




A Vision 2030 Flagship Project



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

MARCH EW PHASE	Early Warning Phase Classification				
	<b>LIVELIHOOD ZONE</b>	<b>EW PHASE</b>	<b>TRENDS</b>		
<p><b>Drought Situation &amp; EW Phase Classification</b> Drought Phase: Normal-Stable</p> <p><b>Biophysical Indicators</b></p> <ul style="list-style-type: none"> <li>Most Biophysical indicators are still within the expected seasonal ranges.</li> <li>Showers of rainfall were received in the month of March 2020.</li> <li>The March Vegetation Condition Index values for Tana River County are above normal and clearly indicating good vegetation conditions across all sub-counties.</li> <li>The Water levels in water pans were below normal at 4(45%-70%) in mixed and marginal mixed livelihood zones but 3(25-50%) in Pastoral livelihood zones. Water levels within pastoral livelihood zones are still below normal and some areas are still experiencing water stress.</li> </ul> <p><b>Socio Economic Indicators (Impact Indicators)</b></p> <p><b>Production indicators:</b></p> <ul style="list-style-type: none"> <li>The forage condition is good to fair in both quality and quantity but the hatched locusts will reduce the quantity and quality..</li> <li>Livestock body condition is good to fair across all livelihood zones.</li> <li>Milk production is below normal given the fair forage and pasture conditions.</li> <li>No Livestock deaths were reported in all Livelihood zones.</li> </ul> <p><b>Access indicators</b></p> <ul style="list-style-type: none"> <li>Terms of trade are currently above normal range.</li> <li>Distances to water sources for households currently below normal ranges.</li> </ul> <p><b>Utilization indicators:</b></p> <ul style="list-style-type: none"> <li>The number of under-fives at risk of malnutrition stood at 14.50%, which is above normal at this time of the year.</li> <li>Copping strategy index for households is within normal ranges but on an improving trend.</li> </ul>	PASTORAL	NORMAL	WORSENING		
	MARGINAL MIXED	NORMAL	STABLE		
	MIXED FARMING	NORMAL	STABLE		
	COUNTY	NORMAL	STABLE		
	<b>Biophysical Indicators</b>	<b>Value for the month Tana River</b>	<b>LTA-Monthly Tana River</b>	<b>Normal ranges Kenya %</b>	
	Average rainfall MM (%)	123.00 mm	74 mm	80-120	
	VCI-3month	98.96		35-50	
	% Of water in the water pan	4(45-70%)		5-6	
	<b>Production indicators</b>	<b>Value</b>	<b>Normal ranges</b>		
	Livestock Migration Pattern	normal	Normal		
	Livestock Body Condition	4-5	4-5		
	Milk Production (Ltr /HH/Month)	3.2	3.10		
	Livestock deaths (for drought)	No death	No death		
	<b>Access Indicators</b>	<b>Value</b>	<b>Normal ranges</b>		
	Terms of Trade (ToT)	82	≥=43		
Milk Consumption (Ltr)	1.6	≥=2.00			
Water for Households-trekking distance (km)	4.2	≤=7.0			
Distances to grazing for livestock (km)	11	≤=12.0			
Seasons production (90 kg bags)(by February 2019)	10,560(maize) 3,780(green grams)	LTA (28,992Ha) LTA (4,400(Ha)			
<b>Utilization indicators</b>	<b>Value</b>	<b>Normal ranges</b>			
At Risk (%)	14.50%	≤8.8%			
CSI	15.57%	≤=15.0			

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

# 1. CLIMATIC CONDITIONS

## 1.1 RAINFALL PERFORMANCE

Rainfall station data (GROUND DATA:)

