

National Drought Management Authority


Tana River County

Drought Early Warning Bulletin for November 2019



A Vision 2030 Flagship Project



NOVEMBER EW PHASE	Early Warning Phase Classification			
	LIVELIHOOD ZONE	EW PHASE	TRENDS	
<p>Drought Situation & EW Phase Classification Drought Phase: Normal-Improving Biophysical Indicators</p> <ul style="list-style-type: none"> Biophysical indicators show positive fluctuations towards the expected seasonal ranges. Below average rainfall was received in the month of November 2019. The November Vegetation Condition Index values for Tana River County are above normal and clearly indicating improvements across all sub-counties. The Water levels in water pans have improved to above normal at 5(65%-100%) in all livelihood zones. Water levels within pastoral livelihood zones are still below normal and most areas are still experiencing water stress. <p>Socio Economic Indicators (Impact Indicators) Production indicators:</p> <ul style="list-style-type: none"> The forage condition is good to fair in both quality and quantity but expected to improve with the ongoing short rains. Outwards Migrations from Delta reported . Livestock body condition has improved across all livelihood zones. Milk production is above normal given the improved forage and pasture conditions. No Livestock deaths were reported in all Livelihood zones. <p>Access indicators</p> <ul style="list-style-type: none"> Terms of trade are currently below normal range but improving. Distances to water sources for households currently are above normal ranges. Pastoral livelihood zones still stressed. <p>Utilization indicators:</p> <ul style="list-style-type: none"> The number of under-fives at risk of malnutrition stood at 14.60%, which is above normal at this time of the year. Copping strategy index for households is within normal ranges but on an improving trend. 	PASTORAL	ALERT	IMPROVING	
	MARGINAL MIXED	NORMAL	IMPROVING	
	MIXED FARMING	NORMA	IMPROVING	
	COUNTY	NORMAL	IMPROVING	
	Biophysical Indicators	Value for the month Tana River	LTA-Monthly Tana River	Normal ranges Kenya %
	Average rainfall MM (%)	153.00 mm	330 mm	80-120
	VCI-3month	60.49		35-50
	% Of water in the water pan	5(75-100%)		5-6
		Production indicators	Value	Normal ranges
		Livestock Migration Pattern	normal	Normal
		Livestock Body Condition	3-4	4-5
		Milk Production (Ltr /HH/Month)	3.5	2.77
		Livestock deaths (for drought)	No death	No death
		Access Indicators	Value	Normal ranges
	Terms of Trade (ToT)	74.1	>=76	
	Milk Consumption (Ltr)	1.8	>=1.77	
	Water for Households-trekking distance (km)	3.6	<=2.3	
	Distances to grazing for livestock (km)	6.4	<=7.1	
	Seasons production (90 kg bags)(by February 2019)	6,600(maize) 1,495(green grams)	LTA (27,600Ha) LTA (2,920Ha)	
	Utilization indicators	Value	Normal ranges	
	At Risk (%)	14.60%	<12.44%	
	CSI	15.20%	<=15.0	

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

1. CLIMATIC CONDITIONS
1.1 RAINFALL PERFORMANCE

Rainfall station data (GROUND DATA:)

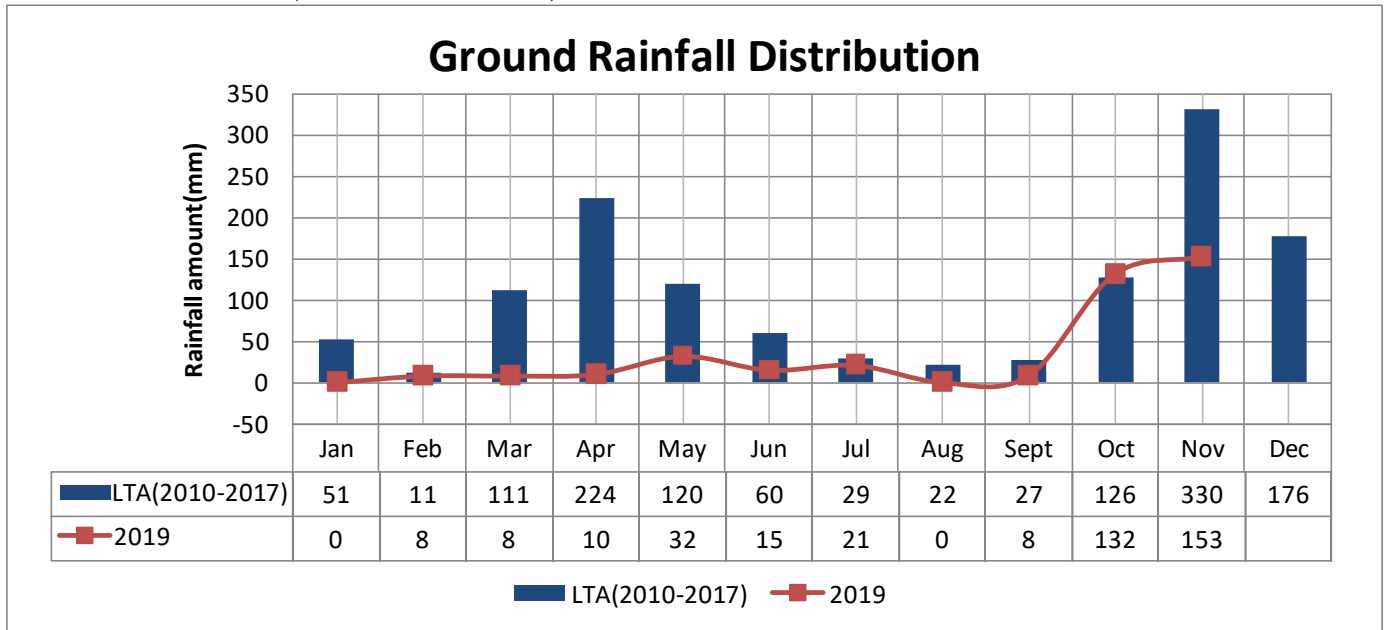
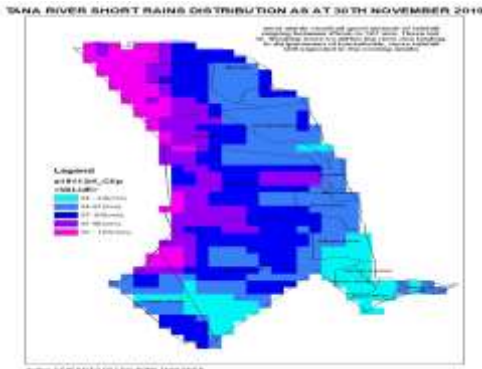


Fig .1.source: ARV

An average of 153.00 mm rainfall was recorded in November coupled with decreasing temperatures. This is below the LTA of 330.00 mm.

1.2.RAINFALL TEMPORAL AND SPATIAL DISTRIBUTION



In the month of November, on average 168 mm of rainfall was received in Tana North, 152 mm received in Galole and 139 mm received in the Delta respectively. The amounts received were below normal at this time of the year. spatial and temporal distribution was fair to good.High amounts of rainfall were recorded in Tana North and Galole sub-counties.

