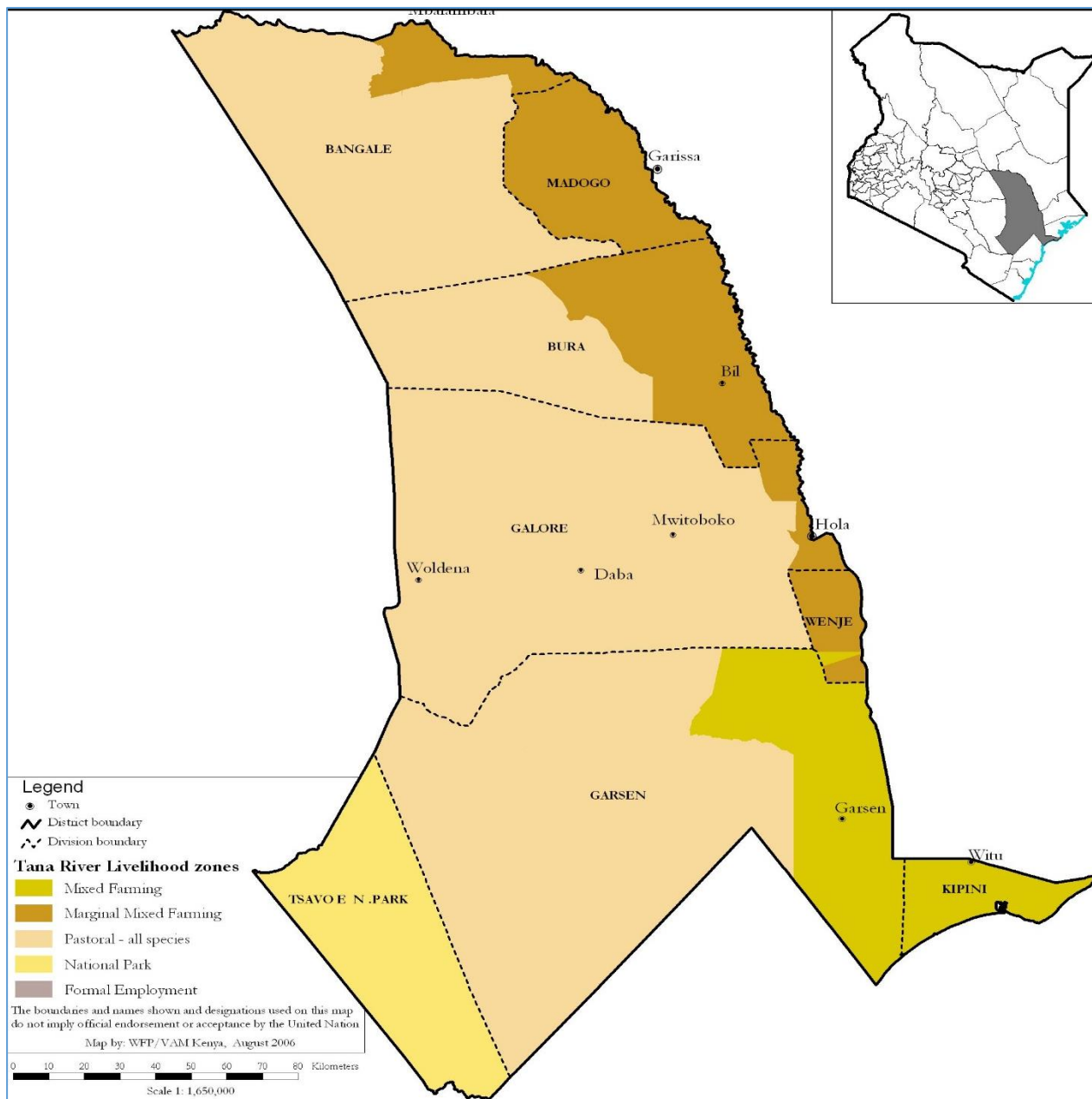


# TANA RIVER COUNTY 2017 LONG RAINS FOOD SECURITY ASSESSMENT REPORT



## A Joint Report by the Kenya Food Security Steering Group (KFSSG)<sup>1</sup> and the Tana River County Steering Group (CSG) July 2017

<sup>1</sup> KFSSG team members; Mathew Ireri (World Food Programme) and Cassim Zuberi (National Drought Management Authority)

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## **EXECUTIVE SUMMARY**

Tana River County is classified under Stressed (IPC Phase 2) across all livelihood zones, with the likelihood of the pastoral livelihood zone sliding into Crisis (IPC Phase 3) by September. More than half of the County populations have food consumption gaps with the marginal mixed farming livelihood zone being the most affected. About 64 percent, 90 percent, and 75 percent of the households in pastoral, marginal mixed farming and mixed farming livelihood zones do not have acceptable food consumption scores respectively. The proportion of children with a MUAC less than 135mm is more than twice the County on upward trend and was about three times higher (27%) compared to the county long term average at 27 percent..

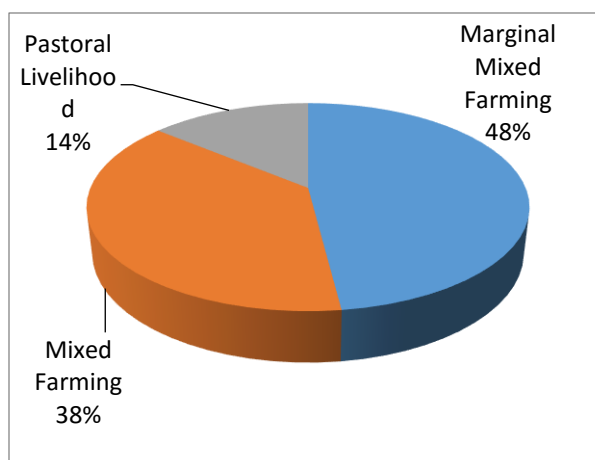
Rainfall performance in the county has been below average for the last three seasons, cumulatively having an adverse effect on food security situation in the County. The long rains season of 2017 was also poor, characterized by a late onset, poor temporal and spatial distribution across the county, which affected both crop and livestock production. Rain fed crop production is expected to drop by more than 65 percent, hence reducing household access to food in the farming livelihoods. The forage regeneration was poor in the pastoral livelihood as a result of the poor performance of the season, leading to massive (80%) livestock migration from pastoral zone to the mixed farming zone in Tana delta region and to the neighboring counties of kitui and kilifi counties. Livestock body condition is fair to poor for all the species, resulting in reduced milk production hence low milk consumption. Food prices are high while livestock prices have declined, resulting in poor terms of trade compared to the long term average.

Other contributing factors to food insecurity in the County include increasing long distances to water points (five to seven kilometers against a normal of less than one kilometer in Pastoral and marginal mixed farming livelihood zones), invasion of fall army worms maize crop in Tana delta sub-county and reduced river flow in River Tana which has affected irrigated agricultural activities. With reduced access to food due to consecutive poor crop production and reduced purchasing power and high foods prices, more households are likely will be facing food

## 1.0 INTRODUCTION

### 1.1 County background

Tana River County is located in the coastal region in Kenya, bordering Indian Ocean to the south, and counties of Lamu to the southeast, Kitui to the west, Isiolo to the north and Garissa to the northeast. The County is administratively divided into three sub-counties, namely Tana North, Tana River and Tana Delta. It covers an area of 38,782 square kilometers with a population of 303,047 (KNBS, 2016 projected population). It has three main livelihood zones: Marginal Mixed Farming, supporting 48 percent of the population, Mixed Farming, comprising 38 percent, and Pastoral all-species, comprising 14 percent (Figure 1).



