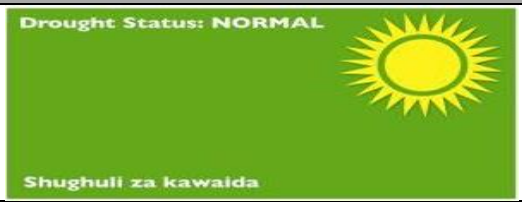
A Vision 2030 Flagship Project

National Drought Management Authority
Tana River County
Drought Early Warning Bulletin for May 2020

MAY EW PHASE



Drought Situation & EW Phase Classification
Drought Phase: Normal-Improving

Biophysical Indicators

- Most Biophysical indicators are showing positive fluctuations towards the expected seasonal ranges.
- Below average amount of rainfall were received in May 2020.
- The May Vegetation Condition Index values for Tana River County are above normal and clearly indicating good vegetation conditions across all sub-counties.
- The Water levels in water pans were above normal at 5(60%-99%) in all livelihood zones.

Socio Economic Indicators (Impact Indicators)

Production indicators:

- The forage condition is good to fair in both quality and quantity but the hatched locusts will reduce the quantity and quality..
- Livestock body condition is good to fair across all livelihood zones.
- Milk production remains stable at 3.30 litres across the livelihood zones. This is attributed to fair forage and pasture conditions.
- No Livestock deaths were reported in all Livelihood zones.

Access indicators

- Terms of trade are currently above normal range.
- Distances to water sources for households currently below normal ranges.

Utilization indicators:

- The number of under-fives at risk of malnutrition stood at 14.50%, which is above normal at this time of the year.
- Copping strategy index for households is within normal ranges but on an improving trend.

Early Warning Phase Classification

LIVELIHOOD ZONE	EW PHASE	TRENDS
PASTORAL	NORMAL	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 (%)	2.00 mm	113 mm	80-120
VCI-3month	80.23		35-50
% Of water in the water pan	5(65-95%)		5-6

Production indicators	Value	Normal ranges
Livestock Migration Pattern	normal	Normal
Livestock Body Condition	4-5	4-5
Milk Production (Ltr /HH/Month)	4.30	3.9
Livestock deaths (for drought)	No death	No death
Access Indicators	**Value**	**Normal ranges**
Terms of Trade (ToT)	61	>=46
Milk Consumption (Ltr)	1.7	>=2.12
Water for Households-trekking distance (km)	2.8	<=4.5
Distances to grazing for livestock (km)	7.2	<=8.36
Seasons production (90 kg bags)(by February 2019)	10,560(maize) 3,780(green grams)	LTA (28,992Ha) LTA (4,400(Ha)
Utilization indicators	**Value**	**Normal ranges**
At Risk (%)	13.30%	<8.8%
CSI	13.7%	<=15.0

▪ Short rains harvests ▪ Short dry spell ▪ Reduced milk yields ▪ Increased HH Food Stocks ▪ Land preparation		▪ Planting/Weeding ▪ Long rains ▪ High Calving Rate ▪ Milk Yields Increase				▪ Long rains harvests ▪ A long dry spell ▪ Land preparation ▪ Increased HH Food Stocks ▪ Kidding (Sept)					▪ 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:)

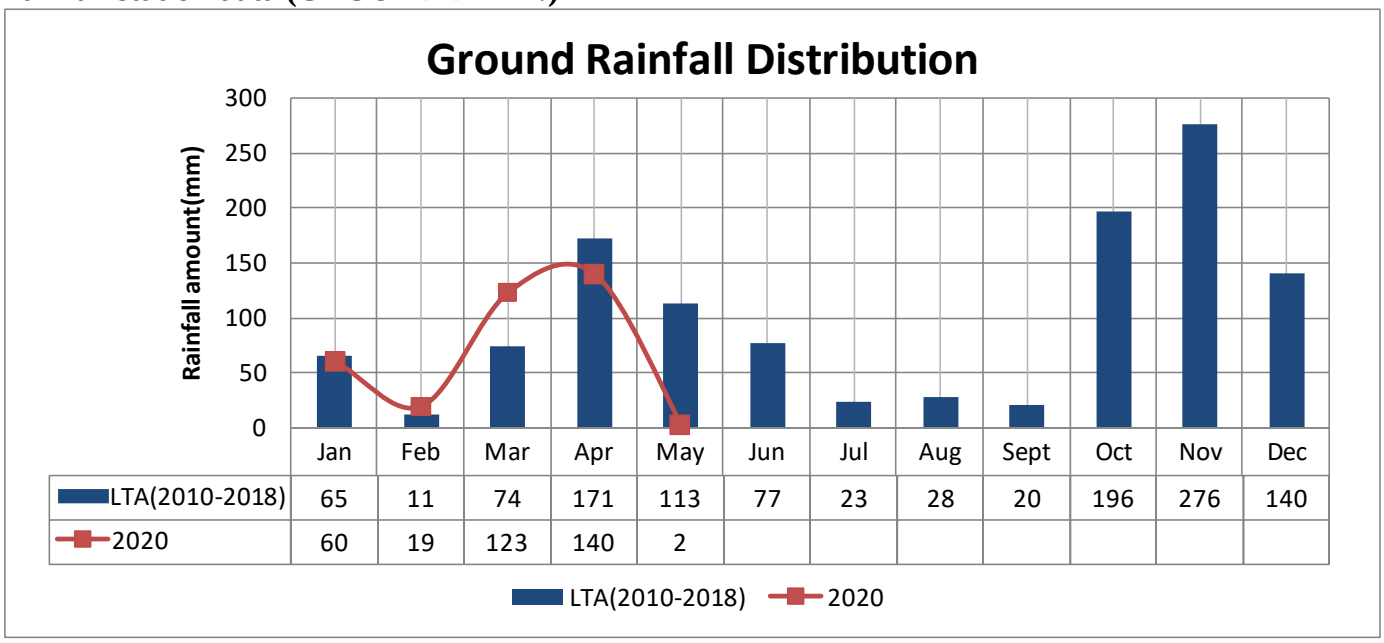


Fig .1.source: ARV

An average of 2.0 mm rainfall was recorded in April coupled with decreasing temperatures. This is below the LTA of 113 mm.