The rainfall was evenly distributed across Tana Delta and Galole but unevenly distributed in Tana North.

Fig.2.source: Continental Africa Dekadal RFE.

1.3. TEMPERATURES

1.3.1. LAND SURFACE TEMPERATURE (LST)

The November 2019 land surface temperature (LST) values for Tana River County have decreased to 33.4°C by the 3rd dekad of November, which is below normal(38°C) at this time of the year.

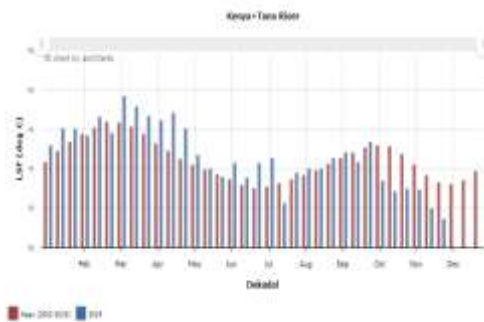


Fig.3.source: LST-C6

2.1. IMPACTS ON VEGETATION AND WATER

2.1.1. VEGETATION CONDITION INDEX (VCI)

The November vegetation cover for Tana River County shows normal vegetation cover on average for the county across all the three sub-counties. The current trend has improved compared to the month of October.

COUNTY	Sub County	VCI as at 30 th November 2019	VCI as at 28 th October 2019	
TANA RIVER	County	60.49	36.49	Improving trends in vegetation conditions experienced in all the sub-counties. Two sub-counties currently experiencing moderate drought
	Bura	48.63	33.82	
	Galole	60.65	33.75	
	Garsen	70.46	40.47	

Fig.4. Source BOKU

The information provided above reflects all sub-counties currently experiencing normal vegetation deficit, improving trend is observed across all the sub-counties.

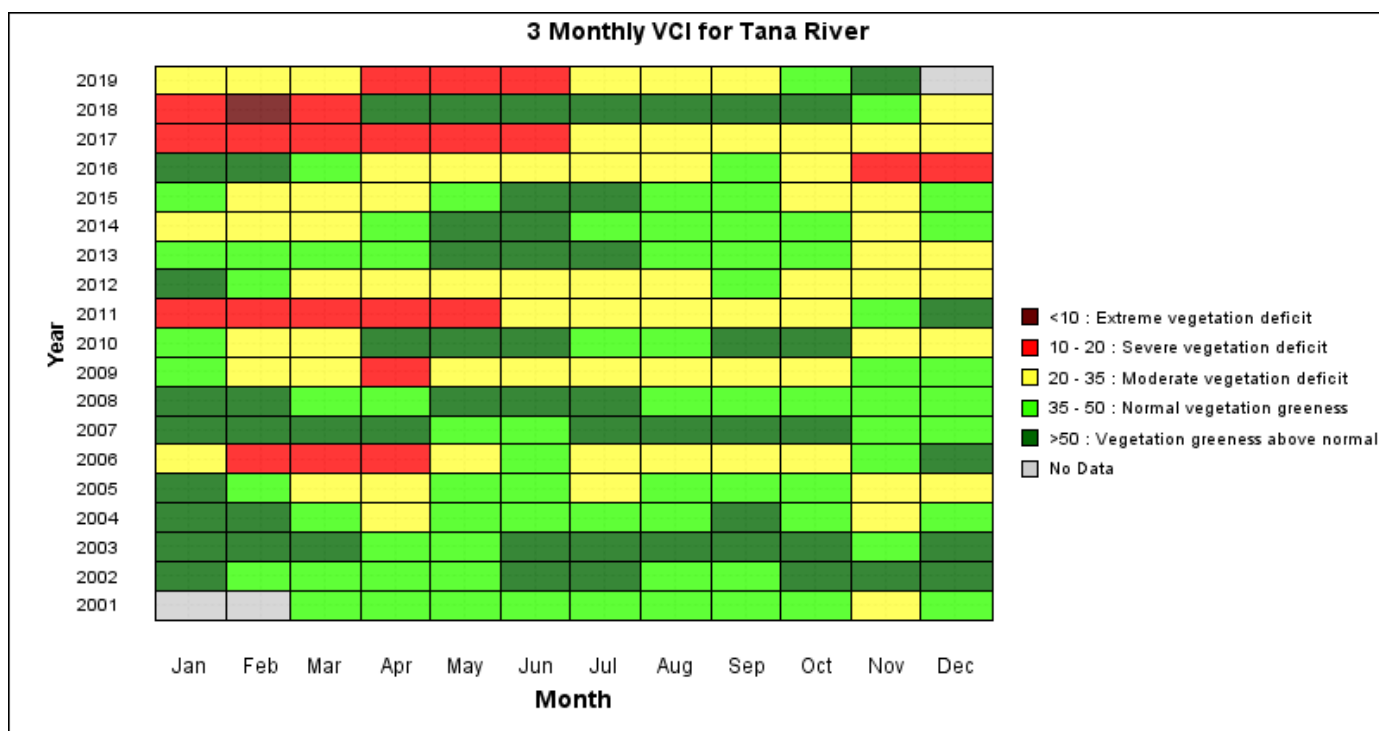
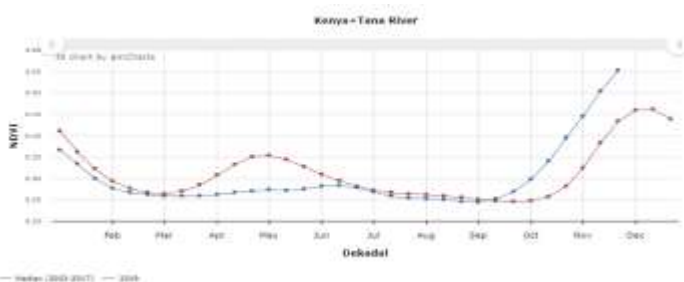


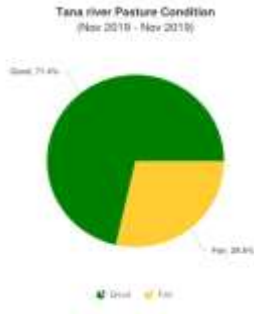
Fig.5.Source BOKU

In November the vegetation cover for Tana River County was at 60.49, which indicates normal vegetation cover. In comparison to the previous month the current vegetation cover has improved in quantity and quality. Any changes in this trend will be highly dependent on the performance of the short rains.



The NDVI for Tana River County is currently showing an improving trend in November 2019(0.55) which is above the LTA (0.43). This is attributed to good showers of rains received in the month of November. Decreasing temperatures also experienced towards the end of November 2019.

Fig.5.Source: NDVI-C6

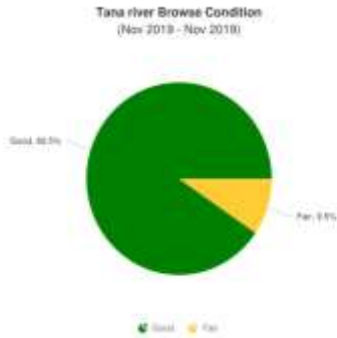


2.1.2 Pasture

The pasture condition is good to fair both in quantity and quality across all livelihood zones in the county. Pasture condition within the mixed and marginal mixed livelihood zones have improved due to good showers received in mid October.