**Figure 1: Population distribution by livelihood zones**

### 1.2 Objectives and approach

The main objective of the long rains assessment was to develop an objective, evidence-based and transparent food security situation analysis after the Long Rains Season of 2017 taking into account the cumulative effects of previous seasons, and to provide recommendations for possible response options based on the situation analysis.

The assessment in Tana River County was conducted from 3<sup>rd</sup> to 7<sup>th</sup> of July and was done by a multi-sectorial and multi-agency team comprising of Kenya Food Security Steering Group (KFSSG), the National Drought Management Authority (NDMA), Tana River County Government technical line ministries, National government and partners representing the sectors; agriculture, livestock, health and water.

The assessment team used various methodologies and approaches in the assessment. Secondary data was collected from different sectors using sectorial checklists and other secondary data including nutrition survey report and the monthly drought early warning bulletins. To triangulate the information from the primary sources, the assessment team collected primary data from the community through key informant interviews, focus group discussions and observation during the transect drive. The areas visited included; Galma, weje, Ngao, Hewani, Bura Bangale and, Bangale (market) Hamares, Makere, Garsen (market). These sites were selected based on various criteria such as projects, livelihood zones and the presence of markets.

## 2.0 DRIVERS OF FOOD AND NUTRITION SECURITY IN THE COUNTY

### 2.1 Rainfall Performance

Poor performance of the long rains season was the key driver of the food insecurity in Tana River County. The onset of the season was generally late across the livelihood zones, in the first dekad of April, compared to the third dekad of March normally.

The County received approximately 70 percent of rainfall compared to the long term average. The temporal distribution was poor since third Dekad of March recorded about one millimeter of rainfall with uneven spatial distribution. Bangale in Tana North and Bura and Galore in Tana River Sub Counties received 25 – 50 percent of the normal rains, while Kipini in Tana Delta Sub County received 75 – 110 percent of the long term average amounts. Poor rainfall performance affected both crop and livestock production. Rainfall cessation was earlier than normal (third Dekad of May compared to first Dekad of June in a normal season).

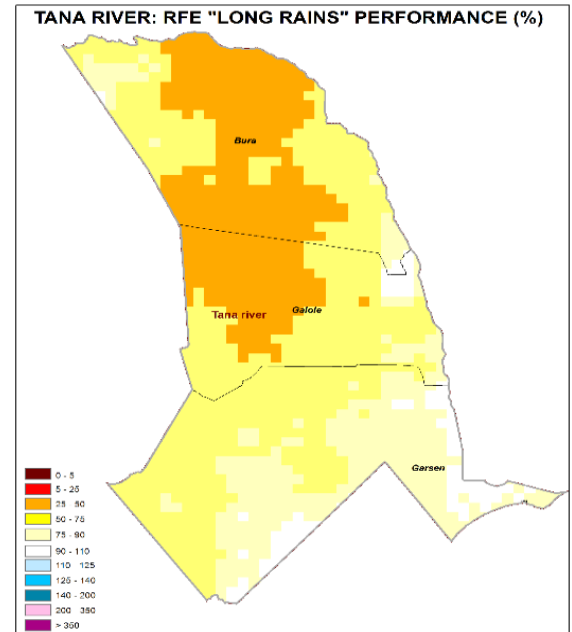


Figure 2: Map showing Rainfall

### 2.2 Other shocks and hazards

Fall army worms invasion destroyed maize crop in coastal strip reducing seasonal crop production.

## 3.0 IMPACTS OF DRIVERS ON FOOD AND NUTRITION SECURITY

### 3.1 Availability

The performance of the long rains season was generally below average which significantly affected livestock production in the County. Forage and water access and availability have been severely affected, resulting in massive livestock migration to the Tana delta and neighboring Counties. Additionally, crop production has been affected both in Mixed Farming and Marginal Mixed Farming. In addition, the County has experienced two failed season in the last two previous successive seasons hence reducing the household stocks and capacity to buy adequate food. Most household continue to rely on market supplies. Poor forage regeneration in successive seasons has also affected livestock productivity, resulting in reduced milk consumption and reduced income. Approximately 80 percent of the livestock in the livestock zone had migrated due to poor forage affecting milk availability at household level.

#### 3.1.1 Crops Production

Main food crops planted include: maize, cowpeas and green grams. Other crops of significant economic value include: - Bananas, mangoes, tomatoes, sorghum, kales and rice.

Crop production is mainly in the Marginal Mixed Farming and the Mixed Farming livelihood zones. The Mixed Farming livelihood zone is mainly dependent on the long rains while the Marginal Mixed Farming livelihood zone mainly depends more on the short rains season for crop production. In the Marginal Mixed Farming livelihood zone, maize contributes 30 percent to income and 50 percent to food while banana contributes 20 percent to cash income and 15 percent to food. In the Mixed Farming livelihood zone, maize and bananas contribute 40 and 20 percent to food respectively while mangoes contribute 37 percent to cash income. Overall, crop production

contributes 45 percent of cash income in the Mixed Farming livelihood zone and 10 percent in the Marginal Mixed Farming zone. The mango crop harvesting period started in the month of June and boosting household access to food due to increase in purchasing power among the farmers in the Mixed Farming livelihood.

**Table 1: Rain Fed Crop Production**

<b>Crop</b>	<b>Area planted during 2017 Long rains season (Ha)</b>	<b>Long Term Average area planted during the Long rains season (Ha)</b>	<b>2017 Long rains season production (90 kg bags) Projected/Actual</b>	<b>Long Term Average production during the Long rains season (90 kg bags)</b>
1.Maize	1220	3556	14,460	49,784
2.Green grams	132	643	1,056	5,144
3.Cowpeas	200	732	1600	5,856

Under rain fed crop production, area planted with maize, green grams and cowpeas was below normal by 66 percent, 79 percent and 73 percent respectively. The reduction in area planted was attributed to the rainfall forecast which indicated below normal rainfall and low farmer morale due to consecutive crop failures in the past two seasons. Crops planted wilted due to Moisture stress before maturity.

The marginal mixed farming livelihood zone received scanty rainfall which could not sustain the crop to maturity, and resulted in total maize crop failure. In the mixed farming livelihood zone, along the riverine, few farmers were irrigating their maize to reduce moisture stress. However, those with no access to water for irrigation risked losing much of the crop, which was water stressed at different stages, if no more rains are received. Along the coastal strip (Kipini area), the amount of rainfall received during the long rain season was good. However, due to early cessation, maize crop was moisture stressed at milking stage, and needed more moisture to mature. Lastly fall army worm invasion devastated substantial amount of the maize crop in the coastal strip. Some farmers whose maize crop was destroyed replanted later, a crop whose prospects were poor unless the off-season coastal monsoon rains were received. The rain fed crop production for maize, green grams and cowpeas was expected to reduce by 71 percent, 79 percent and 73 percent respectively compared to long term average(LTA), due to interaction of the above factors. The prolonged drought situation was reported to have affected banana production with important proportion of bananas drying in marginal mixed farming in the year 2016.

### **Irrigated crop production.**

Irrigation is mainly carried out in marginal mixed farming livelihood zone using flood waters and micro irrigation by National Irrigation Board (NIB) in the Tana, Hola and Bura irrigation schemes.

The area planted with maize, green grams and cowpeas was below normal by 46 percent, 90 percent and 83 percent respectively. The reduction in area under maize was attributed to reduced water levels in river Tana. Delayed land preparation (by NIB) and withdrawal of contract for cereal production by Kenya Seed Company. Farmers in Bura irrigation scheme planted 220 Ha with Sorghum under Contract farming by East African Malting Company, a relatively new initiative in the area. For Legumes, the area achieved was less than the short term average since Kenya Seed Company which had been contracting farmers to grow the legume crops for seeds pulled out of the commercial legume production in the scheme. Reduced irrigation activities affected food availability and income in the marginal mixed livelihood zone.