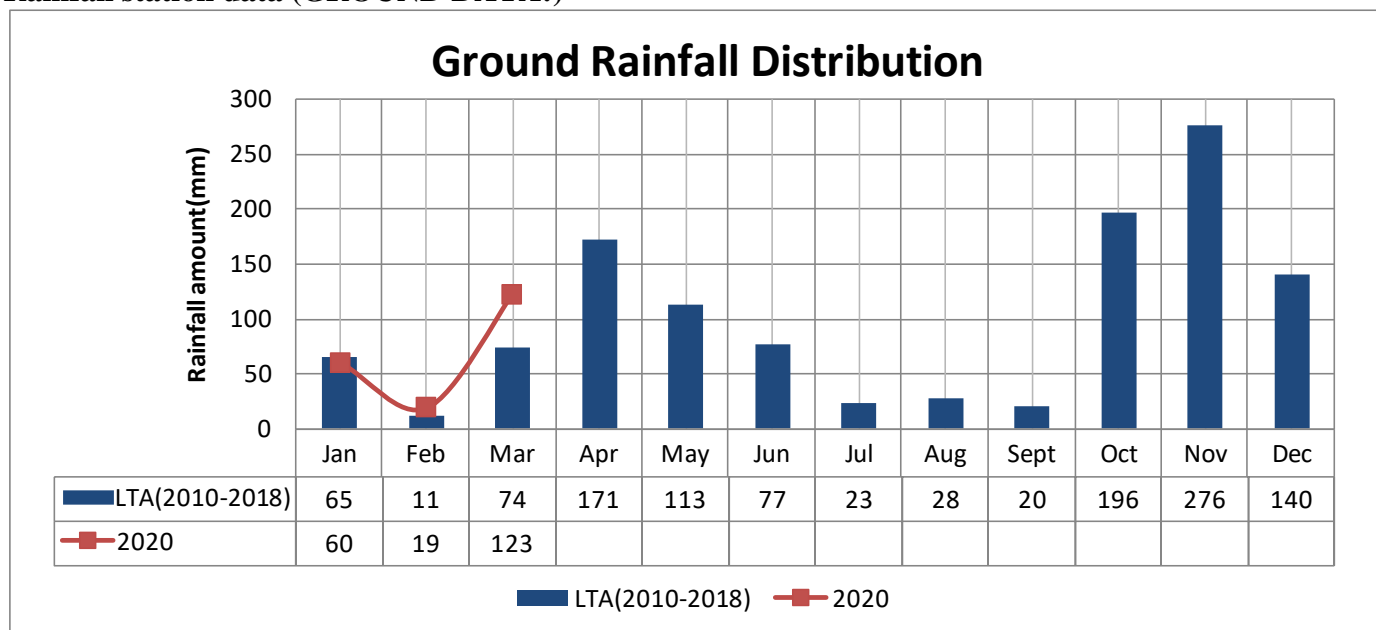
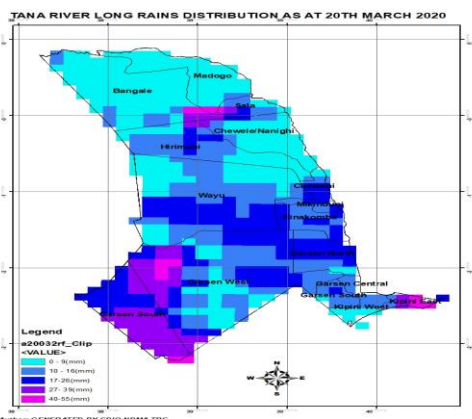


Fig .1.source: ARV

An average of 123.0 mm rainfall was recorded in March coupled with decreasing temperatures. This is above the LTA of 74 mm.

## 1.2.RAINFALL TEMPORAL AND SPATIAL DISTRIBUTION

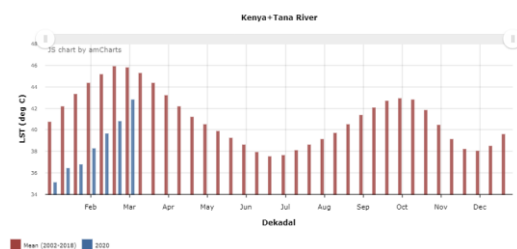


In the month of March, on average 128.0 mm of rainfall was received in Tana North, 130.00 mm received in Galole and 112 mm received in the Delta respectively. The amounts received were above normal at this time of the year. Spatial and temporal distribution was poor.