The current pasture is expected to last for more than one month in Pastoral and Marginal mixed livelihood zones and two months in the mixed farming livelihood zones.

Figure 6: Tana River pasture conditions



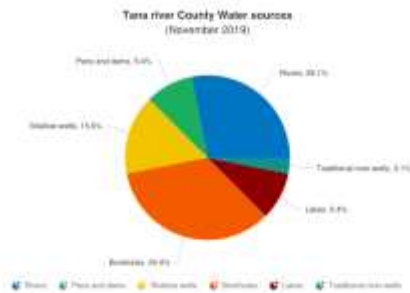
2.1.3. Browse

The browse condition is good to fair in quantity and quality across pastoral and mixed livelihood zones but good in marginal mixed livelihood zones which is normal ranges at this time of the year.

The available browse is expected to last for a month in pastoral and marginal mixed livelihood Zones and one month in mixed farming livelihood zone.

Figure 7: Tana River browse

2.2 WATER RESOURCE



2.2.1 Sources

The main water sources for both livestock and human consumption across all livelihoods were boreholes, Rivers, traditional wells, Pans and dams, lakes (Oxbo lakes), pans and dams and shallow wells.

Most water pans and dams were at 75-100% of their full capacity. Most households are currently using rivers, bore holes and traditional rivers wells.

The current water sources are expected to last for more than two month across all livelihood zones.

Figure 8: Tana River water sources

2.2.2 Household access and Utilization

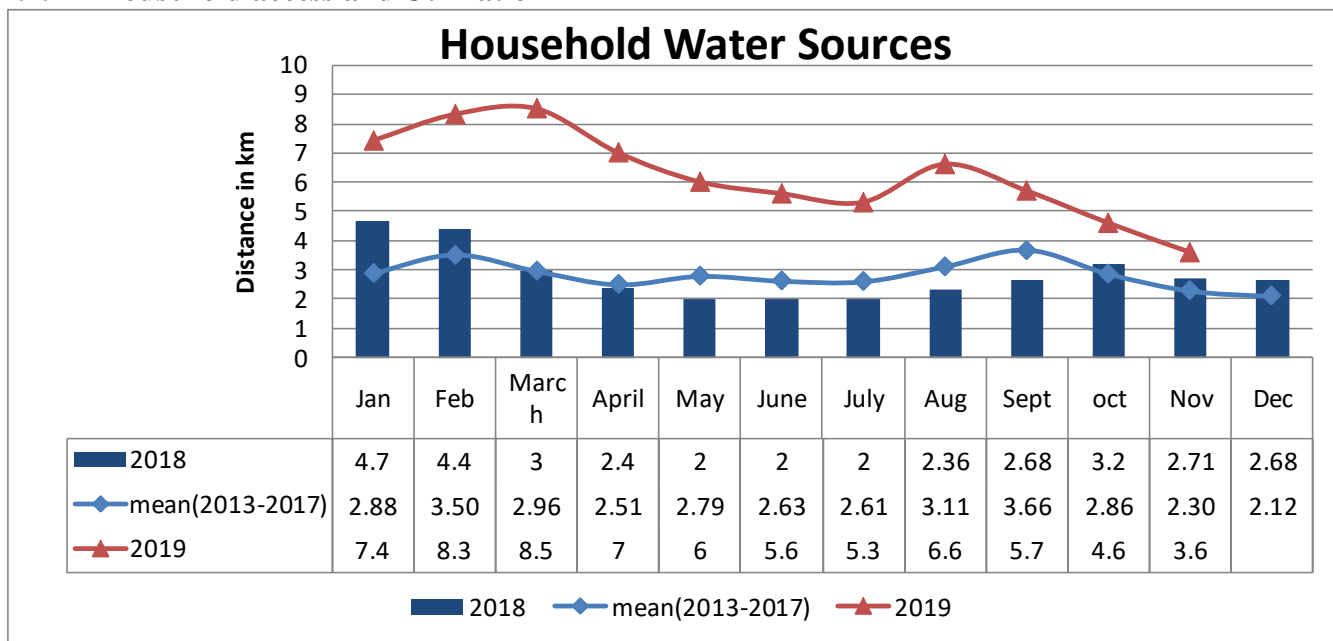


Fig.9.

- The households trekking distance decreased in the month from 4.6 km to 3.6 km. The current distance is above the Long-term average of 2.30 km.
- The decrease in trekking distance is attributed to the ongoing rains. This has led to recharge of most of the open water sources. Households within pastoral livelihood zones are trekking longest average distances of 2.2 km.

2.2.3 Livestock access

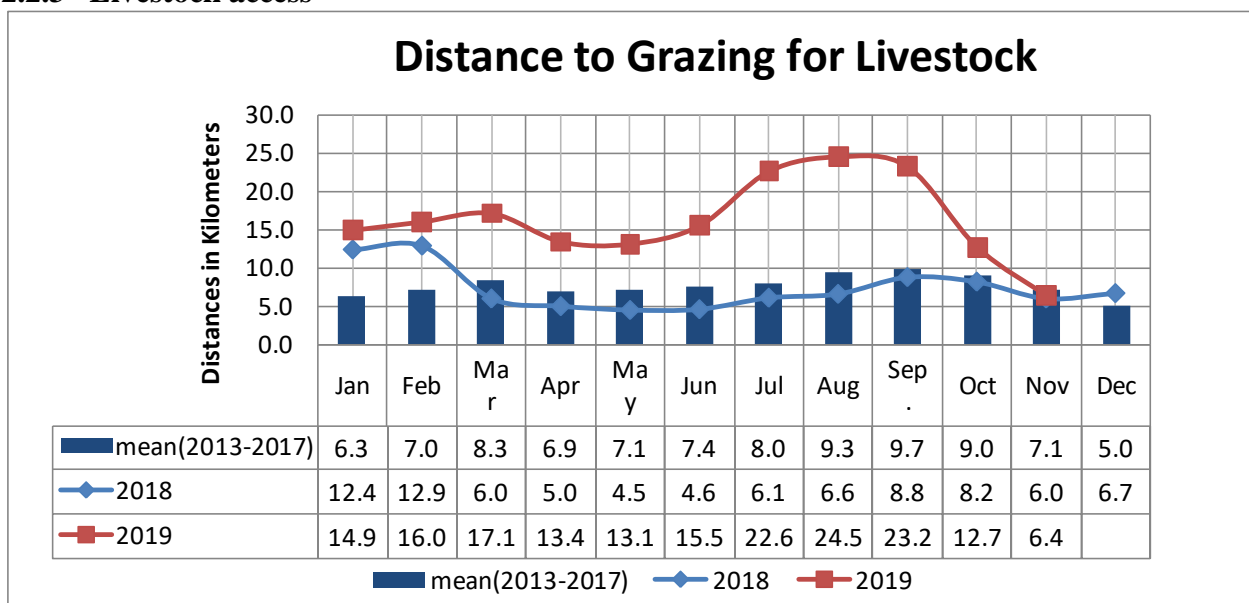


Fig.10.

- The return distance for livestock to grazing zones decreased to 6.4 km during the month.
- The situation is attributed to heavy showers received across all livelihoods which led improvement of pasture and browse during the month.