**Table 2: Irrigated crop production**

<b>Crop</b>	<b>Area planted during the 2017 Long rains season (ha)</b>	<b>Short Term Average (3 years) area planted during Long rains season (ha)</b>	<b>2017 Long rains season production (90 kg bags) Projected/actual</b>	<b>Short Term Average (3 years) production during Long rains season (90 kg bags)</b>
1.Maize	367	681	7340	13620
2.Green grams	31	326	310	3260
3.Cowpeas	35	211	350	2110

### **Maize commodity stocks in the County.**

Stocks held by households were six percent of LTA due to stock depletion owing to crop failure in two previous successive seasons (Table 3). The household stocks reported were in Bura area (under irrigation) but in mixed farming, marginal mixed farming and the pastoral livelihood zones did not have food stocks at household level. In a normal season when household have sufficient stocks, the household stocks last them for three months. The maize stocks with the traders were 25 percent below the long term average due to shortage of maize nationally and poor local crop production. Millers and national cereal and produce board (NCPB) did not hold stocks. These stocks had been purchased mainly from the irrigated maize crop harvests. Sorghum and millet is gaining traction among households as a substitute for maize in preparation of porridge thus traders are bringing in more stocks for sale compared to the long term average.

**Table 3: Maize stocks**

<b>Commodity</b>	<b>period</b>	<b>House Holds</b>	<b>Traders</b>	<b>Millers</b>	<b>NCPB</b>
<b>Maize</b>	Current	<b>600</b>	<b>5230</b>	<b>0</b>	<b>0</b>
	<b>LTA</b>	<b>10,050</b>	<b>6900</b>	<b>0</b>	<b>1600</b>
<b>Rice</b>	Current	30	7640	0	0
	<b>LTA</b>	670	9,900	0	0
<b>Sorghum</b>	Current	0	120	0	0
	<b>LTA</b>	0	45	0	45
<b>Millet</b>	Current	0	140	0	0
	<b>LTA</b>	0	80	0	80

### 3.1.2 Livestock Production

Livestock production contributes 20 percent, 15 percent, and 68 percent to cash income in the marginal mixed farming, mixed farming and pastoral livelihood zones respectively. The main livestock kept in the County are camels, sheep, goats and cattle. Livestock production has been currently affected by the poor performance of the long rains.

#### Forage condition

Pasture and browse conditions were poor in pastoral all species livelihood zone while it is fair in marginal mixed farming and mixed farming livelihood zones as a result of the failed season.

The most affected areas with regard to pasture and browse access are the entire Tana north sub county, Wayu, part of Kinakomba and part of Mikinduni wards of Tana river sub county and Garsen north, Garsen west and part of Garsen south wards in Tana delta sub county. There is increased livestock migration towards the Tana delta region and parts of Kitui east in Kitui County, Lamu and Kilifi counties. Most of the pastures are expected to be depleted within a period of one month (September 2017).

**Table 4: Forage condition**

Livelihood zone	Pastures					Browse				
	Condition		How long to last (months)		Factors limiting access	Condition		How long to last (months)		Factors limiting access
	Current	Normal	Current	Normal		Current	Normal	Current	Normal	
Pastoral	Poor	Fair	<1	2	Lack of water	Poor	Fair	1	3	Lack of water, Pests (tsetse flies)
Marginal Mixed	Poor	Fair	1	4		Fair	Good	2	4	
Mixed Farming	Poor	Fair	1	3		Fair	Good	2	4	

#### Livestock body condition

The livestock body condition for cattle is poor across all the livelihood zones while it good for goats and sheep except in the pastoral livelihood zone where the body condition is fair to poor. The Camels body condition is fair to good in all the livelihood zones. Due to the worsening forage and water access, the body condition for all the species is expected to deteriorate further with cattle being the most affected. Rejuvenation of forage is expected to take place sometimes in late November after the onset of the short rains season and therefore livestock will have access challenges to pastures before then.

**Table 5: Livestock body condition**

Livelihood zone	Cattle		Sheep		Goat		Camel	
	Current	Normal	Current	Normal	Current	Normal	Current	Normal
Pastoral	Poor	Fair	Fair	Good	Fair	Good	Fair	Good
Marginal mixed	Poor	Good	Good	Good	Good	Good	Good	Good
Mixed farming	Poor	Good	Good	Good	Good	Good	Good	Good



### **Milk production, consumption and cost**

Milk production is below normal average. The average milk production in pastoral and mixed farming livelihood zone is less than one liter per household against a normal of eight. Low milk production has affected household milk consumption which currently is less than one liter per household per day. Average milk prices are above normal. The reduction in household milk production and consumption has been attributed to poor livestock body condition due to poor forage conditions, increased grazing and watering distances.

**Table 6: Milk production, consumption and cost**

Livelihood zones	Milk production (Litres)/Household		Milk consumption (Litres)/Household		Prices (Ksh)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Pastoral	<1	8	<1	4	70	60
Marginal mixed	2	6	1	3	60	50
Mixed farming	<1	6	1	3	60	50

### **Birth rates and Tropical livestock union (TLU)**

The birth rates were below normal for all species though more pronounced in goats due to poor nutrition as a result of insufficient forage. Livestock ownership at household level is below normal across the livelihoods and is attributed to loss of livestock due to recurrent and prolonged drought. The last known good year for the pastoralist, as per the focus group discussions feedback in the County was year 2007 – 2009 (the normal season). Table 7 summarizes livestock ownership by livelihood zones.

**Table 7: Tropical livestock unit**

Livelihood zone	Poor income households		Medium income households	
	Current	Normal	Current	Normal
Pastoral	5	10	24	28
Marginal mixed	5	6	6	10
Mixed farming	4	6	4	6

### **Livestock migration.**

Both inter and intra County livestock migration started in the month of June, which was not normal for the season. In July there was increased migration with about 80 percent of cattle having moved from their normal grazing fields towards the Tana Delta region, Lamu, Kilifi and Kitui Counties. Other species of livestock (sheep and goats 60percent, camels 70percent) were also on the move due to deteriorating forage and water conditions. Current migratory routes include Bangale to Waldena, Bura – Chifiri – Waldena-Kitui, Ijara – Majengo – Boji – Hara – Haroresa-Assa-Tsavo, Waldena – Assa-Tsavo East and Bura – Dayate – Dadashkori – Mnazini - Sera – Garsen –Lamu. The current migratory routes are not normal. By the end of July 2017, most livestock will have migrated from their traditional grazing fields.

### **Livestock disease and mortality**

There were no major livestock disease outbreaks reported in the County apart from a few cases of Contagious Caprine Pleuropneumonia (CCPP) in goats and lumpy skin disease. Current livestock mortality rates are low to moderate.

## Water for livestock

The current main sources of water for livestock are river Tana, boreholes, water pans, shallow wells, irrigation canals and *laggas*. Even though these are the normal water sources for livestock at this time of the year, their water levels have reduced significantly while others have dried up. Average return distances from grazing fields to watering points have more than doubled up. Average return distance is 50km, 10km and 8km in pastoral, marginal mixed and mixed farming livelihood zones respectively. Trekking distances to water points are expected to worsen further in the next two months, by end of August.

