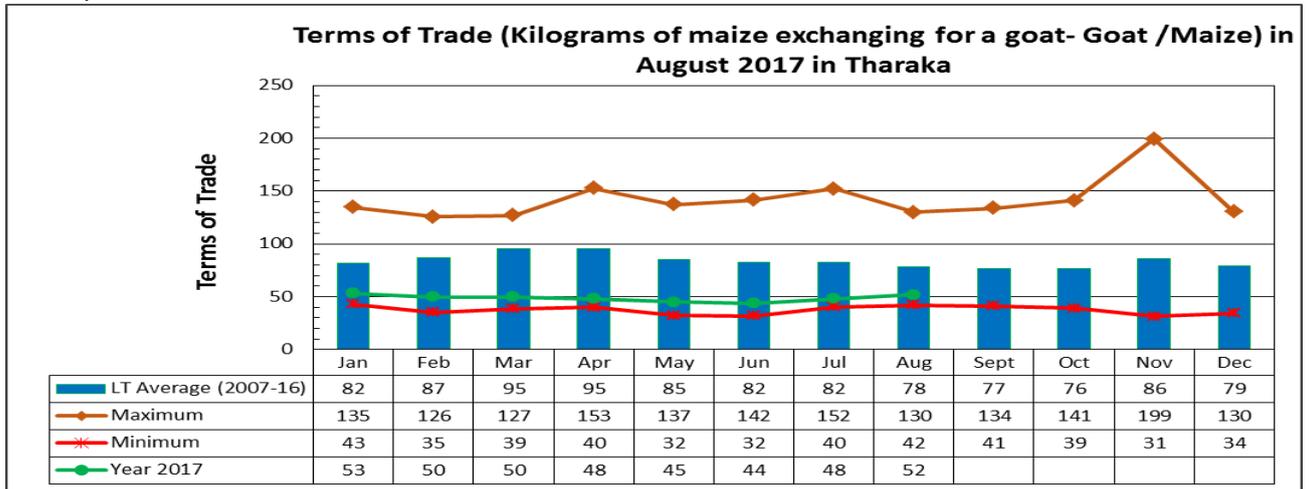
- Fall Army Worms' invasion on sorghum and millet that was reported in the Rainfed cropping livelihood zone was reportedly swept off by the rains that were received in the first dekad of the month under review.
- There were no major reports of pests' infestation across all the livelihood zones.

### 3.0 ACCESS INDICATORS

#### 3.1 Livestock Prices

##### 3.1.1 Terms of Trade

- The Terms of Trade increased slightly from 48 in the previous month to 52 in July, 2017 due to a more reduction in maize price in relation to a decrease in goat price.
- The highest ratio was recorded in the Mixed Farming zone at 67; Rain fed cropping livelihood zones T.o.T of 55, while Marginal Mixed Farming Livelihood Zone had the lowest ToT values of 45.
- The ToT for the period under review was 33 percent of the long-term average value during the same period.