3.0. PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition

- The livestock body condition has improved across all livelihood zones but still stressed. The situation was as result of regeneration of pasture, browse and water which has led to livestock walking short distances. *(Refer to table 4 in annex)*

3.1.2 Livestock Diseases

- LSD,CCPP in Garsen north and Wayu Ward.
- Trypanosomiasis,foot rot,helminthiasis,ORF,diarrhoea syndrome in Tana Delta,Garsen Central,Garsen South,Kipini East and West.
- Heavy infestations of worms across all livelihood zones triggered by rains
- Threat of Rift valley feaver outbreak due to heavy rains and floods.
- No notifiable livestock diseases incidences were reported; the disease incidences were within normal seasonal ranges

3.1.3 Milk Production

- The average milk produced per household per day increased to 3.5 litres compared to the previous month.
- In comparison to the long-term average; the current amount is above; this is attributed to heavy showers received which improved the quality of pasture and browse across all livelihood zones.

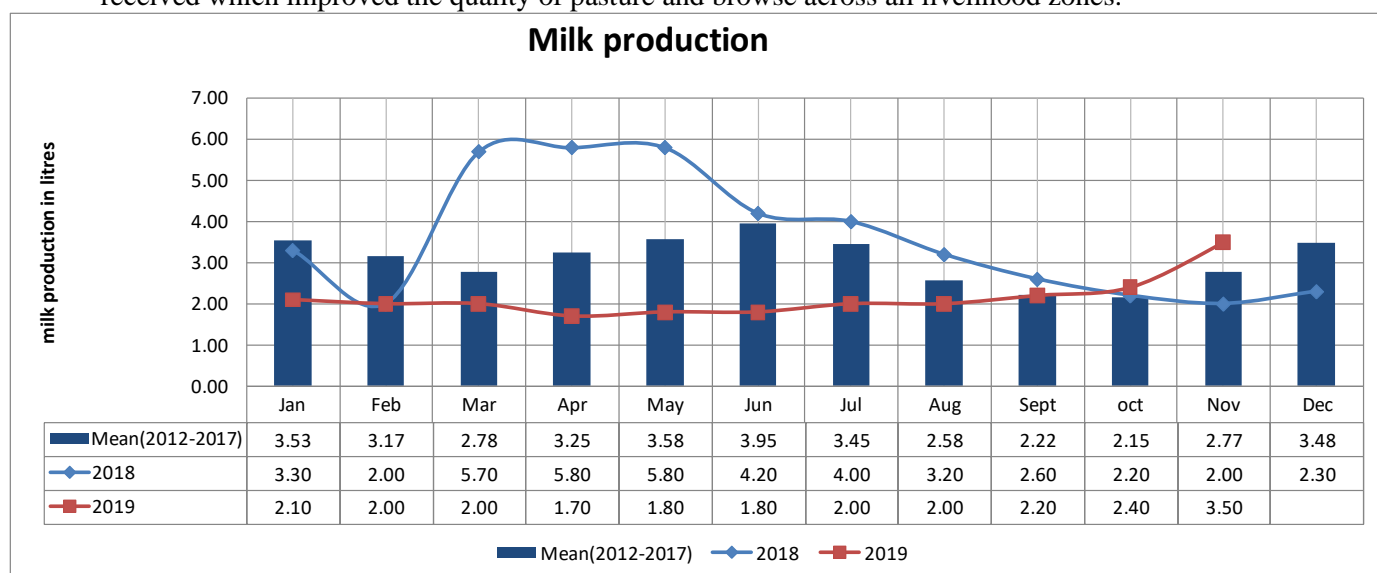


Figure 11

3.2. RAIN-FED CROP PRODUCTION.

3.2.1 Stage and Condition of food Crops

- Most crops within the delta are at early maturity and flowering stage. Farmers within Kipini, Tarasa and Garsen are weeding their maize crops. Minimal cases of livestock invasion have been reported in most farms within the delta as out migration is being experienced with the onset of the rains. About 4500 hectares of maize crops have been destroyed by floods.

4. MARKET PERFORMANCE
4.1. LIVESTOCK MARKETING
4.1.1 Cattle Prices

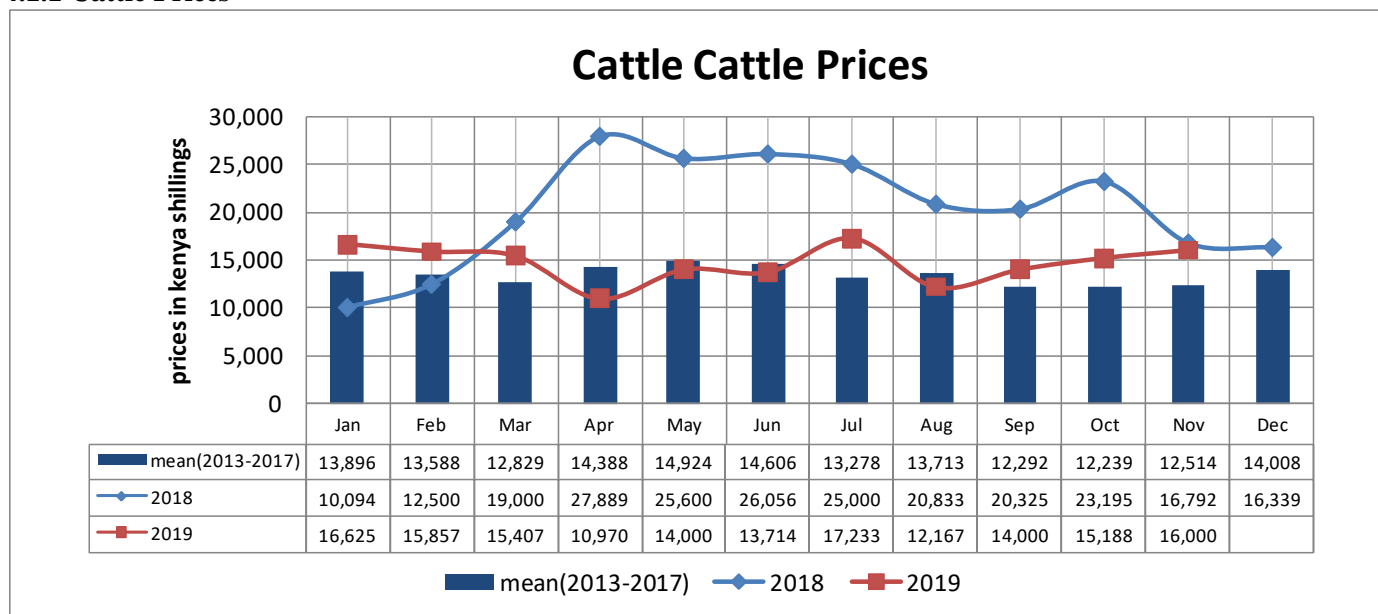


Fig.12.

- The average price for the medium sized cattle increased by 19% to Ksh.16, 000 in the reporting month as compared to Ksh.15, 188 of the previous month.
- The price was above the long-term average by 22%. The increases in prices were attributed to the market dynamics and improvement of the body conditions of livestock within the month.