1.2. RAINFALL TEMPORAL AND SPATIAL DISTRIBUTION

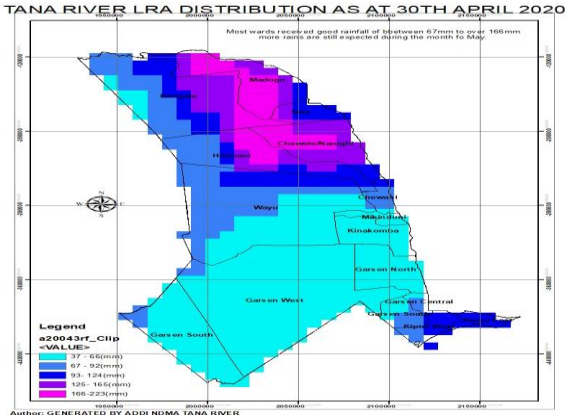


Fig.2.source: Continental Africa Dekadal RFE.

In the month of May, on average 0.16 mm of rainfall was received in Tana North, 0.32 mm received in Galole and 5.10 mm received in the Delta respectively. The amounts received were below normal at this time of the year. Spatial and temporal distribution was poor.

The rainfall were unevenly distributed across all the three sub-counties. Most wards reported onset of seasonal rainfall by second dekad of March.

1.3. TEMPERATURES

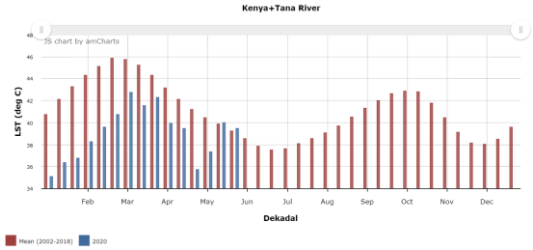


Fig.3.source: LST-C6

1.3.1. LAND SURFACE TEMPERATURE (LST)

The May 2020 land surface temperature (LST) values for Tana River County have increased to 39^{0}C by the 4th dekad of May, which is normal at this time of the year.

2.1. IMPACTS ON VEGETATION AND WATER

2.1.1. VEGETATION CONDITION INDEX (VCI)

The May vegetation cover for Tana River County shows improved vegetation cover on average for the county across all the three sub-counties. The current trend has decreased compared to the month of May 2020.

COUNTY	Sub County	VCI as at 31st May 2020	VCI as at 27th April 2020	
TANA RIVER	**County**	80.23	87.85	Decreasing trends in vegetation conditions experienced in all the sub-counties. Normal vegetation cover experienced in all livelihoods
	Bura	66.22	68.03	
	Galole	83.22	96.83	
	Garsen	90.24	99.05	

Fig.4. Source BOKU

The information provided above reflects all sub-counties currently experiencing improved vegetation greenness, improved trend is observed across all the sub-counties but on a reducing trend compared to the previous month.

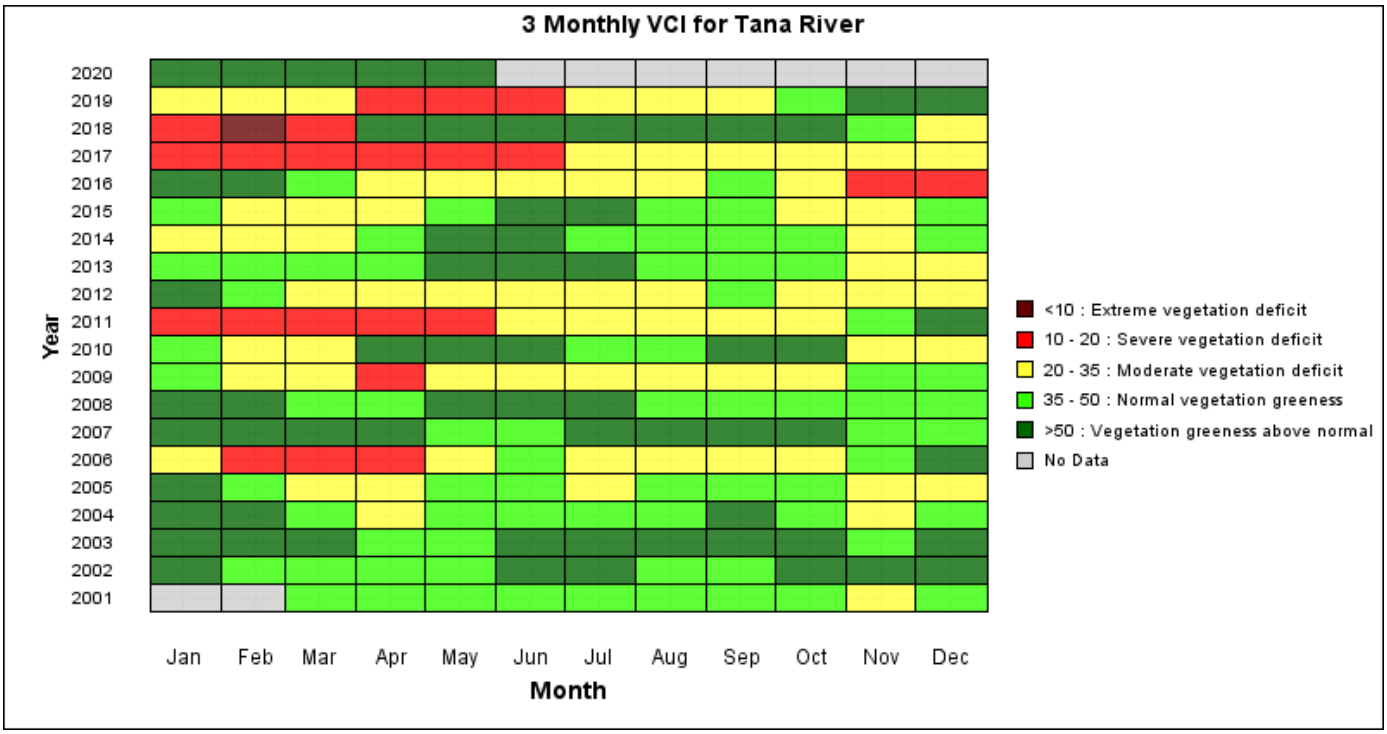
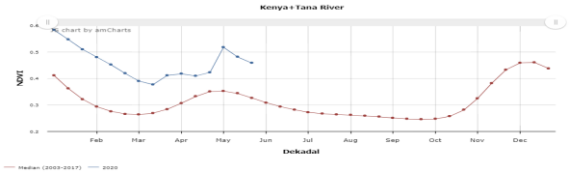


Fig.5.Source BOKU

In May the vegetation cover for Tana River County was at 87.85, which indicates good vegetation condition. In comparison to the previous month the current vegetation cover has decreased in quantity and quality.