##### 3.1.2 Cattle Prices

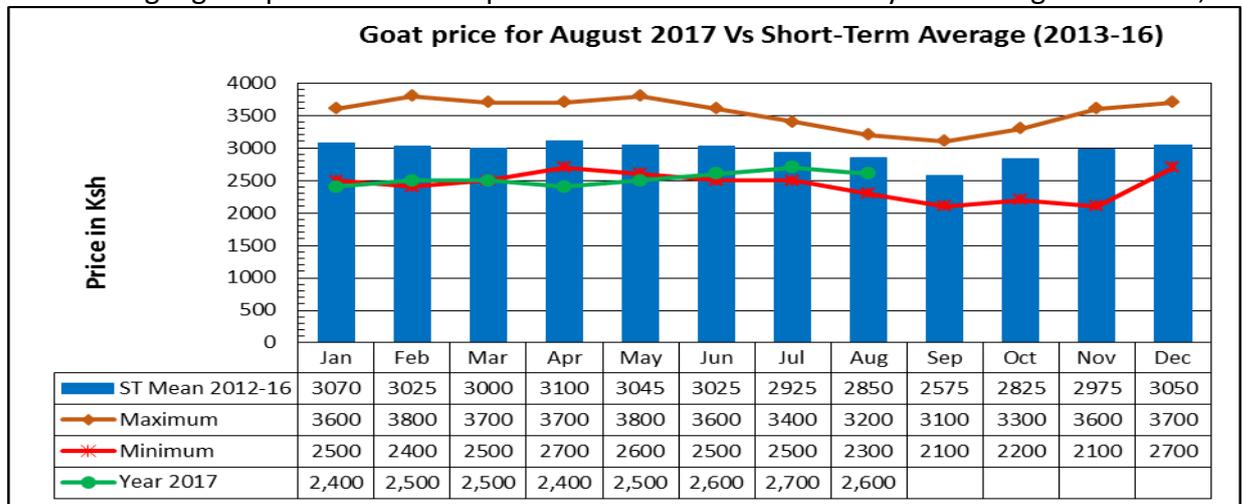
- The average household cattle prices decreased from Ksh.13,500 recorded in the previous month to Ksh. 13,400 in the month under review. Cattle prices dropped both at the farm gate and market levels, a factor that was attributed to the poor body condition following the poor quality and quantity of pasture in all livelihood zones.
- The Marginal Mixed Farming livelihood zone had the highest average price of Ksh 13,500.00 while the Mixed Farming and the Rain fed Cropping had Ksh 13,000 and Ksh 14,000.00 respectively.
- The current price was 16 percent lower than the five-year short-term average of Ksh 15,920.



##### Goat Prices

- There was stability in the average farm gate goat prices in all livelihood zones where the price slightly decreased from Ksh. 2,700 in July to Ksh.2,600 in the month under review.

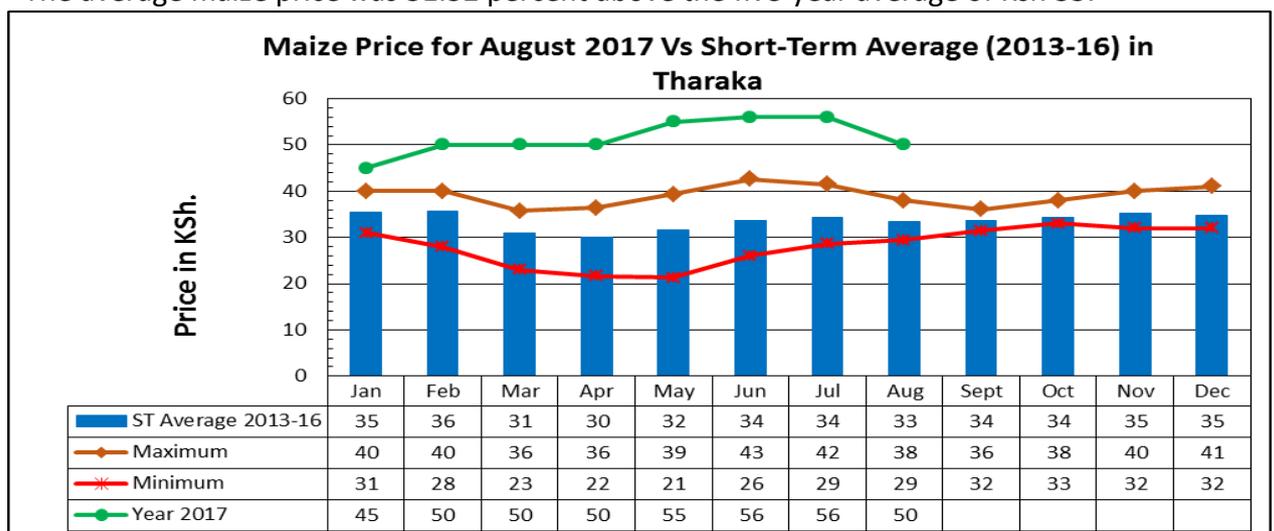
- The declined trend of goat prices was mainly attributed to the fair but declining body condition due to fair browse conditions which is on a declining trend in the month under review.
- The Marginal Mixed Farming recorded the highest average price of Ksh. 2,700 while the Mixed Farming livelihood zone recorded the lowest price of Ksh. 2,500. Rain fed Cropping livelihood zone stabilized at an average price of Ksh 2,600.
- Tharaka North and Tharaka South recorded an average price of Kshs. 2,700 and Ksh 2,600 respectively.
- The average goat price was 8.77 percent lower than the five-year average of Ksh 2,850.