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

Fig.2.source: Continental Africa Dekadal RFE.

## 1.3. TEMPERATURES



### 1.3.1. LAND SURFACE TEMPERATURE (LST)

The March 2020 land surface temperature (LST) values for Tana River County have increased to 43°C by the 3<sup>rd</sup> dekad of March, which is below normal(46<sup>0</sup>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 March 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 improved compared to the month of February 2020.

COUNTY	Sub County	VCI as at 30 <sup>th</sup> March 2020	VCI as at 23 <sup>rd</sup> February 2020	
TANA RIVER	County	98.96	97.39	Improving trends in vegetation conditions experienced in all the sub-counties. Normal vegetation cover experienced in all livelihoods
	Bura	81.98	80.47	
	Galole	115.81	111.19	
	Garsen	102.84	103.13	

Fig.4. Source BOKU

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

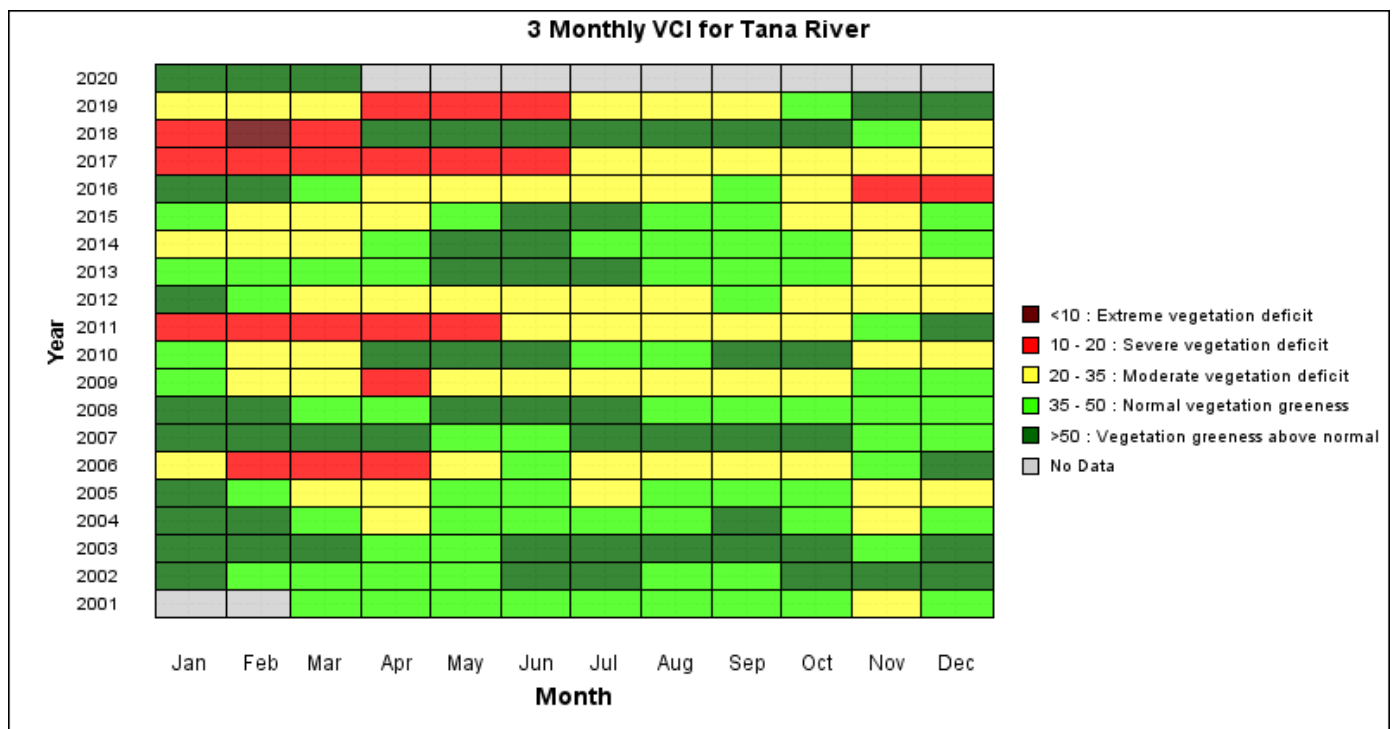
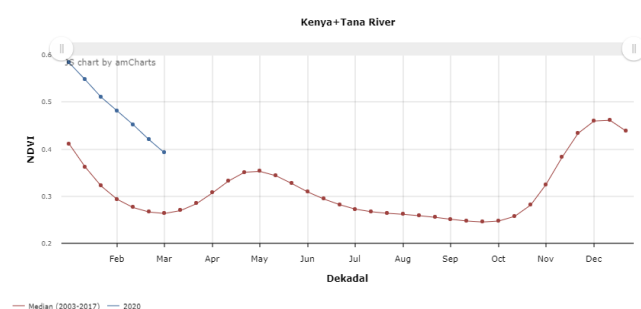