**Table 8: Water for livestock**

Livelihood zone	Sources		Return average distances (km)		Expected duration to last (months)	
	Current	Normal	Current	Normal	Current	Normal
Pastoral	Water pans, Trucking, shallow wells	Water pans, Shallow wells	50	10	<1 month	2 months
Marginal mixed	River, shallow wells	River, shallow wells	10	3	-	-
Mixed farming	River, shallow wells	River, shallow wells	8	2	-	-

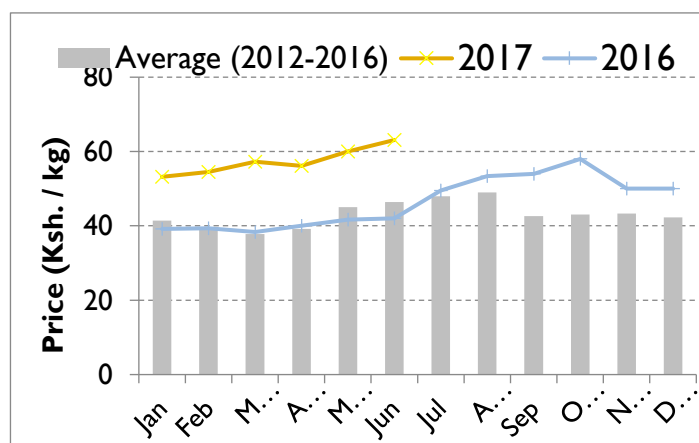
## 3.2 Access

### 3.2.1 Markets and trade

The main markets in the County are Kipini and Garsen in the mixed farming livelihood zone, Hola, Wenje, Bura and Madogo in the Marginal mixed farming livelihood zone, and Wayu, Waldena, Bura and Bangale in the pastoral livelihood zone. Even though the markets are functioning, there is considerable reduction in the number of livestock and crop products being offered for sale due to low supplies. Livestock have been driven far away from market centers in search of pastures and water hence not available at the local markets. Livestock available in the markets were mainly camels and goats with very few cattle especially in Tana North sub county. Food products on offer include maize, beans, green grams and rice. Other markets for livestock are Malindi, Mutha in kitui and Garrissa.

### Maize prices

The average price of maize in the month of June was Ksh 63 per kg, 46 percent higher than long term average (Figure 3). The high maize prices have been attributed to poor local production and the prevailing maize shortage in the Country. The prices are expected to reduce after August harvest but remain above LTA due to prevailing grain deficit in the region.



**Figure 3: Maize prices**

### Goat prices

The average goat price in June was Ksh 3,500 per head, which was two percent above the long term average and on a downward trend (Figure 4). The reduction in goat prices is as a result of the deteriorating livestock body condition due to the prolonged drought and low demand in the market.

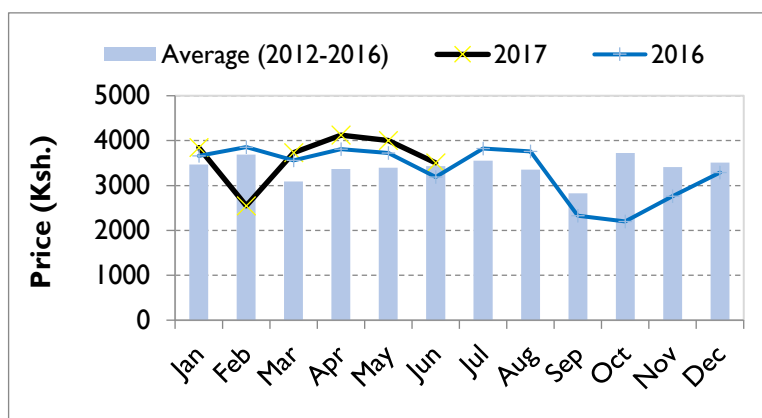


Figure 4: Goat prices

### 3.2.2 Terms of trade

The terms of trade (ToT) as at June were 25 percent below the long term average, and 37percent below similar period in 2016 (Figure 5). The decline in terms of trade from January to June has been attributed to fall in livestock prices and dramatic rise in cereal prices. The terms of trade (ToT) are expected to decline further as livestock prices are likely to decrease due to deteriorating livestock body condition and rising food prices towards the month of September.

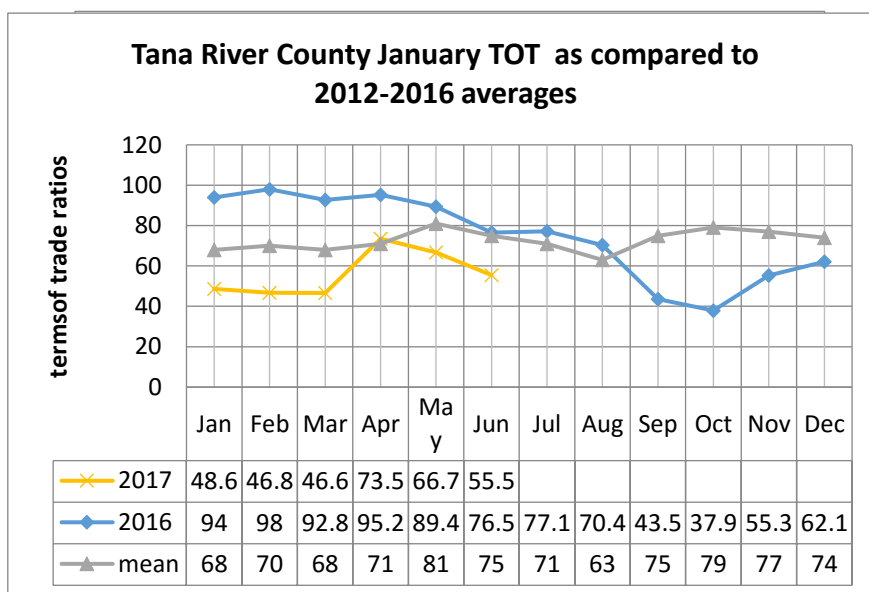


Figure 5: Terms of trade

### 3.2.3 Income sources

In pastoral livelihood zone, sale of livestock and livestock products account for 68 percent of the household income, while in marginal mixed farming livelihood, livestock production contribute to 20 percent of income while crop production contributes 13percent of the income. In mixed Farming livelihood, crop production contributes 52 percent of the household income, while sale of livestock and livestock products contributes 15 percent of the income (Kenya livelihood data 2012).

The cumulative effect of the failed seasons has mostly affected households in the mixed and marginal mixed farming livelihoods, where crop production is the main source of income. Charcoal burning, petty trade and remittances are the current alternative sources of income.

### 3.2.4 Water access and availability

#### Main water sources

The main water sources currently are River Tana, water pans/dams, shallow wells, pipeline and boreholes which are the normal water sources at this time of the year. All the main water sources in the County are not operating at their optimum levels due to failed two consecutive rainfall seasons. River Tana is the most relied upon source of water in the County.

In the mixed farming livelihood zones, the main sources of water are River Tana, shallow wells and a few piped water supplies. In the pastoral and marginal mixed livelihood zones, main water sources include River Tana, shallow wells and water pans.

The recharge level of all the water sources in the County is very low due to prolonged drought spell. The level of flow of River Tana is at 25 percent of its normal level. Water pans had a recharge of less than 50 percent of their normal level. Underground water sources including boreholes and shallow wells were equally affected by poor recharge (Less than 50 percent of normal). There has been an alarm raised in the Tana delta area especially the Ngao water works intake where the river is almost drying up due to drying of Matomba channel mouth. Water stressed areas are Chifiri, Hakoka, Kesi, Roka, Koticha Mlima and Koticha odwani in Tana River sub-county. Other water stressed wards are Bangale, Hirimani and Sala Wards in Tana north sub county as well as Kipini west ward in Tana delta sub- county.