The NDVI for Tana River County is currently showing decreasing trend in May 2020(0.46) which is above the LTA (0.33). This is attributed to reduction in amounts of rainfall received across the county.

Fig.5.Source: NDVI-C6

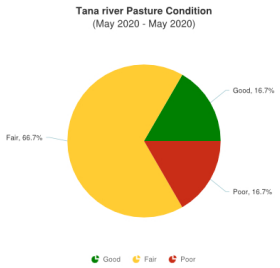


Figure 6:Tana River pasture conditions

2.1.2 Pasture

The pasture condition is fair to good in quantity and quality across all livelihood zones in the county. Pasture condition across all livelihood zones have improved due to ongoing rains.

The current pasture is expected to last for two months in Pastoral and three months in the Marginal Mixed and Mixed farming livelihood zones.

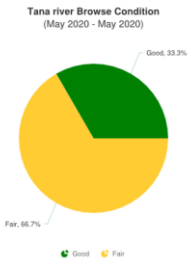


Figure 7: Tana River browse

2.1.3.Browse

The browse condition is fair to good in quantity and quality across all livelihood zones which is normal at this time of the year.

The available browse is expected to last for 2 months in Pastoral and Marginal mixed livelihood Zones and three month in mixed farming livelihood zone.

2.2 WATER RESOURCE

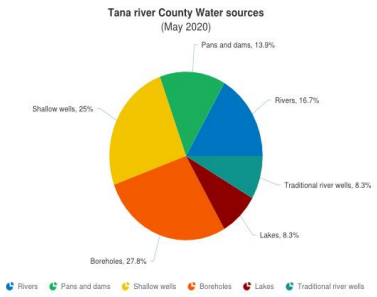


Figure 8:Tana River water sources

2.2.1 Sources

The main water sources for both livestock and human consumption across all livelihoods were Bore holes (27.5%) and Shallow wells (25%),Rivers (16%), Pans and dams(13.9%) and Lakes (8.3%).
Most water pans and dams were at 50-95% of their full capacity. Most households are currently using Bore holes, Shallow wells, rivers, Pans and dams. The current water sources are expected to last for less than two month across all livelihood zones.

2.2.2 Household access and Utilization

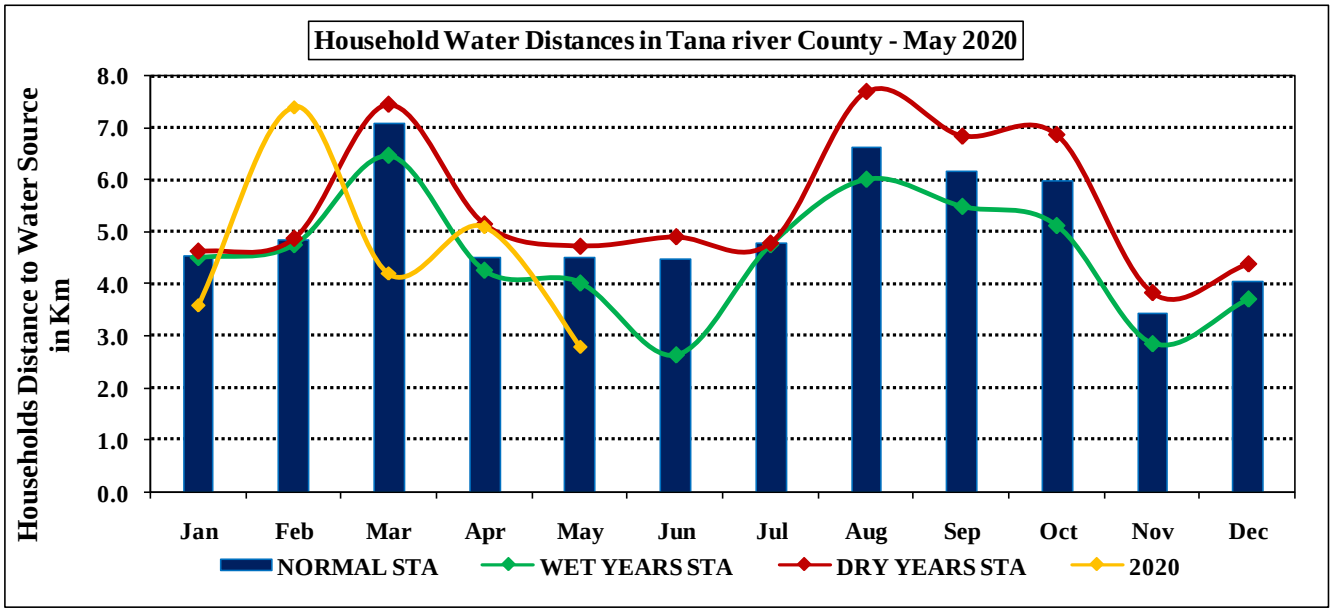


Fig.9.

- The households trekking distance decreased in the month from 5.1 km to 2.8 km. The current distance is below the Long-term average of 4.5 km. This is attributed to the fact that most open water sources are still fully recharged as a result of the ongoing rains.