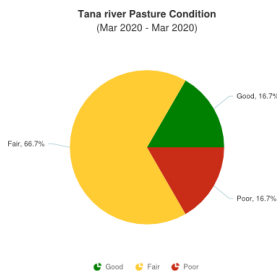
Fig.5.Source BOKU

In March the vegetation cover for Tana River County was at 98.96, which indicates very good vegetation condition. In comparison to the previous month the current vegetation cover has improved in quantity and quality.



The NDVI for Tana River County is currently showing a decreasing trend in March 2020(0.39) which is above the LTA (0.26). This is attributed to high temperatures currently being experienced.

Fig.5.Source: NDVI-C6

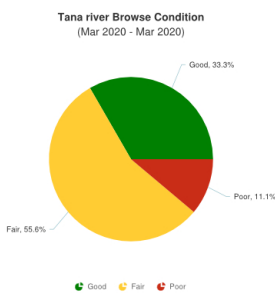


**Figure 6: Tana River pasture conditions**

### 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 reduced due to high temperatures.

The current pasture is expected to last for one month in Pastoral and Marginal mixed livelihood zones and two months in the 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 ranges at this time of the year.

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

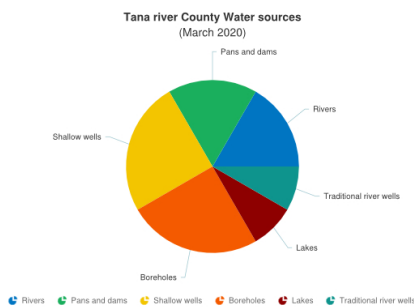
## 2.2 WATER RESOURCE

### 2.2.1 Sources

The main water sources for both livestock and human consumption across all livelihoods were Bore holes(24.3%) and Shallow wells(24.3%), Pans ,Dams and Rivers(16.7%), Lakes(8%) and Traditional river wells(8.3%).

Most water pans and dams were at 45-75% 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.