## Price of Cereals and Other Food Products

### 3.2 Maize Prices

- The average market price of a kilogram of maize decreased from Ksh.56 in July to Kshs. 50 in August. This was attributed to the harvesting of maize within the County and in the neighbouring Counties hence increasing its supply in the County leading to a drop in price.
- The highest price was recorded in Chiakariga market at Ksh 60 while Marimanti and Gatunga recorded an equal average price of Ksh 50.00.
- The average maize price was 51.52 percent above the five-year average of Ksh 33.

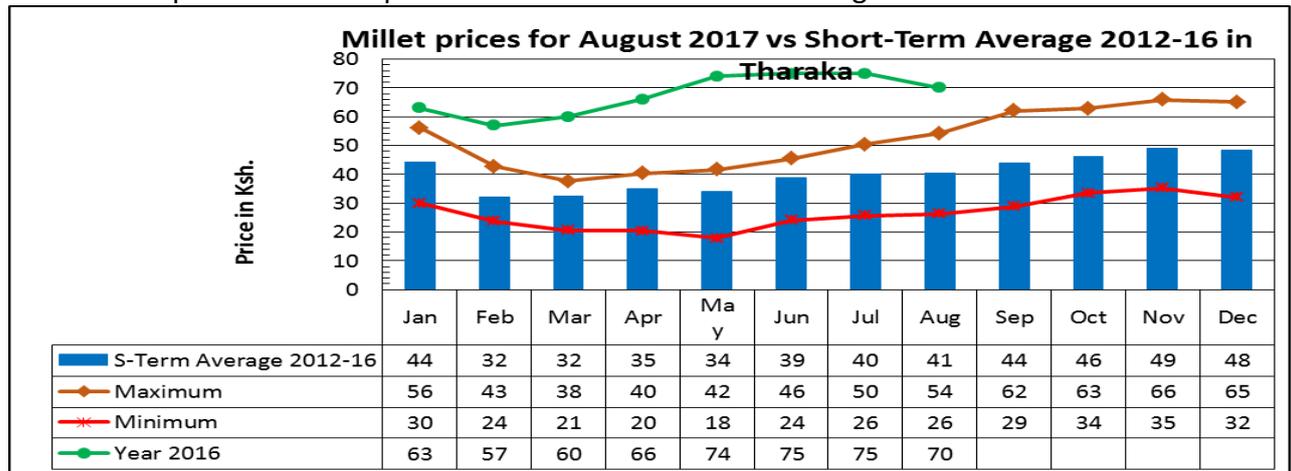


### 3.3 Millet Price at Market Level

- The market average price of millet per kilogram dropped from Ksh.75 in the month of July to Kshs. 70 in the month of August. The reduction in Millet price was mainly attributed to the just