4.1.2 Goat Prices

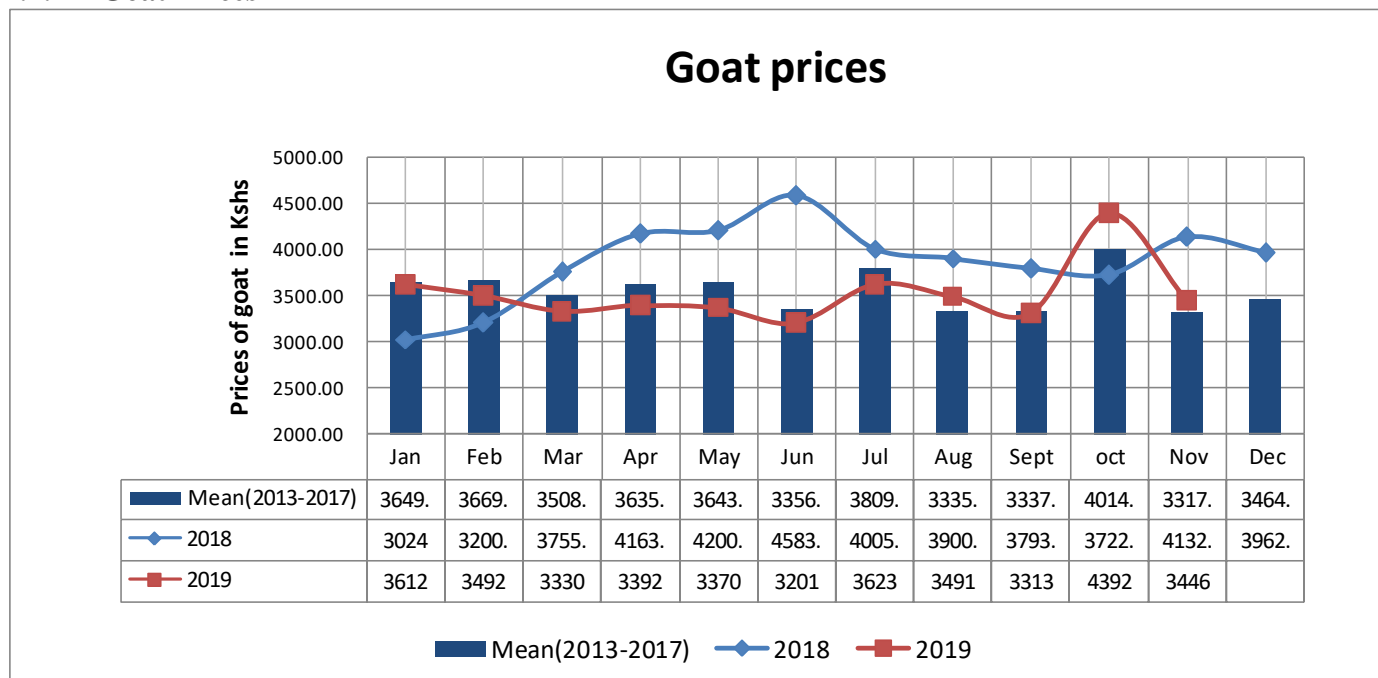


Fig.13.

- The average price of a goat decreased to Ksh.3,446 as compared to previous month attributed to market dynamics.
- The average Goat prices were lowest in pastoral livelihood zone at Ksh. 3,267.
- The prices were above the long-term average by 4 %.

4.2. CROP PRICES

4.2.1 Maize

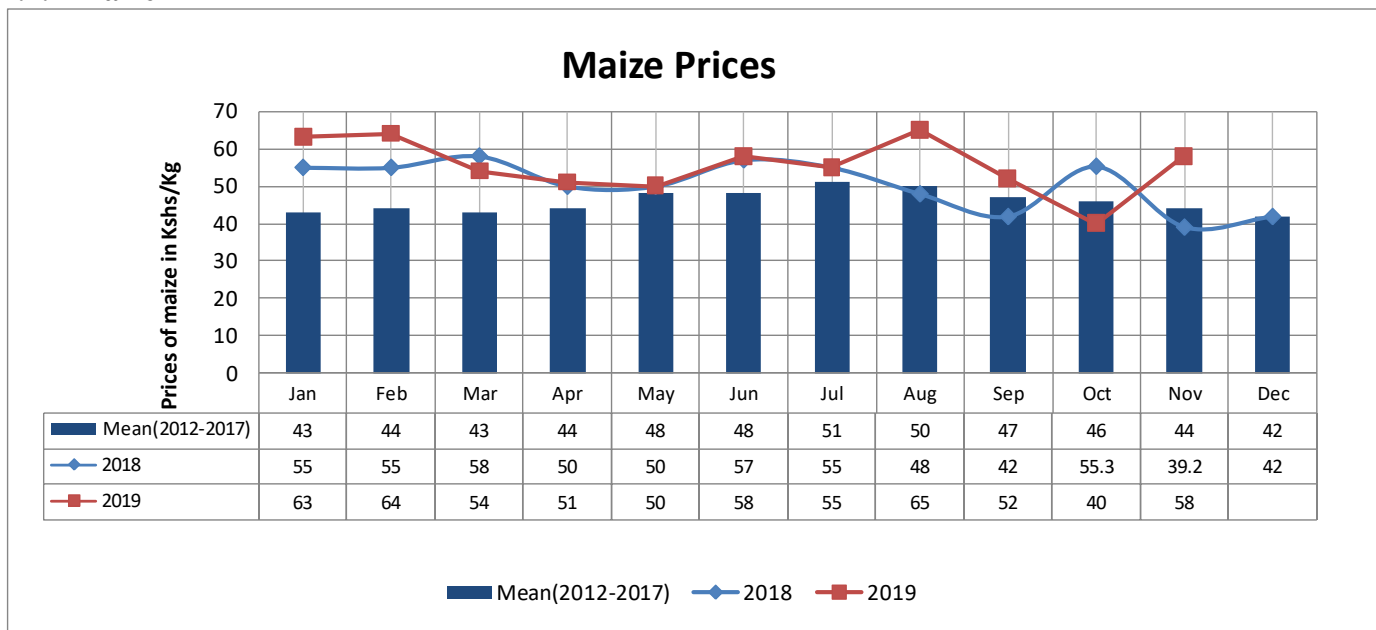


Fig.14.

- The average price for kilogram maize was Ksh.58 during the month, which was an increase as compared to the previous month. The price was above the long-term average at this time of the year by 32%.