**Table 9: Water access**

Ward / livelihood zone	Return Distance to Water for Domestic Use (Km)		Cost of Water at Source (Ksh. Per 20litres)		Waiting Time at Water Source (Minutes)		Average Water Consumption (Litres/person/day)	
	Normal	Current	Normal	Current	Normal	Current	Normal	Current
Mixed Farming	0.3	0.5	2	5	30	40	30	20
Marginal mixed Farming	0.5	5	4	14	13	88	29	18
Pastoral	0.8	7	6	25	33	56	29	15

#### Distance to water sources

Distances to watering points have gone up in all the livelihood zones with Pastoral and Marginal Mixed farming livelihood zones being the most affected. In Pastoral zone, average return distances to water points is 7km (Table 9), with some areas such as Bangale having a return distance of up to 30km against a normal of less than 1km. In Marginal mixed farming livelihood zone, average return distance is five kilometers against a normal of less than one kilometer. Other hotspots with regards to water access include Chewele and Sala wards whose return distance is about 20km. The current trekking water distances are not normal at this time of the year.

### Waiting time at the source

Waiting time at the water source has significantly gone up in all the livelihood zones. In the Pastoral livelihood zone, average waiting time is 25 minutes against a normal of 6 minutes. In marginal mixed farming livelihood zone, average waiting time is 14 minutes against a normal of 4 minutes while in mixed farming livelihood zone, waiting time is 5 minutes against a normal of 2 minutes. The hot spots with regards to waiting time are in Hirimani, Chewele, Sala and Bangale wards whose waiting time is 3 to 5 hours.

### Cost of water

The cost of water, at vendors, has increased in all the livelihood zones compared to normal prices. In Pastoral livelihood zone, average cost of water is Ksh 25 per 20 liter jerrican against a normal of Ksh.6 (Table 9). In marginal mixed farming livelihood zone, average cost of water is Ksh.14 against a normal of Ksh.4 while in Mixed farming the cost is ksh.5 against a normal ksh 2.

### Water consumption

Household water consumption has declined in all the livelihood zones with pastoral zone having the least consumption rate of 15 liters per person per day (lpd) compared to a normal of 29. The marginal mixed and mixed farming livelihood zones had a consumption rate of 18 liters per person per day (lpd), 20 liters per person per day (lpd) against a normal of 29 liters per person per day (lpd) and 30 liters per person per day (lpd) respectively. Water consumption levels are expected to decline further until onset of the short rains in late October.

### 3.2.5 Food Consumption

Food security situation in the county has been deteriorating over time due to effect of three consecutive failed seasons, reducing crop and livestock production, hence resulting in food intake gaps. About 76 percent of the population across the livelihoods had food consumption gaps by June 2017. The proportion of households having poor food consumption score (FCS) has been consistently higher in marginal mixed farming livelihood zone compared to other zones for the last four months (48 to 63 percent) while those with borderline FCS are higher in mixed farming livelihood zone over the same period (72 to 82 percent) as shown in Figure 6.

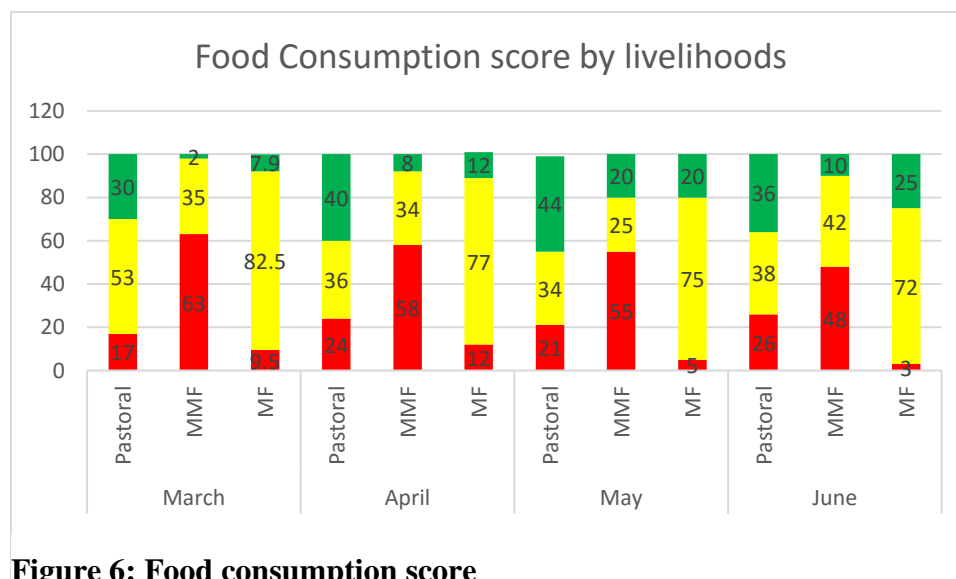
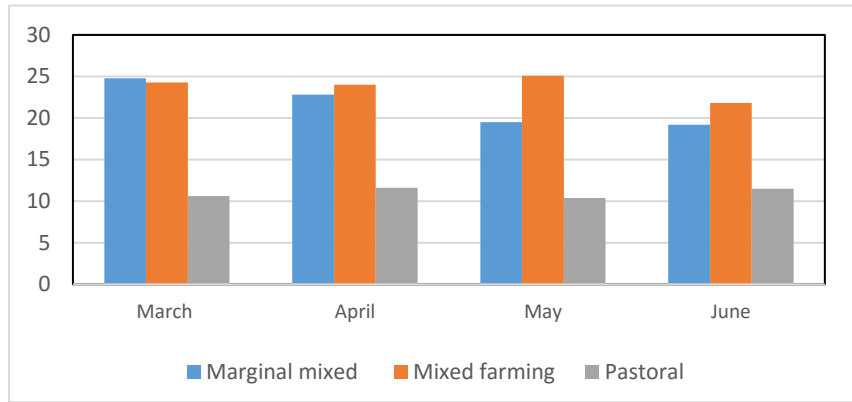


Figure 6: Food consumption score

### 3.2.6 Coping strategy

The coping strategies index (CSI) is an indicator of household food security, a score that reflects current and perceived future food security status. Changes in the index provide a rapid indication of whether food security is getting worse or the situation is improving – a higher score indicates a greater level of coping, and hence increased food



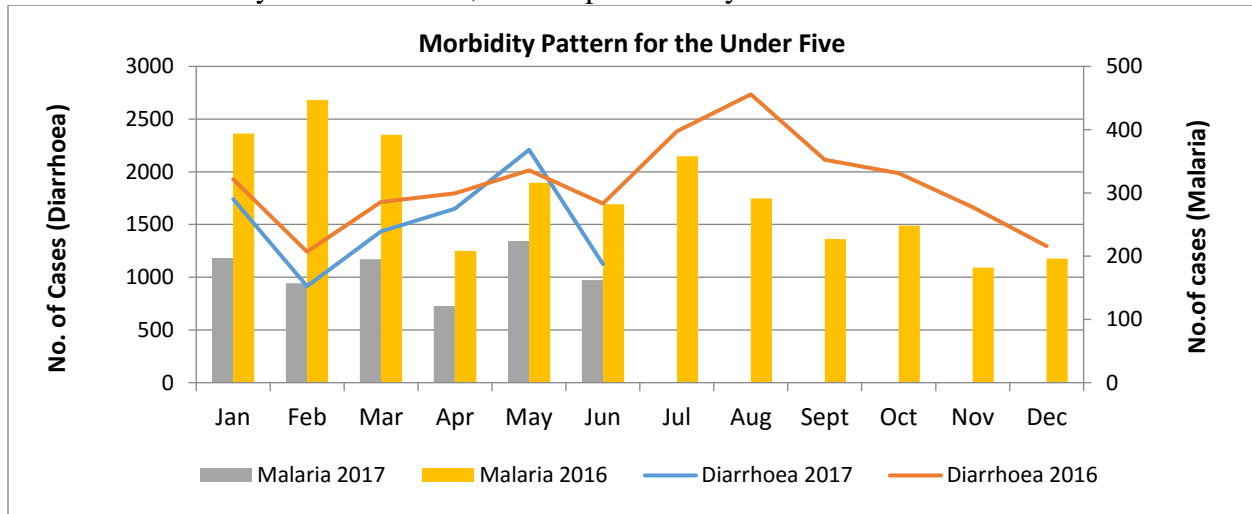
**Figure 7: Coping strategy index**

insecurity. During the long rains season, there was minimal change in CSI across the livelihood indication that there was no significant improvement or deterioration in access to food compared to the short rains season (Figure 7), hence population in the county maintained food insecurity status quo before and during the long rains season.