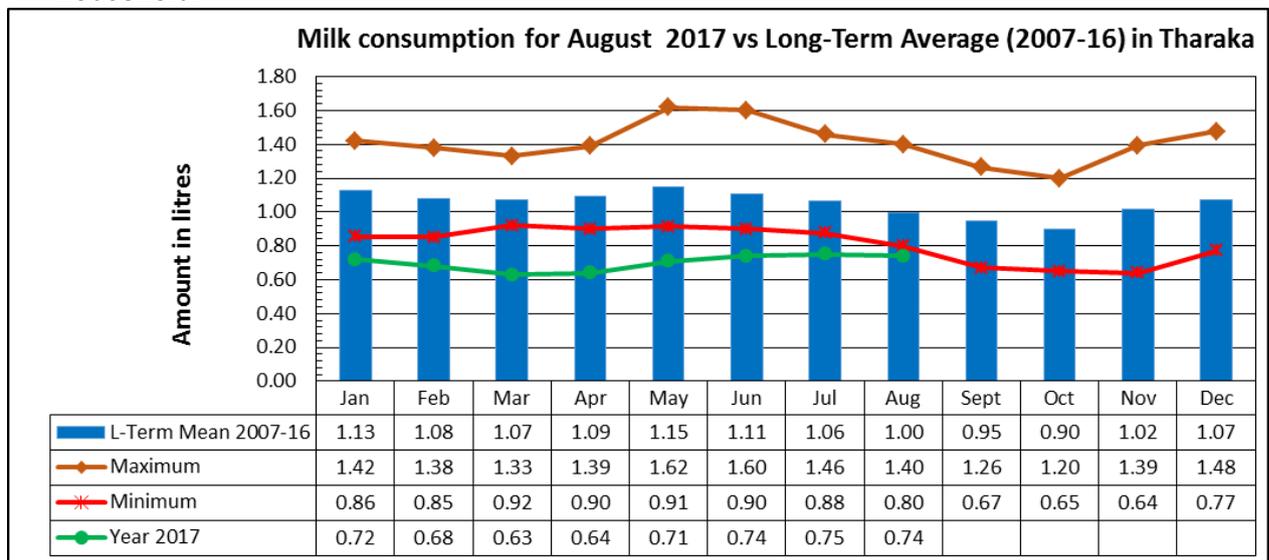
concluded harvest leading to increased supply of the cereal to the local markets following its relatively high production after the long rains season.

- The highest market prices were recorded in Chiakariga market and Kathwana at Ksh. 75, Gathanga chini, Marimanti Kshs 70 while Mukothima, Gatunga and areas of Karocho market recorded the lowest prices of Kshs. 60.
- The cereal's price was 70.73 percent above the short-term average of Kshs.41.