4.3. Livestock Price Ratio/Terms of Trade

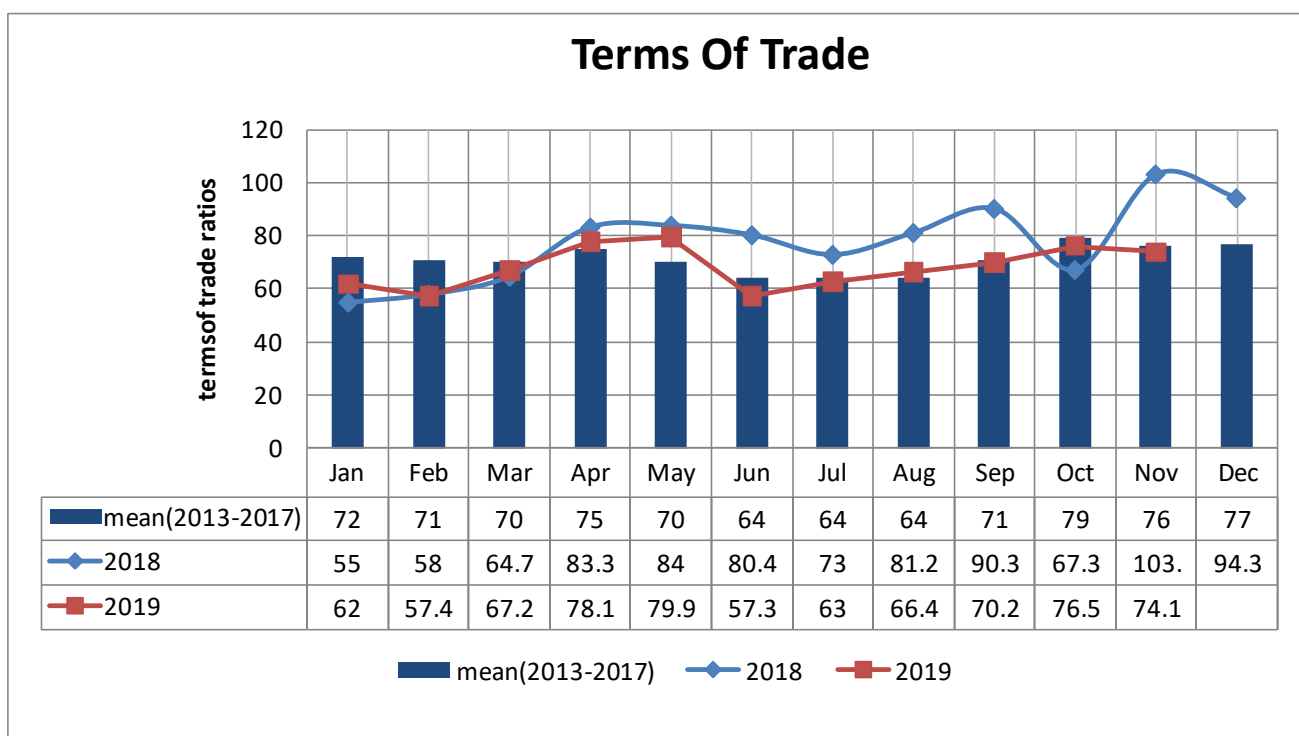


Fig .15.

- The terms of trade improved from 76.5 in October to 74.1 during the month of November 2019.
- The current term of trade is below the long-term average by 3%. This is attributed to market dynamics and the fact maize is scarce in the market and most households are relying on imports.

5.1. FOOD CONSUMPTION AND NUTRITION STATUS

5.1.1. Milk Consumption

- The average milk consumption per household per day increased to 1.80 litres compared to the previous month. The amount consumed is above the long term average at this time of the year.

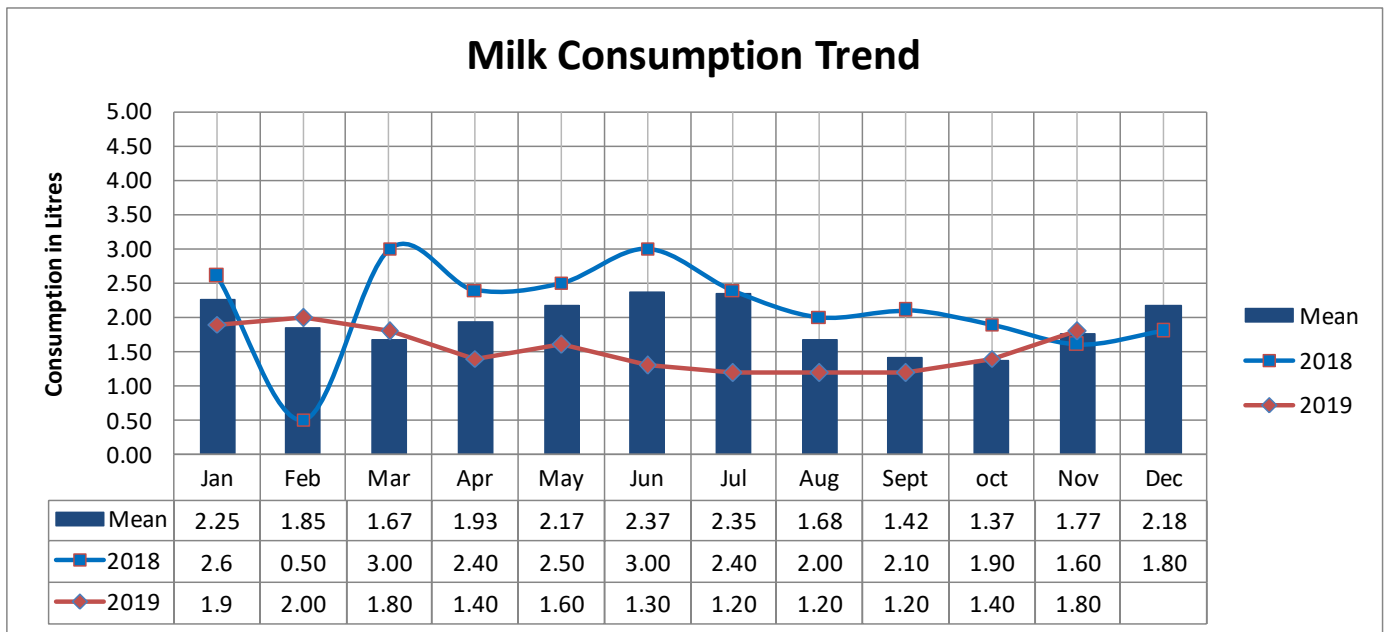


Fig. 16.

5.1.2. Food Consumption Score

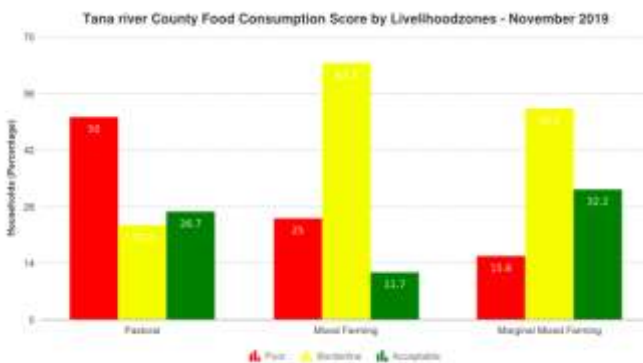


Figure 17:Tana River food consumption

There was higher proportion of households with poor food consumption gaps in Pastoral (50%) and mixed farming livelihood zones(25).

The proportion of households with borderline food consumption score was high in mixed farming livelihood zones at 63.3% and lowest in Pastoral livelihood zones at 23.3%.

A proportion of 32.2%, 26.7% and 11.7% of the households across marginal mixed ,Pastoral and mixed livelihood zones have acceptable food consumption score respectively.