**Figure 8: Tana River water sources**

### 2.2.2 Household access and Utilization

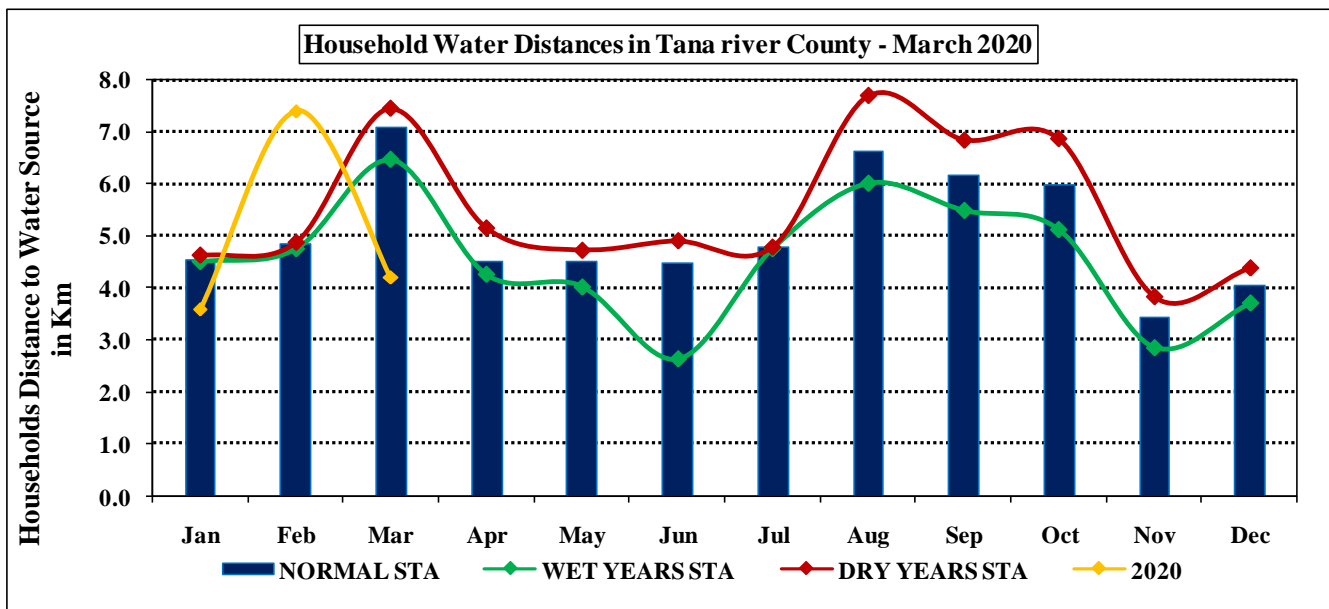


Fig.9.

- The households trekking distance decreased in the month from 7.4 km to 4.2 km. The current distance is below the Long-term average of 7.1 km. This is attributed to the fact that most open water sources still have water due to good rains received in the previous season.

### 2.2.3 Livestock access

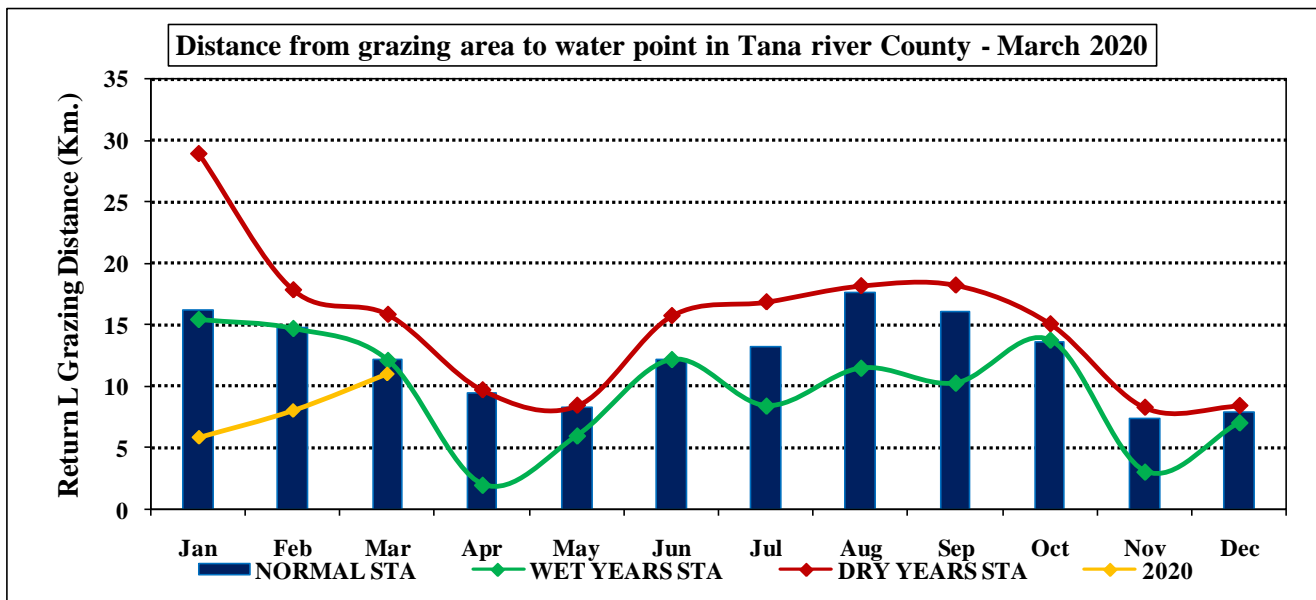


Fig.10.