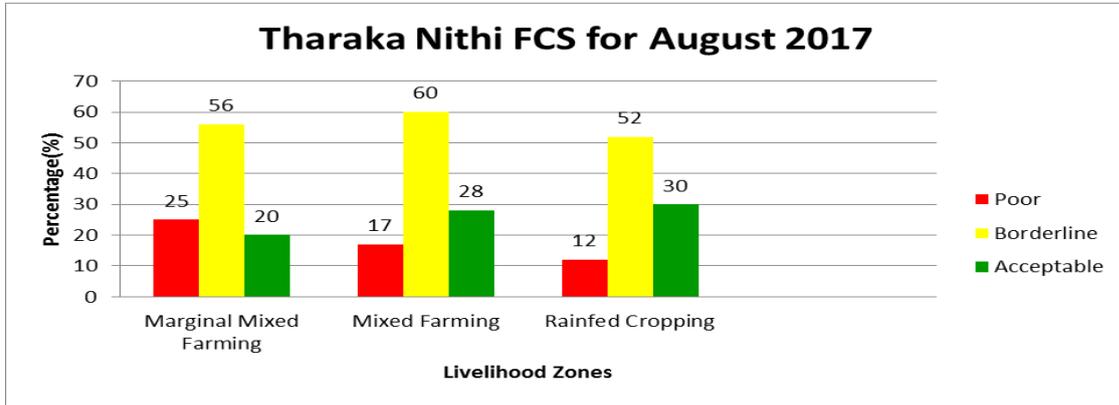


### 3.4 Milk Consumption

- The average milk consumption per household decreased from 0.75 of a litre in the month of July to 0.74 of a litre in the month of August, 2017. The decrease was attributed to the decrease in milk production recorded in all livelihood zones mainly due to poor pasture and browse condition coupled with the relatively long distance to water sources.
- The highest milk consumption was recorded in the Marginal Mixed Farming at 0.85 litres while households in Rain fed and Mixed Farming livelihood zones consumed 0.66 litres and 0.70 litres respectively.
- The average milk consumed was 26 percent below the 10-year long-term average of 1litre per household.



### 3.4.1 Food Consumption Score



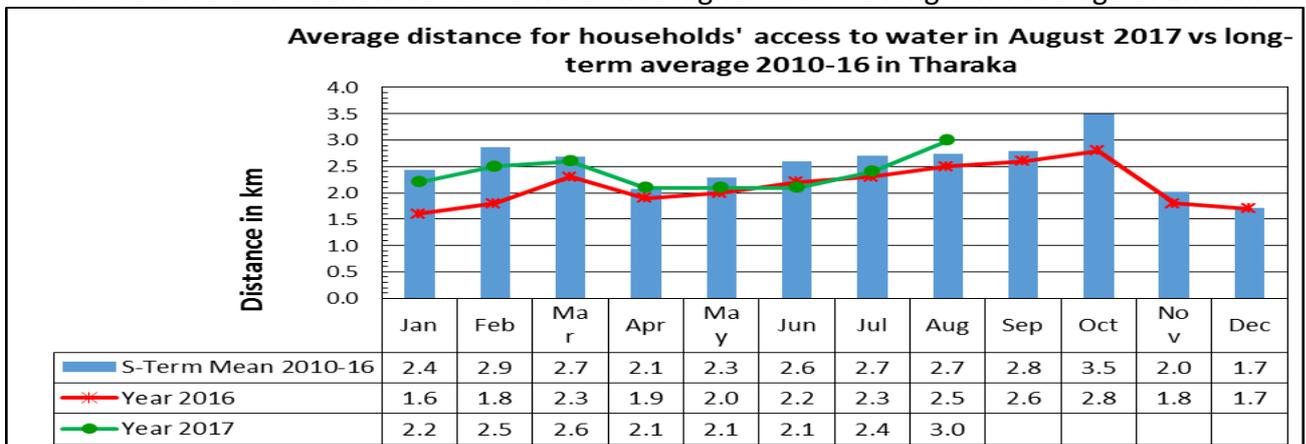
- An average of about 18 percent of the households were food insecure with poor food consumption scores, attributed to poor harvest and high food prices with limited household purchasing power resulting to a decline in food access during the month of August. The majority of them were in the Marginal Mixed Farming Livelihood Zone.

| Period         | Acceptable (%) | Borderline (%) | Poor (%) |
|----------------|----------------|----------------|----------|
| February, 2017 | 31             | 53             | 16       |
| March, 2017    | 30             | 52             | 18       |
| April, 2017    | 27             | 53             | 20       |
| May, 2017      | 26             | 52             | 23       |
| June, 2017     | 28             | 52.5           | 19       |
| July, 2017     | 30             | 65             | 15       |
| August         | 26             | 56             | 18       |

- The poor food consumption score implies household are not consuming staples and vegetables every day and rarely consuming protein rich food, borderline imply household consuming staple, vegetable every day accompanied by oil and pulse a few times in a week while the acceptable imply households consuming staples, vegetables every day, and frequently accompanied by pulses.

### 3.5 Availability of Water for Household Consumption

- Household access average distance to water increased from 2.4 km in July to 3Km during the month under review. The increase in water distance was due to drying of boreholes and many other water sources due to the prolonged dry spell.
- The Marginal Mixed Farming livelihood recorded an average distance of 4km compared to 3 km in Rain Fed Cropping zone and 2 km in Mixed Farming livelihood zones.
- The distance of household access to water was higher than the long-term average of 2.7 km.