### 3.3 Utilization

#### 3.3.1 Morbidity and mortality

The 2 trends of the two common diseases (Diarrhea and Malaria) between January and June in children under five years was erratic, with a spike in May for Malaria and diarrhea.



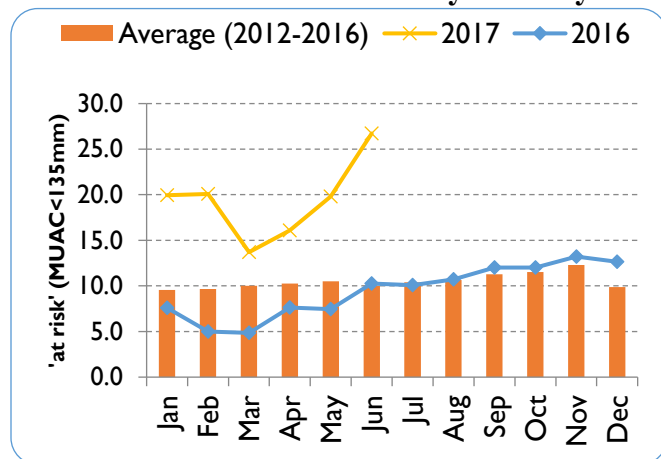
**Figure 8: Under five morbidity**

The trend shows cases were few than the cases reported in similar period in the previous year. Diarrhea and malaria increased across the County in the month of May which was linked to cold weather due to rains and presence of stagnant water, after the rains which were normal. There was no disease outbreak during the long rains season.

### Immunization and vitamin A coverage

Proportion of the children below five years who are fully immunized between January and May 2017 was 23.8 percent compared to 30 percent in similar period in 2016, as per health information system (DHIS). Vitamin A coverage for the children aged 6-11 months was 16 percent and 15 percent for children aged 12-59 months compared to 34 and 26 percent respectively in similar period in 2016 per nutrition survey of January 2017. The decline in immunization and vitamin A coverage was attributed to health staff strike in month of June.

### 3.3.2 Nutrition status and dietary diversity



Proportion of children with Mid Upper Arm Circumference (MUAC) below-135mm between January and June had more than doubled compared to a similar period in 2016 and LTA (Figure 8). The consistent high level of children with low MUAC is attributed to poor performance of the last three seasons which has reduced household capacity to access adequate diets. Food production and milk availability have been below normal and food security situation at household level made worse by upsurge in food prices experienced across the country in the second quarter of the year 2017.

Figure 9: MUAC

### 3.3.3 Sanitation and Hygiene

According to the nutrition survey of January 2017, 52.3 percent of the population in Tana River County practice open defecation with only 31.4 percent of the population owning latrines. As per community interviews during the assessment, latrine coverage was lowest in pastoral livelihood zones with less than 25 percent of households owning a latrine. In the Mixed Farming zone, latrine ownership was higher 50 – 80 percent (as per the community feedback). However, latrines were reported to collapse during the flooding seasons hence reducing proportion of households with latrines. Water contamination by open defecation was one of the factors which contributed to increase of diarrheal cases in the County.

Water treatment was low with only 25.6 percent of the population treating their drinking water, as per nutrition survey of January 2017. From the community interviews, water treatment was low for households that used boreholes as they believed that the water was fit for use. Culture and Community attitudes are the main factors contributing to low usage of water treatment chemicals.

### 3.4 Trends of key food security indicators

**Table 10: Food security trends in Tana River County**

Indicator	Short rains assessment, Feb 2017	Long rains assessment, July 2017																																
% of maize stocks held by households (agro-pastoral)	85% below the long term averages (LTA). Households continue to rely on market supplies.	6% of the LTA																																
Livestock body condition	Pastoral areas – body condition is fair to poor Marginal mixed and Mixed Farming area fair body condition	Poor across all livelihoods																																
Water consumption (litres per person per day)	10 - 15 liters per person per day in pastoral and marginal mixed farming 25 liters per person per day in and mixed farming areas	10-15 lpppd-PLZ 15-20 lpppd-MF/MMF																																
Price of maize (per kg)	Ksh.50	Kshs. 63																																
Distance to grazing	5 – 12 km in the pastoral areas 2 – 5 km in the marginal mixed and mixed farming areas	5 – 12 km in the pastoral areas 2 – 5 km in the marginal mixed and mixed farming areas																																
Terms of trade (pastoral zone)	66kg	56kgs																																
Coping strategy index(CSI)	Pastoral areas – 9.3 Mixed farming – 22.3 Marginal mixed farming – 14.3	Pastoral-11 Mixed mixed-21 Marginal mixed -20																																
Food consumption score	<table border="1"> <thead> <tr> <th></th> <th>Poor</th> <th>B.line</th> <th>Acce'ble</th> </tr> </thead> <tbody> <tr> <td>PLZ</td> <td>10</td> <td>71</td> <td>19</td> </tr> <tr> <td>MMFLZ</td> <td>46</td> <td>41</td> <td>13</td> </tr> <tr> <td>MFLZ</td> <td>19</td> <td>37</td> <td>44</td> </tr> </tbody> </table>		Poor	B.line	Acce'ble	PLZ	10	71	19	MMFLZ	46	41	13	MFLZ	19	37	44	<table border="1"> <thead> <tr> <th></th> <th>Poor</th> <th>B.line</th> <th>Acce'ble</th> </tr> </thead> <tbody> <tr> <td>PLZ</td> <td>26</td> <td>38</td> <td>36</td> </tr> <tr> <td>MMFLZ</td> <td>48</td> <td>42</td> <td>10</td> </tr> <tr> <td>MFLZ</td> <td>3</td> <td>72</td> <td>25</td> </tr> </tbody> </table>		Poor	B.line	Acce'ble	PLZ	26	38	36	MMFLZ	48	42	10	MFLZ	3	72	25
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MFLZ	3	72	25																															
Proportion of children below 135mm (by MUAC)	12.65% (Jan 2017)	26.72(June 2017)																																
Global acute malnutrition	14% (Jan 2017)	14% (Jan 2017)																																

## 4.0 FOOD SECURITY PROGNOSIS

### 4.1 Assumptions

- There will be no off season rains till late October during short rains onset.
- Short rains will be timely and normal



- Maize prices will remain high due to low local production and ban of export of maize in Tanzania which is a key supplier of maize.
- Livestock prices will continue to decline due to poor livestock body condition, distress sale due to drought, and the seasonal increase in sales around September.
- Increase in conflict over pasture and water in the irrigation schemes as herders search for pasture, along delta, Kilifi and Kitui due as many livestock converge and compete over pastures. In addition encroachment to the game reserves likely to triggers human-wildlife conflict.
- The August general election will be peaceful and will have no impact on market operations.