5.1.3 Health and Nutrition Status

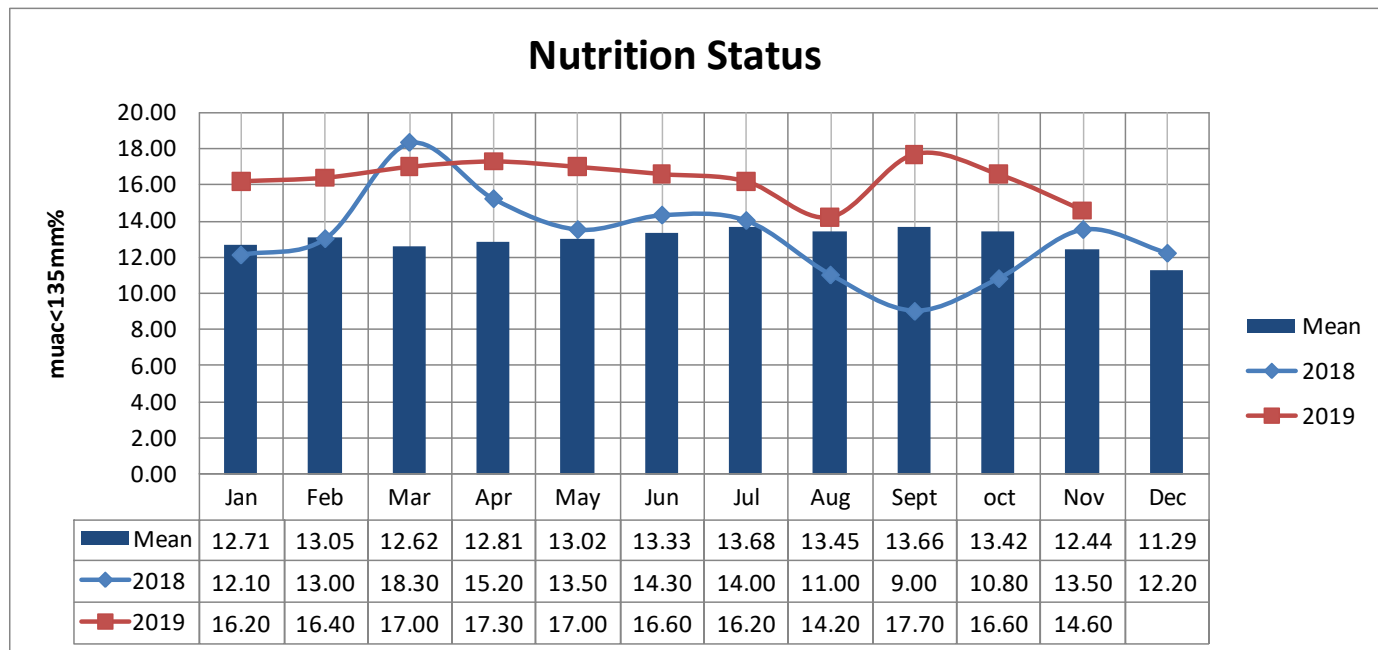


Fig.18.

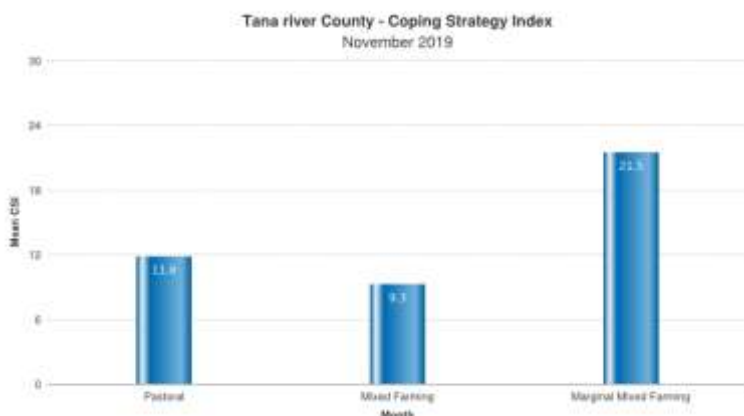
- The proportion of sampled children under five years of age at risk of malnutrition reduced to 14.60 as compared to the previous month at 16.60%. This is attributed to increase in milk production due to availability of pasture and browse.

5.2. Health

- During the reporting month the commonly reported illnesses were outbreak of measles in Bura and Galole, water born diseases, malaria and skin diseases in all livelihood Zones.
- Cholera outbreak reported in Madogo ward, Mulanjo sub-location but has since been contained.

5.3. COPING STRATEGIES

Coping Strategy Index



The average coping strategy index decreased to 15.20 in November 2019 compared to last month.

Households in Marginal mixed livelihood zone employed most coping strategies at 21.5 followed by Pastoral at 11.8. The mixed farming livelihood zones employed least coping mechanisms at 9.3.

The decreasing trend is attributed to the ongoing rains which has triggered positive impact on the biophysical indicators.

Fig.19:Tana River Coping Strategy Index

6. CURRENT INTERVENTION MEASURES.

6.1 Non-food interventions

- Integrated outreaches to hard to reach areas of Tana North and Galole supported by NDMA/MOH/KRCS/UNICEF/SAMARITAN PURSE.
- Construction of Kuriti(Lebile) and Katumba water pans by RPLP through world bank
- Peace meetings and Barazas targeting fall back grazing fields around Tana Delta and Galole by NDMA/Ministry of Interior/USAID/TANA PEASE.
- Measles vaccination for children under 5 years by KRCS/UNICEF/MOH/WVK/Concern worldwide in Tana North.
- SFS supported by WFP targeting households in Tana Delta,Tana North and Tana River sub-counties.
- Hygiene promotions and distribution of water treatment chemicals in Tana Delta (Katsangani, Safaricom, Tana Salt, Msurujani, Timboni, Vumilia and Orolle) by Samaritan Purse/NDMA.
- Construction of livestock market in Titila and storage in Bura by RPLP through World Bank.
- Capacity strengthening on land use management by FAO/VEA.
- Mass de-worming targeting 2329 shoats and 998 cattle supported by FAO/VEA.
- Pests and crop diseases management by department of Agriculture.
- Cash transfer to 4546 households in Tana North(Sala,Bangale,Hirimani,) by OXFARM/ALDEF/PGI.
- Evacuation of flood victims and construction of temporary IDP camps by KRCS/ALDEF/OXFARM/GoK
- Livestock vaccination on LSD by department of Vetinary.

6.2 Food Aid

- Relief food distribution in areas currently facing food shortages in Tana Delta, Tana North and Galole supported by KRCS/National Government/Samaritan purse/WFP.
- Public primary schools are under regular School Meals Program supported by WFP.
- Slaughter destocking targeting 1452 persons supported by FAO/VEA

7.0 .EMERGING ISSUES

7.0.1.Insecurity/Conflict/Human Displacement

- Floods reported in Tana North,Tana River and Delta within the river rine areas of Ziwani,Milimani,Bakuyu,Mathengeni,Maroro,Adele Vango,Hara,Maroni and Chewele.
- Human wild life conflicts reported in Kipini,Chara and Kilelengwani.
- Over 4500 households have been affected by floods in Tana Delta,Tana River and Tana North and over 4,319 hectares under crops destroyed by floods.