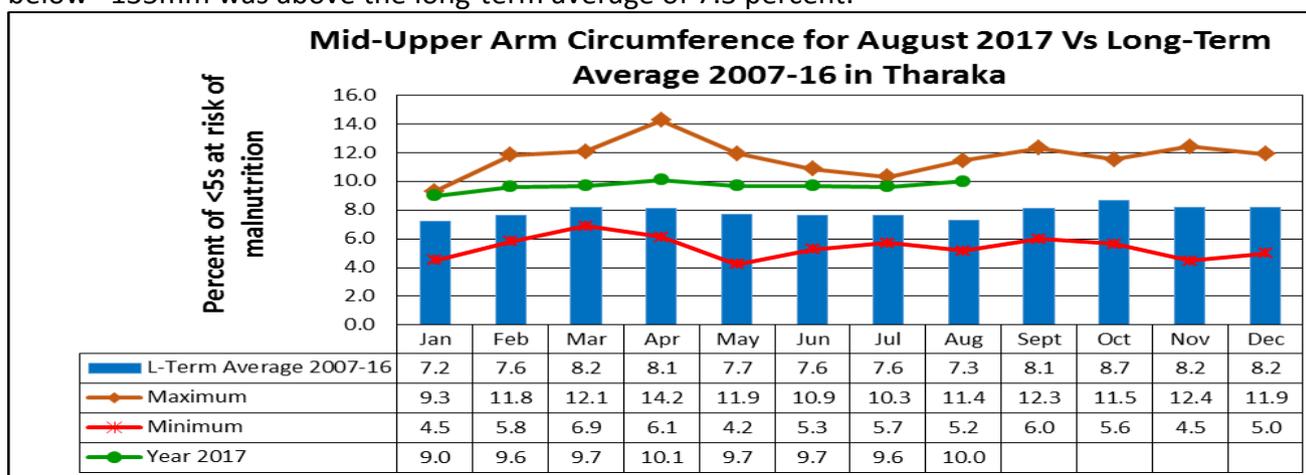


## 4.0 UTILISATION INDICATORS

### 4.1 Health and Nutrition Status

#### 4.1.1 MUAC

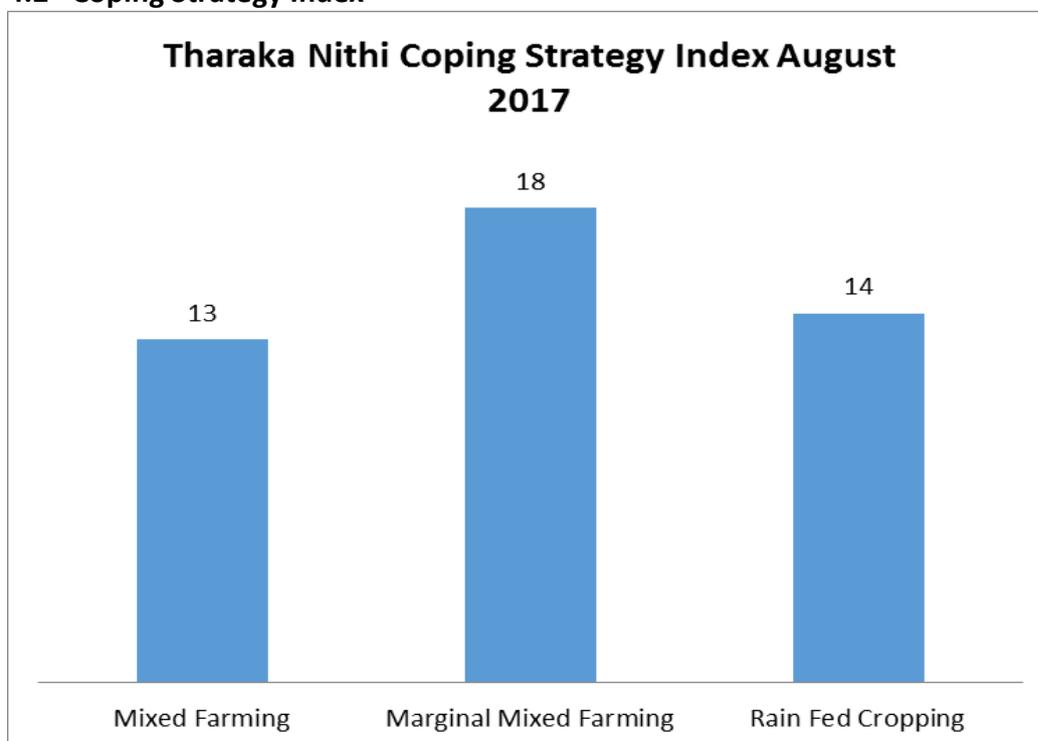
- The proportion of children between 6 to 59 months at risk of malnutrition whose MUAC measurement was below 135 mm threshold for the period under review increased from 9.6 percent in July to 10 percent in August. This increase in MUAC percentage is attributed to low milk production and consumption. The Food consumption also reduced especially in the Marginal Mixed Farming Livelihood Zone.
- The highest proportion of children at risk of malnutrition was recorded in the Marginal Mixed Farming zone at 13.8 percent compared to 10 percent and 6.3 percent in the Mixed Farming and Rain Fed livelihood zones respectively.
- The proportion of children at risk of malnutrition whose MUAC percentage measurement was below 135mm was above the long-term average of 7.3 percent.



#### 4.1.2 Health

- The prevalence of most common diseases for the general population in Tharaka South and North Sub-Counties included diseases of the respiratory system, malaria, skin disease, urinary tract infections and rheumatism while those mainly affecting children under five years include: diseases of the respiratory system, pneumonia, malaria, intestinal worms and skin diseases.

## 4.2 Coping Strategy Index



- The Coping Strategy Index (CSI) increased from 8.9 in the month of July to 15 in the month of August. The increased index implies an increase in the frequency and the number of households employing consumption and reduced based coping strategy measures.
- The highest CSI was recorded in the Marginal Mixed Farming zone at 18 compared to 13 in the Mixed Farming and 14 in Rain Fed livelihood zones. This implies that in the Marginal Mixed Farming, households are employing more severe coping strategies than in the Mixed Farming and Rain Fed livelihood zones.