## **4.2 Outlook for 3 and 6 months**

### **4.2.1 Food security outlook for next 3 months (August - October)**

Current food security situation is expected to remain stressed (IP C Phase 2) in mixed farming and marginal mixed farming livelihood zones in the next 1-2 months (By late August)), and one month in Pastoral livelihood zone, then deteriorate to crisis( IPC phase 3) in pastoral livelihood zone as from September. Households will continue to rely on market for food, across the livelihood zones, with reduced purchasing power hence inadequate food due to elevated food prices. Livestock body condition for goats and sheep is expected to worsen from fair to poor in the next one month ( late August) across livelihoods, while body condition for cattle is expected to worsen from fair to poor in marginal mixed farming and remain poor in pastoral livelihoods with elevated mortality by September. Distress migration is expected to be pronounced as height of dry period peaks in towards September. As at July 2017 80 percent of cattle and goats had migrated from the normal grazing areas in the pastoral zones. Milk availability will continue to be below normal and decline further in September-October which will lead to increase in proportion of children with acute malnutrition by November 2017.

### **4.2.2 Food security outlook for next 6 months (November - January)**

Minimal improvement in food security situation is expected during the October- November - December period due to the cumulative effect of the past failed seasons across the livelihoods. More households will slide to crisis (IPC phase 3) in November- December period in the marginal mixed farming and mixed farming livelihoods. Water situation and on farm labour income will improve due to the onset of the short rains increasing purchasing power in farming communities. Milk availability is likely to improve slight from January as livestock body condition improves due to regenerated forage and availability of water. The improvement in milk availability will reduce malnutrition levels. Significant proportion of the population will require food assistance.

## **5.0 CONCLUSION AND INTERVENTIONS**

### **5.1 Conclusion**

The County has had three successive failed seasons and hence food security situation will worsen as the peak of dry season is experienced in the month of September before the onset of the short rains. Several parts of the county are likely to deteriorate to crisis (IPC phase 3), especially Madogo, Bangare, Hirimani in the Tana north sub county and Sala ward and Wayu ward in Tana River sub-county. Due to heavy concentration of livestock in Tana delta, conflict and disease outbreak may arise hence need to actively monitor the situation. Other key welfare indicators to be monitored including:

- Livestock migration patterns, Livestock pests and diseases.
- Access to water for both human and livestock.
- Nutrition status of children under age of 5.
- Human disease outbreaks such as cholera.
- Price of food items in the market and market function.
- School attendance and participation since school meal programme has challenges.

A mid-season assessment is needed in the month of September 2017 to provide a snap shot of the situation during the peak of the dry season

#### **5.1.1 Phase classification**

The County was classified as stressed (IPC Food Insecurity Phase 2) across all livelihood zones, though Kipini east and west are in minimal (IPC Phase 1).

#### **5.1.2 Summary of findings.**

Below average performance of the long rain season compounded with the effects of the poor performance of the previous two seasons, have resulted in low livestock productivity, poor crop production in the rain fed agriculture and inadequate water for irrigation. Consequently reduced income from labour, and crop sales in the crop production areas have reduced access to adequate food. The cumulative effect on forage and water situation has also affected livestock productivity, lowering birth rates, milk production and livestock prices, hence reducing the households' capacity to access adequate food. Livestock migration has also reduced access to milk in the pastoral livelihood zones which may result in increased malnutrition.

Expected crop production has also been affected by emergence of the fall army worms in Kipini wards which destroyed early crop while the replanted crop did not perform well due to early cessation and inadequate rainfall. Low water levels in river Tana affected farmers who rely on flooding for crop production. Low river volumes affected Matoba and Ngao water systems hampering crop production and access to water for domestic livestock. The food security situation will continue to worsen until the onset of the short rains season.

### 5.1.3 Sub-county ranking

**Table 11: Ranking**

	Rank(1-3 worst to better)	Main food insecurity factors
Sub-county	Rank(1-3 worst to better)	Main food insecurity factors
Tana north	1	<ul style="list-style-type: none"> <li>- Poor pasture and browse.</li> <li>-worsening water situation.</li> <li>- Most of livestock out migration due to poor pastures.</li> <li>-increased in return trekking distances to water.</li> <li>-very low milk availability.</li> </ul>
Tana river	2	<ul style="list-style-type: none"> <li>- poor pasture and browse in pastoral zone</li> <li>-crop production ongoing in Hola irrigation scheme and along the river Tana.</li> <li>-livestock (camels) concentrated in this area.</li> </ul>
Tana Delta	3	<ul style="list-style-type: none"> <li>- Livestock in migration</li> <li>- Reduced river flow in river Tana affecting irrigated agriculture</li> <li>- Presence of tsetse flies hampering pasture access</li> <li>- Presence of fall army worms affecting maize crop</li> </ul>

## 5.2 Ongoing Interventions

### 5.2.1 Food interventions

The current regular food intervention includes WFP supported assets creation 45,900 beneficiaries and 3,975 under government social safety net program

**Table 12: Food interventions**

	FFA	Social protection
Tana north	8261	1140
Tana river	21,939	1191
Tana delta	15700	1644
	45,900	3,975

The school meals program supports 165 public primary schools with 44,224 pupils (23,066, boys and 21,158 girls). However, 17,080 early childhood education (ECD) pupils (9,105 boys and 7,975 girls) are not in the school meals program. Though there has been no food in schools since April 2017 due to delays in release of funds.

## 5.2.2 Non-food intervention

**Table 13: Non-food interventions**

### Water sector

SUB-COUNTY	Intervention	Location	No. of beneficiaries	Implementers	Impact in terms of food security	Cost (Ksh)	Time Frame
TANA RIVER	Bochtito , Baridi and Kone Kaliti waterpans	Wayu, Asa, Waldena	2500	County Government	Improved access to water	37M	July 2016 – Dec 2017
	Kone Kaliti, Saware, Gafuru borehole	Waldena, Ndura	2800	County Government	Improved access to water	25M	July 2016 – Dec 2017
Tana Delta	Tana Salt, Kilelengwani, Garsen, Garsen Juu water pans	Wachu Oda , Chara, Asa, Bilisa	13,800	County Government	Improved access to water	40M	July 2016- Dec 2017
	Asa, Gadeni boreholes	Asa, Salama	1,200	County Government	Improved access to water	9M	July 2016 – Dec 2017
Tana north	Construction of Bilbil, Godhia and Hamares waterpan Construction	Bura (Chewele, Hirimani,) and Madogo wards (Hamares)	2,500	County Government	Improved access to water	30,000,000	May - Aug 2016

SUB-COUNTY	Intervention	Location	No. of beneficiaries	Implementers	Impact in terms of food security	Cost (Ksh)	Time Frame
	Drilling Meti Borehole	Bura	1,000	County Government	Improved access to water	9,000,000	May - Aug 2016
	Construction of Chardende pipeline	Nanighi/Dokanotu	5,000	County Government	Improved access to water	65,000,000	Jul 2015 – Aug 2016
<b>Livestock sector</b>							
T/North, T/River T/delta	Destocking /slaughter			Red cross	Reduce pressure on pasture	7,500,000	Feb-March
	Pasture/fodder establishment and conservation			Red cross Rplrp	Offer supplement during time of drought		5years
Tana River	Institutionalization of planned grazing system			FAO			2years
All sub counties	Community based Breed improvement			Rplrp	Maintain a breed that is adaptive to the		5years

SUB-COUNTRY	Intervention	Location	No. of beneficiaries	Implementers	Impact in terms of food security	Cost (Ksh)	Time Frame
					harsh conditions		
All sub counties	Livestock feed supplementation			National Government	Offer protection against loss of livelihood		3months
	Pasture and fodder establishment and conservation			National Government	Offer protection against loss of livelihood		5yrs
	Community based Breed improvement			Rplrp	Maintain a breed that is adaptive to the harsh conditions		5years
	Livestock insurance		2500 h/h	National Government	Offer protection against loss of livelihood		2015-2020
<b>Health sector</b>							