2.2.3 Livestock access

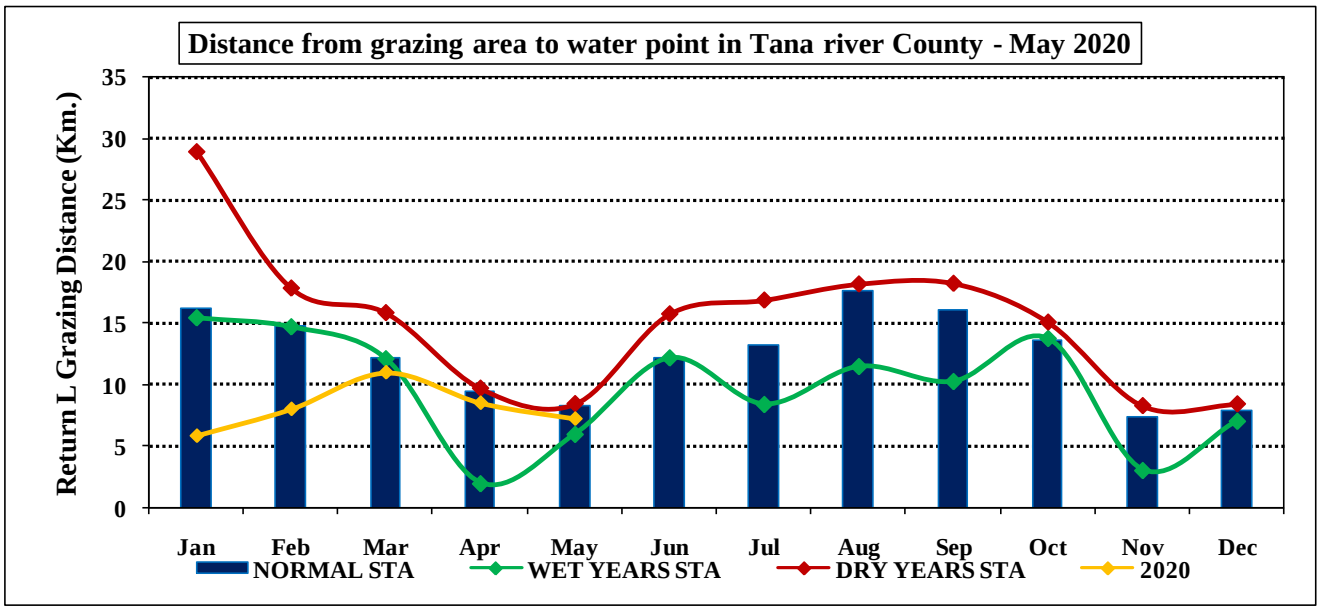


Fig.10.

- The return distance for livestock to grazing zones decreased to 7.2 km during the month.
- The situation is attributed to availability of water and good to fair pasture and browse conditions.

3.0. PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition

- The livestock body condition is good to fair across all livelihood zones. The situation was as result of good pasture, browse and availability of water which has led to livestock still walking within normal ranges.***(Refer to table 4 in annex)***

3.1.2 Livestock Diseases

- LSD, CCPP reported in Pastoral and Marginal Mixed livelihood zones.

- 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 increased to 4.0 litres compared to the previous month. This is attributed to the fact that pasture and browse is improving in quantity and quality.
- In comparison to the long-term average; the current amount is below but on an improving trend given the current conditions of good pasture and browse. This is attributed to livestock diseases reported across all livelihood zones.

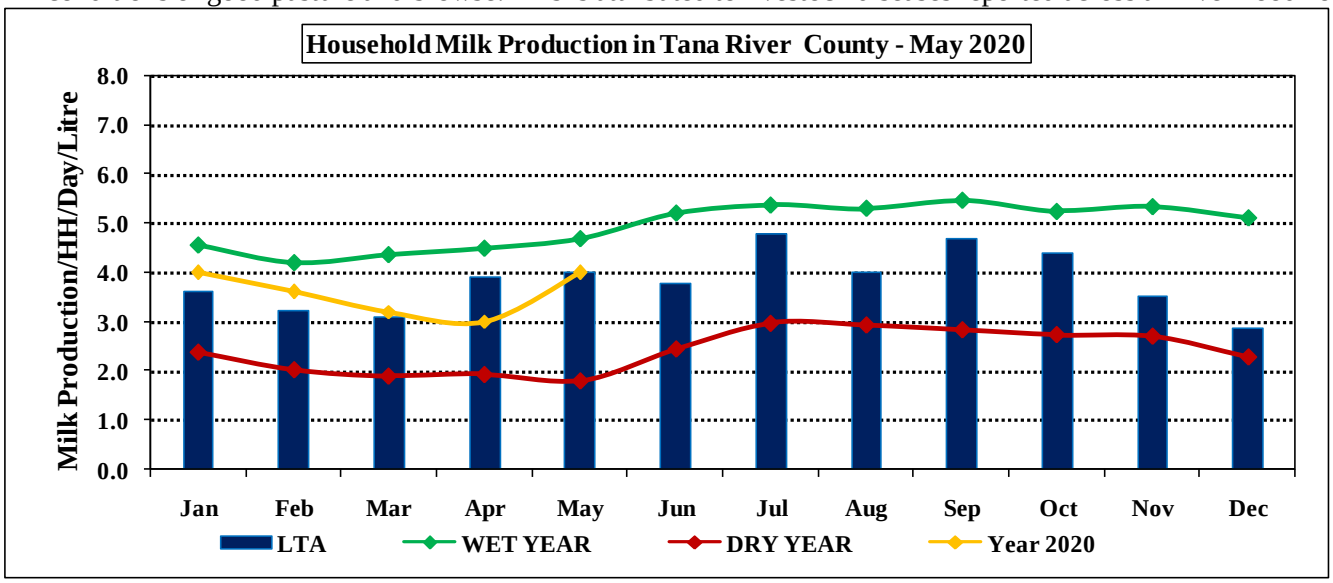


Figure 11

3.2. RAIN-FED CROP PRODUCTION.

3.2.1 Stage and Condition of food Crops

- Farmers had planted their crops more so within the mixed and marginal mixed livelihood zone and most of them are currently at knee stage,1st weeding and 2nd weeding respectively. About 50,000 hectares of crop land have been submerged in flood waters. Some farmers were unable to plant on time due to lack of farm inputs. Farmers whose crops were destroyed by floods are currently replanting.
- Cases of fall army worm infestations reported in Hola and Bura irrigation schemes.