- The most commonly employed coping mechanisms over the period included reliance on less preferred and or less expensive food, reduction of the number of meals and reduction in portion or size of meals.
- A considerable proportion of households were noted to employ livelihood based coping strategies such as sale of some household assets, spending of savings as well as borrowing of short term loans.
- There are also increased number of households who have engaged in charcoal burning and petty trades which is quite recommendable.

## 5.0 Food Security Prognosis

The month under review marked the beginning of the short dry spell (as predicted by the Kenya Meteorological Department). The long rain performance was below normal with poor distribution temporary and spatially. There was a spatial poor crop performance in the locality with the most affected livelihood zone being the Marginal Mixed Farming where a very poor performance of rains was experienced. Consequently, there was low recharge of underground and ground water sources as well as poor range land development.

In that respect, food and animal production were below normal in the two sub-counties, a factor that will result in low food supply and affordability for the long run. Terms of Trade was fair since harvesting was ongoing in some parts but it is expected to deteriorate due to poor performance of livestock markets. Deprived food availability at the household level may significantly affect school attendance and performance of food insecure households in Igambang'ombe, Kamanyaki, Kamarandi, Maragwa, Usueni, Gatunga, Gituma, Nkarini and Kanjoro locations all found in the Marginal Mixed Farming livelihood zones. Migration is also expected to persist along the park due to pasture and browse depletion. Levels of Global Acute Malnutrition are expected to rise significantly in the affected zones.