SUB-COUNTRY	Intervention	Location	No. of beneficiaries	Implementers	Impact in terms of food security	Cost (Ksh)	Time Frame
All sub counties	High impact nutrition interventions(HiNi)	All health facilities	55,344	MOH/UNICEF/IMC/WFP/KRCS	Prevention and treatment of malnutrition		Continuous
All sub counties	Integrated medical outreaches and active case finding	21 hot spots/hard to reach areas	10838	MOH/UNICEF/KRCS	Prevention and treatment of malnutrition		Continuous
<b>Agriculture sector</b>							
County wide	Supply of sorghum seed	Hola and Bura irrigation schemes	1500	Dept. of Agric.	Cash crop and also food crop	600,000	April - August 2017
“	Farmer capacity building	Bura and Madogo	2000	Ministry of agriculture	Change adoption rates	2,000,000	Throughout the year
Kinakamba	Assorted farm inputs fertilizers and pesticides	Makere, Wenje and Maroni	200	Department of Agriculture and other stakeholders	Improved production and food security	300,000	LR 2017
Tana River	Small scale Irrigation and Value Addition	Chewani	2000	MoALD, Africa Devt Bank	Land Inputs	Personnel	2017 - 2022

SUB-COUNTY	Intervention	Location	No. of beneficiaries	Implementers	Impact in terms of food security	Cost (Ksh)	Time Frame
					Technical skills		

### 5.3 Recommended Interventions

#### 5.3.1 Food interventions

Since there was no improvement or serious deterioration in food security situation in the county during the long rain season, the County steering group(CSG) maintained the proportion of population in need of food assistance as was in February 2017 post short rains

**Table 14: Food interventions**

	Population*	Population in needs (% range min-max)
Tana north	104,197	45-50
Tana river	76,831	40-45
Tana delta	122,019	35-40
Totals	303,047	

\*KNBS(2006) Projection



### 5.3.2 Recommended Non-food interventions

**Table 15: Recommendations for non-food interventions**

Sub County	Intervention	Location	beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
<b>Water sector</b>							
<b>Immediate interventions</b>							
Tana River	Water trucking	Milalulu and Chifiri, Chifiri, Hakoka, kesi, Roka, Gwano, Kinakomba, Masalani Boji, Hara, Haroresa and Masalani, Wayu, Gururi, Wayu duka, Wayu boru, Gofisa, Matagala, Bultomulitu, Titila, Doke and Kone Kaliti, Bangale Ngao, Wachu Oda locations	32,400	CGoTR, GoK,	15,000,000	Water bowsers	July-Sept 2017
<b>Medium /long term</b>							
TAN A DELTA	Desilting of water pans, rehabilitation of shallow wells, pipeline extensions	Assa, wachu-oda, shirikisho, kikomo, kipini, ndera, mwina, kipao, Kurawa	20,000	CGoTR, NDMA, services NGOS, GoK, Coast water board,	Technical staff, funds, machinery	Technical staff	4 months

Sub County	Intervention	Location	beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
Tana river	Take-over of the NIB Bura water works operations by TAWA SCO	Bura	20000	CGoTR	Funds	Personnel	April 2017 - April 2018
Tana north	Construction of 50,000 m <sup>3</sup> Capacity large dams	Bura, Bangale (Hirimani, Bangale, Boka)	15,000	CGoTR	Funds	Land	2016 - 2018
Livestock sector							
<b>Immediate intervention</b>							
All sub counties	Livestock supplements	All wards		CGoTR, GoK, NDMA, KRCS	20m		July-Nov
All sub counties	Livestock offtake program	All wards		CGoTR, GoK, NDMA, KRCS	10m		July-Nov
	Mass vaccination & treatment	All wards		CGoTR, GoK, NDMA, KRCS	Funds		July-Nov
Health sector							
<b>Immediate interventions</b>							

Sub County	Intervention	Location	beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
All sub counties	Integrated medical outreach and Active case finding	21 hot spots/Hard to reach areas.	10838	MoH/UNICEF/IMC/WFP/KRCS	3.5M		Aug - OCT
All sub counties	Health Promotion Activities	All facilities	10838	MoH/UNICEF/IMC/WFP/KRCS	0.6		Aug - OCT
All sub counties	Provision of water treatment chemicals	All facilities	55 HFS	MoH/UNICEF/IMC/WFP/KRCS	0.3		Aug - OCT
Agricultural sector							
Immediate interventions							
Tana River, Tana North and Tana Delta	Farmers training on use of certified seeds and new farming techniques	All wards	4,000	Department of Agriculture, German Action, Samaritan Purse, ASDSP	Personnel, Funds,	Personnel, Funds	2017
All sub counties	Provision of relief Seed and	All wards	122,170	CGoTR, GoK, NDMA, , MoA	Personnel, funds	Funds for purchase of seeds	July 2017 - Febr

Sub County	Intervention	Location	beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
	other inputs						uary 2018
Medium/long term							
All sub counties	Provision of solar water pump sets and accessories and revival of dormant Minor Irrigation Schemes	All arable land along the river Tana	2400 HH	Department of Agriculture and other stakeholders	200 M	Technical skills, Funds from department (40m)	LR 2016
Tana north	Construction of Market Centre for marketing of Farm Produce	Madogo shopping centre	1000	TRCG MOA	50M	Personnel	2017 - 2018

**Recommended Interventions (from 2016 SRA):**

**Table 16: SRA Water Sector Recommendations**

<b>Intervention</b>	<b>Location</b>	<b>No. of beneficiaries</b>	<b>Implementers/actors</b>	<b>Remarks ✓Implementation status (ongoing, completed, not completed) % completion status</b>
<b>Water sector</b>				
Water trucking	Tana north, tana river county	32,400	TRCG	Ongoing
Desilting of water pans, rehabilitation of shallow wells, pipeline extensions, water trucking	Assa, wachu-oda, shirikisho, kikomo, kipini, ndera, mwin a, kipao, Kurawa	20,000	TRCG, NDMA, Coast water services board external/internal NGOS	Complete
<b>Livestock sector</b>				
Feed supplementation	All the 3 sub counties		State dept of livestock, NDMA	Completed
Livestock off take	All the 3 sub counties		NDMA, Redcross and GAA	Completed
<b>Health sector</b>				
Integrated medical outreach	Billa, Wadesa, basarges, Boka, Asako Fafbare, Walesa, Bilbil,	10,800	MoH/UNICEF/KRCS	70% completed 2round of outreaches have been done one more to be done however nurses strike affecting it.

	buwa			
<b>Agriculture sector</b>				
Assorted relief seeds, drought tolerant and early maturing	All locations	4000	Dept of agriculture and stakeholders	Not completed. relief seed was not bought
Assorted farm inputs and tools	All locations	2000	Dept of agriculture and stakeholders	On going
Provision of portable water pump sets and accessories and revival of dormant minor irrigation schemes	All locations		Dept of agriculture and stakeholders	30 water pumps received but have not been distributed.
Capacity building of farmers on crop production agro forestry and marketing	All locations	3000	Dept of agriculture	Ongoing
Scheme expansion	Bura	2500	NIB	Ongoing by NIB
Establishment of Minor irrigation Schemes	Chewele, Wenje, Maroni	800	Dept of agriculture, Catholic Wenje	Not completed (75% complete) by catholic relief services and MOA
Tractor Hire Service	Garsen	4000	Dept of agriculture and county government	Ongoing
Water harvesting and boreholes/earthdam construction	Garsen, Hola,	4000	Dept of agriculture, ADB, Ministry of water & Irrigation Kenya Red Cross	On going

Construction of Market Centre for marketing of Farm Produce	Madogo	1500	Tana River County government Ministry of Agriculture, Livestock & Fisheries Kenya Red Cross	Not started
Food supplies, Farm inputs like seeds	Kipini, Garsen, Tarasaa	10,000	GOK, CGOVT, NDMA, KRC, MoA	Not started for this year