4. MARKET PERFORMANCE

4.1. LIVESTOCK MARKETING

4.1.1 Cattle Prices

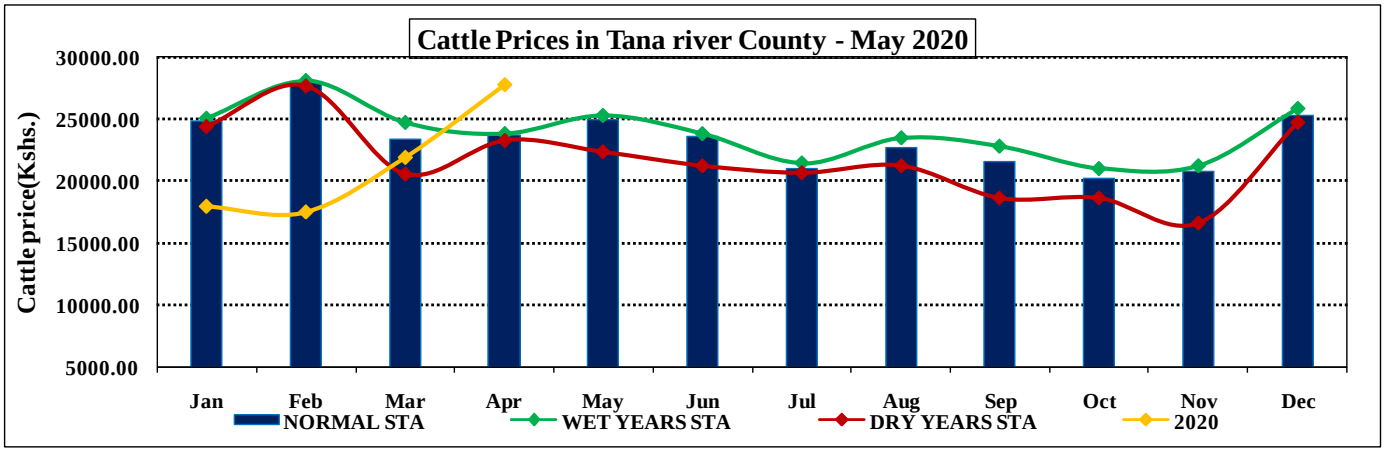


Fig.12.

- The average price for the medium sized cattle increased by 7% to Ksh.29, 800 in the reporting month as compared to Ksh.27, 767 of the previous month.

4.1.2 Goat Prices

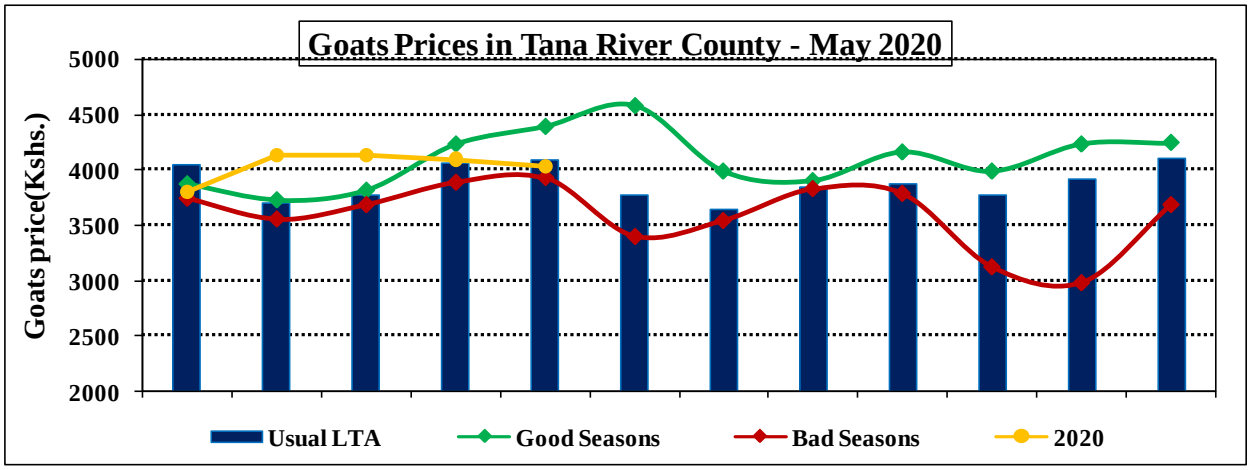


Fig.13.

- The average price of a goat decreased to Ksh.4, 039 as compared to previous month attributed to market dynamics.
- The average Goat prices were lowest in Marginal Mixed livelihood zone at Ksh. 3,889..
- The prices were below the long-term average. This is attributed to the market dynamics and given the fact that it was a festive season which pushed the supply of goats to flock the market.

4.2. CROP PRICES

4.2.1 Maize

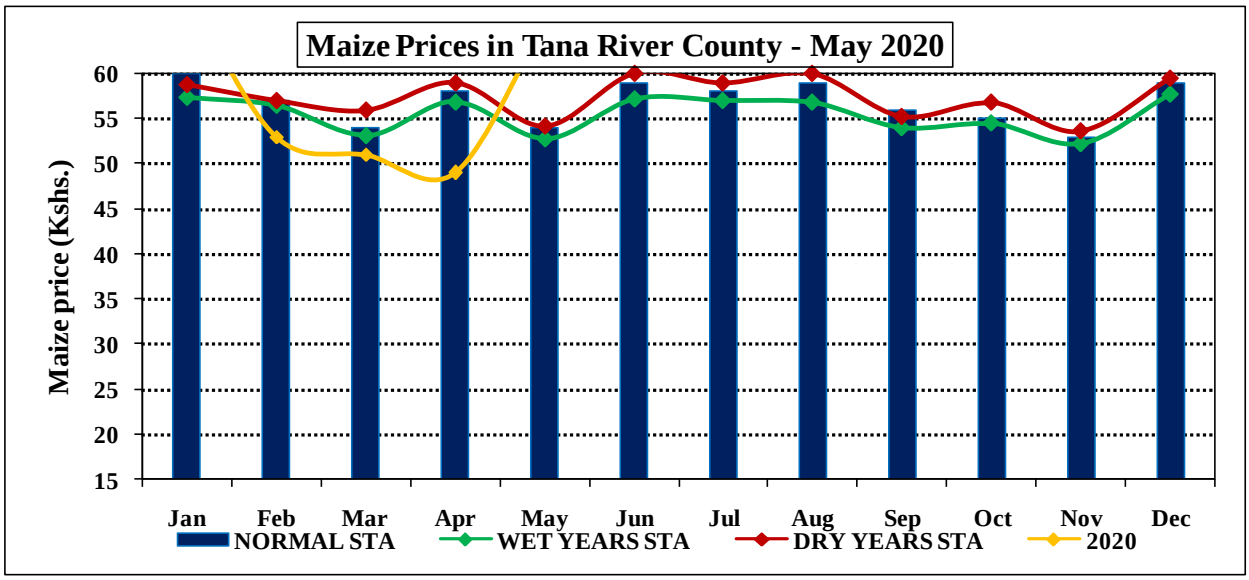


Fig.14.