Households in the sub-county are likely to remain in the stressed phase (IPC Phase 2) across all livelihood zones.

## 6.0 CURRENT INTERVENTIONS AND RECOMMENDATIONS

### 6.1 Ongoing food and Non-Food Interventions

#### 6.1.2 Food Interventions

The following foods were donated by the Ministry of devolution and were distributed through the department of Interior & Coordination.

#### May

| No. | Food Item   | Quantity | Packaging | Status   |
|-----|-------------|----------|-----------|----------|
| 1   | Maize       | 2,500    | Bags      | Received |
| 2   | Rice        | 200      | Bags      | Received |
| 3   | Beans       | 200      | Bags      | Received |
| 4   | Cooking Oil | 250      | Cartons   | Received |
| 5   | Nutropaps   | 50       | Bales     | Received |

#### June

| No. | Food Item   | Quantity | Packaging          | Status       |
|-----|-------------|----------|--------------------|--------------|
| 1   | Maize       | 100      | Bags               | Received     |
| 2   | Rice        | 250      | Bags               | Not Received |
| 3   | Beans       | 150      | Bags               | Received     |
| 4   | Cooking Oil | 50       | Cartons(24x0.5lts) | Received     |
| 5   | Nutropaps   | 50       | Bales              | Received     |

#### 6.1.3 Non-Food Interventions

- Distribution of 123 bee hives to the Communities in Tharaka Nithi North and South Sub County by National Drought Management Authority through the Food For Asset (FFA) Program.
- Six community trainings conducted in Tharaka Nithi South and North Sub-County on bee hive management and the trainings are still ongoing.
- Construction of Ura Kathangachini water project in Kanjoro and Kathangachini locations benefiting 4,000 persons by National Government.
- Rehabilitation/upgrading of boreholes to solar pumping by National government through UTaNRMP at Gikingo, Marimanti and Nkondi locations benefiting 2,100 persons.
- Construction of Maragwa water pipeline by County Government and WSTF at Marimanti and Maragwa location benefiting 3000 persons.

- Kiaranthe Earth dam construction by NDMA/County governments benefiting 2,000 persons at Kathangachini location.
- Home Grown School Meals Program (HGSMP) in Tharaka North and Tharaka South respectively with a total of 21,695 beneficiaries.
- Rehabilitation of Rukenya earth dam by National and County Governments through Devolution Ministry at Ntugi location benefiting 1,500 persons.
- Asset creation project where farmers in Tharaka region are being trained on construction and maintenance of farm assets and utilization of modern farming technologies.
- 37 primary schools in Tharaka South with a total enrolment of are 10,242 beneficiaries of school feeding programme sponsored by International Aid Services.
- Rehabilitation of Mutonga Gituma water supply by County Government and WSTF at Ntugi location benefiting 2000 persons.

## **6.2 Recommendations**

- Excavation of Kiaranthe Integrated water development project.
- Enhance community skills on the importance of hand washing at the five critical times.
- Advocacy to the young mothers and fathers on the importance of the indigenous food.
- Close monitoring of malnutrition and underweight cases at household and health facilities.
- Provision of safe nutritious food to schools albeit the increase in food prices.
- Advocate rain water harvesting and use of water treatment methods.
- Capacity building of farmers on post-harvest management to prevent post-harvest losses.
- Increased advocacy on treating and consumption of treated water.
- Provision of animal feeds (Range cubes).
- Integrated Health outreaches and mass screening of children under the age of 5 yrs.
- Train farmers on fodder conservation practices and range land management.
- Intra and inter county livestock vaccination, deworming, vector control and treatment of the sick animals
- Enhance advocacy on exclusive breastfeeding and healthy feeding practices.
- Rehabilitation of broken hand pumps.