7.0.2. Migration - limited to migrations of persons.

- 80% of livestock which were grazing at fall back grazing fields of Tana delta have moved back to their traditional grazing grounds. This has since eased the resource based conflicts being experienced in Tana delta.

7.0.3. Food Security Prognosis

- With the ongoing heavy rains , most farmers who planted are expecting their crops to perform well hence improving seasonal production. This means with the current situation improving, most households are expected to access milk at good prices. Food prices of major commodities are also expected to improve given the availability of vegetables and Posho in the markets making essential products accessible to most households.

- With most markets functioning normally, most households have access to major commodities. With maize supply from neighbouring counties, maize prices are expected to improve in the next one month. With expected improvement in household purchasing power, food security at household level is expected to improve.
- The county food security phase based on the highlighted factors is stressed (IPC phase 2) in Pastoral and Marginal mixed but minimal (IPC phase 1) in mixed livelihood zones.

8.0 RECOMMENDATIONS

8.1.1. General Recommendations:

- Activation of preparedness plans and scaling up of preparedness activities by all actors is essential at this time of the year.
- Activation of floods response plans by all sectors and partners.
- Enhance security surveillance and peace Barazas in flood affected areas.
- Enhance integrated outreaches in hard to reach areas across all the sub-counties more so in flood affected areas.
- Upscaling of food aid to the population in need in Tana North, Tana River and Tana Delta sub-counties.
- Provision of farm inputs to farmers more so within the mixed livelihood zones.
- Provision of shelter and sanitary materials to flood affected victims in IDP camps.

8.2.0 Proposed Recommendations

PROPOSED INTERVENTIONS		
SECTOR	INTERVENTIONS	HOTSPOTS/BENEFICIARIES
8.2.1. Water	Capacity building for Water Resource User management Committees RMC on WASH.	Tana North, Galole, Tana River
	Support water to health facilities currently facing water shortages	Tana North, Tana River
8.2.2. Nutrition and Health	Mass screening and referrals in hard to reach areas	Tana North, Galole, Tana River
	Support Re-distribution of nutrition commodities (NFIs) to flood affected victims.	Tana North, Galole, Tana River
	Enhance sensitization on issues of hygiene across all the livelihood zones.	Tana North, Galole, Tana River
	Provide water harvesting and storage facilities to medical facilities.	Tana North, Galole, Tana River

	Provision of personal hygiene items in areas with high cases of water born diseases.	Tana North,Galole,Tana River
	Conduct integrated outreaches and health promotion activities, Treatment of Cholera cases, water sampling and decontamination of surfaces, Active case finding and provision of food supplements to displaced households	Tana North,Galole,Tana River
8.2.3.Education	Provision of water treatment chemicals to schools.	Tana North,Galole,Tana River
	Support deworming in schools.	Tana North,Galole,Tana River
	Introduction of school feeding programme to ECD schools.	Tana North,Galole,Tana River
	Enhance SFP in schools within the Pastoral and Marginal mixed livelihood zones.	Tana North,Galole,Tana River
	Provision of water storage facilities to schools with water stress.	Tana North,Galole,Tana River
8.2.4.Livestock	Livestock disease surveillance and control through vaccinations against notifiable diseases such as CCPP, FMD, in all the 3 sub-counties.	Tana North,Galole,Tana River

	Rangeland reseeded fodder establishments and conservations	Tana North,Galole,Tana River
	Enhance capacity building to farmer groups on livestock enterprises.	Tana North,Galole,Tana River
	Training of farmers on disease control.	Tana North,Galole,Tana River
	Support of restocking in Pastoral and Marginal mixed livelihood zones.	Tana North,Galole,Tana River
	Support provision of pasture seeds to farmers and upscaling of existing pasture establishments.	Tana North,Galole,Tana River
	Restocking of small stocks	Tana North,Galole,Tana River
	Provision of storage facilities to farmers with hay	Tana North,Galole,Tana River
	Existing Livestock markets rehabilitations	Tana North,Galole,Tana River
8.2.5.Agriculture	Capacity building of farmers on agronomic husbandry practises on different crops	Galole,Tana Delta
	Support Climate Smart Agriculture Interventions.	Galole,Tana Delta
	Carryout Soil sampling and testing	Galole,Tana Delta
	Soil and water conservation especially on denuded farm lands	Tana North,TanaRiver,Tana Delta
	Provision of drought tolerance seeds to farmers under irrigation and farmers in preparation to long	Tana North,TanaRiver,Tana Delta

	rains.	
8.2.6. Peace and Security	Carry out inter-boundary peace meetings in areas with cross border tensions	Tana North, Tana River, Tana Delta
	Carry out inter-community peace meetings in areas with inter-community resource based conflict.	Tana North, Tana River, Tana Delta
	Provision of shelter materials to the affected flood victims	Tana North, Tana River, Galole

REFERENCE TABLES

Table 1: Drought Phase Classification

Normal	Alert	Alarm	Emergency
All environmental Agricultural and pastoral indicators are within the seasonal ranges	Meteorological drought indicators move outside seasonal ranges	Environmental and at least two production indicators are outside Long term seasonal ranges	All Environmental, Metrological and Production indicators are outside normal ranges.
Recovery: The drought phase must have reached at least Alarm stage. Recovery starts after the end of drought as signaled by the environmental indicators returning to seasonal norms; local economies starting to recover			

Table 2: Standardized Precipitation Index (SPI)

Color	SPI Values	Metrological Drought Category
	> +1.5 or more	Wet Conditions
	0 to +1.5	No drought
	-0.1 to -0.99	Mild drought
	-1 to -1.99	Severe drought
	<-2 and less	Extreme drought

Table 3: Vegetation Condition Index Values (VCI)

Color	VCI values 3-monthly average	Agricultural Drought Category
	≥50	Wet
	35 to 50	No agricultural drought
	21 to 34	Moderate agricultural drought
	10 to 20	Severe agricultural drought
	<10	Extreme agricultural drought

Table 4: Livestock Body Condition

Level	Classification	Characteristics (this describes majority of the herd and not individual isolated Stock)
1	Normal	Very Fat Tail buried and in fat
		Fat, Blocky. Bone over back not visible
		Very Good Smooth with fat over back and tail head
		Good smooth appearance

2	Moderate	Moderate. Neither fat nor thin
3	Stressed	Borderline fore-ribs not visible. 12th & 13th ribs visible
4	Critical	Thin fore ribs visible
5	Emaciated	Very thin no fat, bones visible
		Emaciated, little muscle left

Definition of Early Warning Phases

The EW phases are defined as follow:

NORMAL: The normal phase occurs when **biophysical drought indicators (VCI and SPI) show no unusual fluctuations** hence remain within the expected ranges for the time of the year in a given livelihood zone, division or county

ALERT: The alert phase is when either the **vegetation condition index or the standard precipitation index (biophysical indicators) show unusual fluctuations below expected seasonal ranges** within the whole county/sub-county or livelihood zones.

ALARM: The alarm phase occurs when both **biophysical and at least three production indicators fluctuate outside expected seasonal ranges** affecting the local economy. The production indicators to be considered are livestock body condition, crop condition, milk production, and 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 signaled 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.