- The average price for kilogram maize was Ksh.66 during the month, which was an increase compared to the previous month. Attributed to the scarcity of maize across the county. The price was above the long-term average at this time of the year by 22%.

4.3. Livestock Price Ratio/Terms of Trade

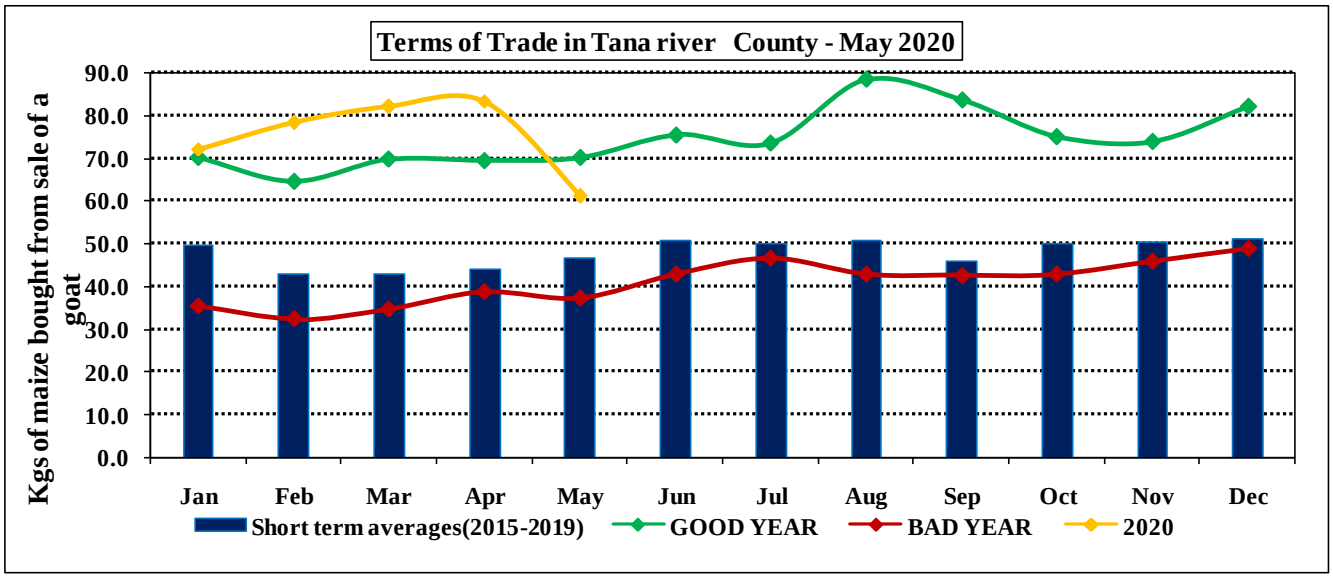


Fig .15.

- The terms of trade decreased from 83 in May to 61.1 during the month of May 2020.
- The current term of trade is above the long-term average. This is attributed to high maize prices in the market.

5.1. FOOD CONSUMPTION AND NUTRITION STATUS

5.1.1. Milk Consumption

- The average milk consumption per household per day increased to 1.7 litres compared to the previous month. The amount consumed is below the long term average at this time of the year. increase in milk consumption is attributed to increase in milk production at households level.

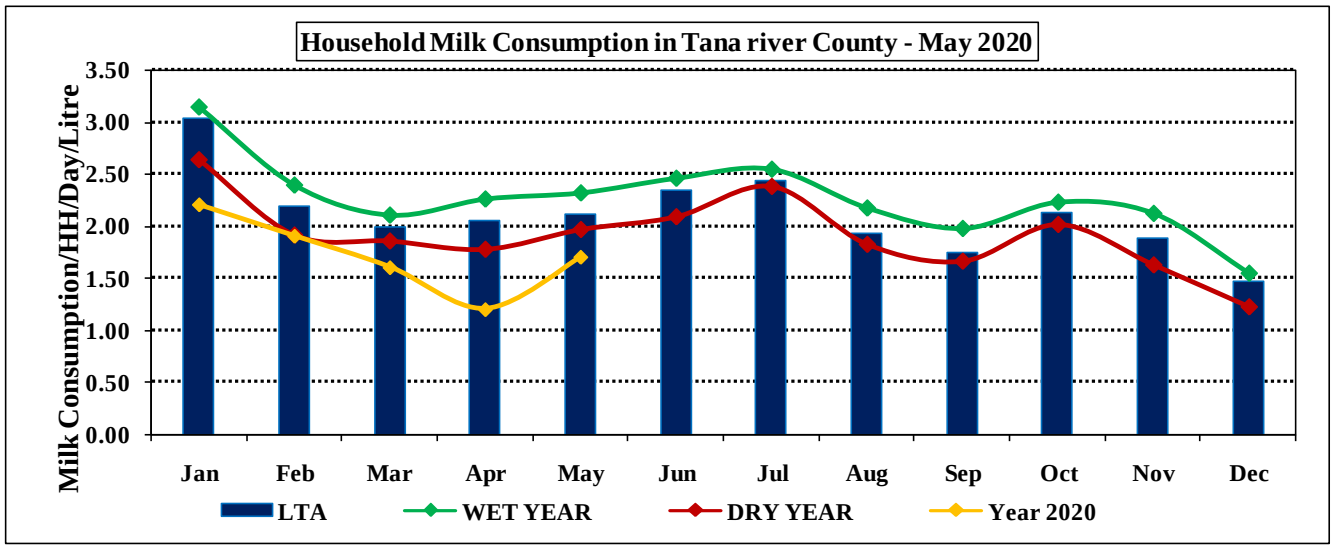


Fig. 16.

5.1.2. Food Consumption Score

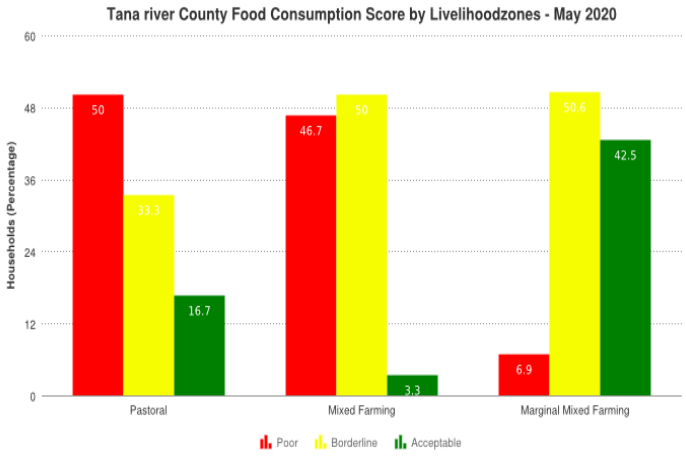


Figure 17:Tana River food consumption

There was higher proportion of households with poor food consumption gaps in Pastoral Livelihood zones (50%) and Marginal mixed farming livelihood zones (6.9%).

The proportion of households with borderline food consumption score was high in Marginal mixed livelihood zones at 50.6% and lowest in Pastoral livelihood zones at 33%.

A proportion of 43% of households in marginal mixed livelihood zones have acceptable food consumption score while 16.7% in Pastoral livelihood zones have acceptable food consumption score respectively.

5.1.3 Health and Nutrition Status

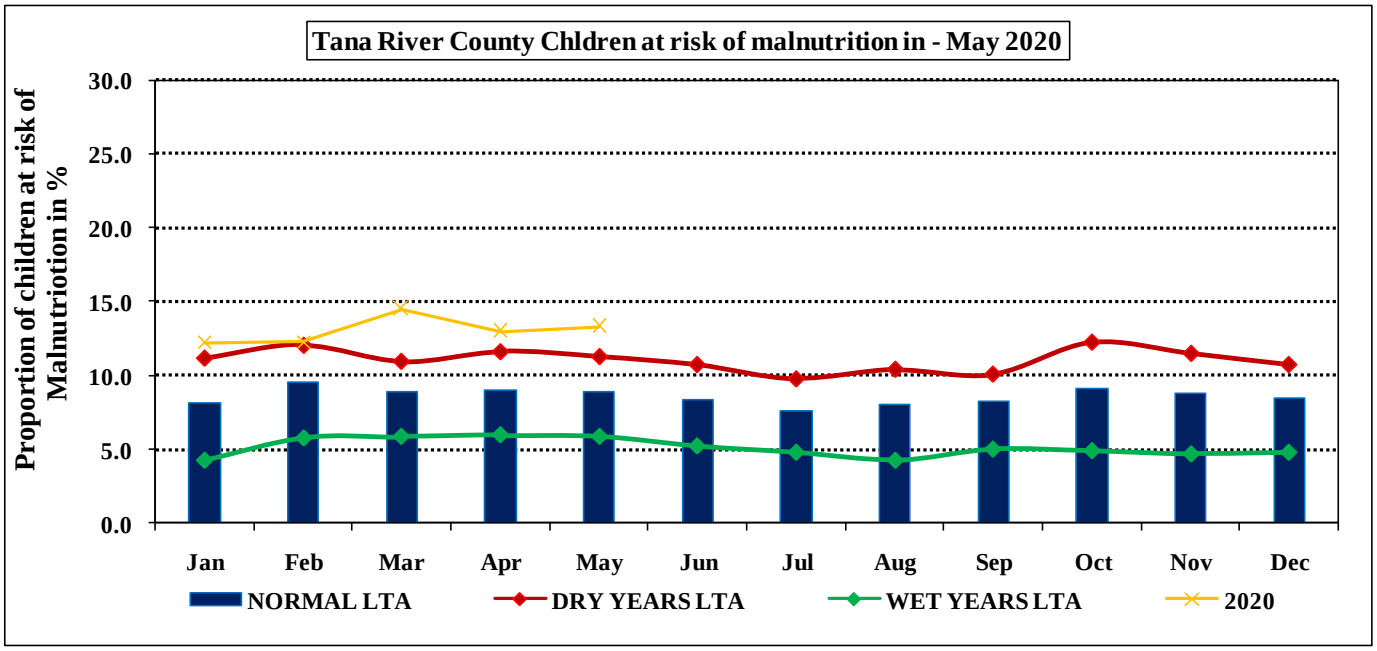


Fig.18.

- The proportion of sampled children under five years of age at risk of malnutrition remained stable compared to the previous month at 13.30%.This is attributed to improved milk production at household level more so within Pastoral and Marginal Mixed livelihood Zones.

5.2. Health

- During the reporting month the commonly reported illnesses were URTI, Malaria, outbreak of water born diseases and skin diseases in all livelihood Zones.

5.3. COPING STRATEGIES

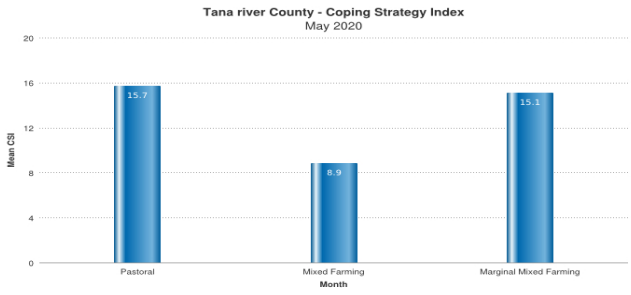


Fig.19:Tana River Coping Strategy Index

Coping Strategy Index

The average coping strategy index decreased to 13.47 in May 2020 compared to last month. Meaning less households are experiencing stress to access food given the prevailing conditions.

Households in Pastoral livelihood zone employed most coping strategies at 15.7 followed by Marginal mixed at 15.1.The mixed farming livelihood zones employed least coping mechanisms at 8.9.

6. CURRENT INTERVENTION MEASURES.

6.1 Non-food interventions

- Distribution of NFIs and dignity kits to 2,197 households by WVK.
- WASH and covid 19 awareness supported by MOH/ALDEF and Partners.
- Rehabillitation of dams and shallow wells by Ministry of Water /WVK/ WFP.
- Logistical support for ward level Agricultural extention services by CWW.
- Distribution of mosquito nets by Public health to flood affected victims.
- 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.
- Community locusts surveillance,support of aerial locusts sprays in Tana North(Sala,Bangale,Hirimani,) by OXFARM/ALDEF/GoK.
- Cash transfer to 663 Households to farmers affected by locusts in Tana North by ALDEF.
- Integrated outreaches in hard to reach areas and provision of medical supplies to MOH supported by CWW/UNICEF/WVK.
- Provision of drought tolerance diesel and pumps and farm inputs to 4300 farmers in Tana North by CWW/MOA.
- Distribution of solar powered micro irrigation kits to farmers,establishment of kitchen gardens,provision of farm inputs like seeds to 1185 farmers –WVK
- Capacity building of health workers on maternal ,infant and young children nutrition-WVK

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/ADS/SPECIAL PROGRAMS.

7.0 .EMERGING ISSUES

7.0.1.Insecurity/Conflict/Human Displacement

- Hatching of second generation locusts in Tana North(Boka,Hirimani,Buwa,Nanighi,Sala,Bangale,Mbalambala) the impacts were minimal.
- Human wild life conflicts reported in Kipini,Chara and Kilelengwani.
- Over 4500 households had been affected by floods in Tana Delta,Tana River and Tana North and over 5,000 hectares under crops destroyed by floods.but the displaced has since gone back to their homes.

7.0.2. Migration - limited to migrations of persons.

- Typical livestock migrations back into the traditional grazing areas occurred earlier in the season following the early onset of the long rains. Given the fair conditions of pastures, browse and water resources, most livestock are expected to remain within the wet season grazing areas through the March to May long rains season.

7.0.3. Food Security Prognosis

- According to the Greater Horn of Africa (GHACOF) forecast, the March to May long rains are expected to be average to above average due to an increased probability for Neutral ENSO and Indian Ocean Dipole (IOD) phases from March.
- The risk of flooding along the Tana River basin in the Marginal Mixed Farming Livelihood Zone and the Mixed Farming Livelihood zone is likely to remain elevated between April and May following an average to above average long rains forecast.
- The food crops replanted following the 2019 October to December short rains flooding are unlikely to reach maturity given the anticipation of flooding from April through to May. Similarly, crop

production during the March to May long rains season is likely to be below average as the anticipated floods are likely to result in significant crop damage.

- The prices of staple foods are anticipated to remain above average, between February and June, following below the average 2019 October to December short rains production and cumulative deficits from two previously below average harvests.

7.0.4. Phase Classification

Pastoral livelihood zones are classified under stressed Phase (IPC Phase 2) while Marginal and Mixed farming livelihood Zones are classified under minimal Phase (IPC Phase 1).

8.0 RECOMMENDATIONS

8.1.1. General Recommendations:

a) Implementation of Covid -19 response plans by Ministry of Health .

b) Evacuation of flood victims in hotsport areas of Tana North and Tana Delta.

c) Enhance locusts control in affected areas of Tana North(Nanighi,Sala,Bangale,Hirimani,Madogo)

d) Enhance security surveillance and peace Barazas in hot spot areas.

e) Enhance integrated outreaches in hard to reach areas across all the sub-counties more so in flood affected areas.

f) Upscaling of food aid to the population in need in Tana North,Tana River and Tana Delta sub-counties.

g) Provision of water harvesting facilities by Ministry of Water.

h) Conducting of flood rapid assessment to ascertain the population affected and hectares destroyed by floods.

8.2. PROPOSED RECOMMENDATIONS

8.2.1. Water Sector

1. Rehabilitation / Servicing of critical water points.
2. Repair of water bowsers.
3. Capacity building for Water Resource User management Committees RMC on WASH.
4. Provision of water storage facilities to schools,IDP camps and health facilities.
5. Support water to schools and health facilities currently facing water shortages.
6. Provision of water treatment chemicals

8.2.2. Nutrition and Health

a) Mass screening and referrals in hard to reach areas in all the 3 sub-counties.

i) Provisional of water treatment chemicals and sanitation messages.

j) Support Re-distribution of nutrition commodities from facilities with over stocks to facilities without stocks (Preposition health and nutrition commodities)

k) Enhance sensitization on issues of hygiene across all the livelihood zones.

l) Provide water storage facilities to medical facilities and IDP camps with water stress.

m) Provision of personal hygiene items in areas with high cases of water born diseases.

n) 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

8.2.3. Education

(a) Provision of water treatment chemicals to schools.
(b) Introduction of school feeding programme to ECD schools.
(c) Enhance SFP in schools within the Pastoral and Marginal mixed livelihood zones.
(d) Repairs and rehabilitation of existing boreholes to serve the schools (Solar pump systems and/or piping).
(e) Provision of water storage facilities to schools with water stress.

8.2.4. Livestock and Veterinary sector.

a) Livestock disease surveillance and control through vaccinations against notifiable diseases such as CCPP, FMD, in all the 3 sub-counties.
b) Enhance capacity building to farmer groups on livestock enterprises.
c) Training of farmers on disease control.
d) Support of destocking in Pastoral and Marginal mixed livelihood zones.
e) Support establishment of strategic feed reserves and distribute supplementary feeds in areas with pasture stress.
f) Support rangeland management (ensure controlled grazing in dry season grazing zones by grazing committees) meetings in areas with high influx of livestock.

8.2.5. Agriculture Sector

a) Support Climate Smart Agriculture Interventions.
b) Establishment of storage facilities, and establishment of new village irrigation shemes.
c) Seeds and pesticide support.
d) River bank protection.
e) Rehabilitation
f) Support farmers with inputs especially seeds and seedlings
g) Soil and water conservation especially on denuded farm lands
h) Compensation of farmers affected by floods.
i) Provision of drought tolerance seeds to farmers under irrigation and farmers in preparation to long rains.

8.2.6. Peace and Security

a) Carry out inter-boundary peace meetings in areas with cross border tensions
Carry out inter-community peace meetings in areas with inter-community resource based conflict
b)Capacity building of communities on negative impacts of violenceextremism.

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
	> +1.5or more	Wet Conditions
	0 to +1.5	No drought
	-0.1 to -0.99	Mild drought
	-1 to -1.99	Severe drought
	<-2 and less	Extreme drought

Table 3: Vegetation Condition Index Values (VCI)

Color	VCI values	Agricultural Drought Category
	3-monthly average	

	≥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	Emerciated	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.