- The return distance for livestock to grazing zones increased to 11 km during the month.
- The situation is attributed to increase to the distances to the grazing fields due to decreasing quality of pasture and browse.

## 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 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 fever 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 decreased to 3.2 litres compared to the previous month. This is attributed to the fact that pasture and browse is reducing in quantity and quality.
- In comparison to the long-term average; the current amount is below; this is attributed to no rainfall received which decreased the quality of pasture and browse across all livelihood zones.

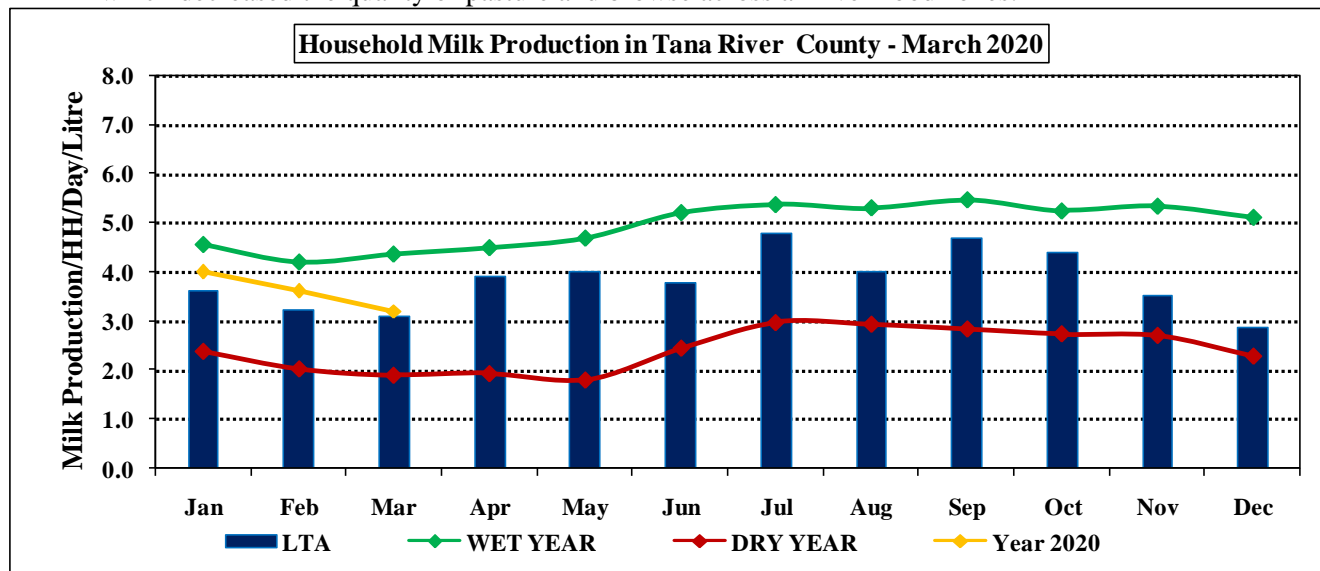


Figure 11

## 3.2. RAIN-FED CROP PRODUCTION.

### 3.2.1 Stage and Condition of food Crops

- Farmers have harvested their crops more so within the mixed and marginal mixed livelihood zone, the harvest were reported to be below average because of the destruction cause by floods. Most farmers now rely on vegetables, green grams and cowpeas as alternative crops. Land preparations in readiness to the long rains season is ongoing but most farmers lack farm inputs and are counting losses from the previous season due to floods.

## 4. MARKET PERFORMANCE

### 4.1. LIVESTOCK MARKETING

### 4.1.1 Cattle Prices

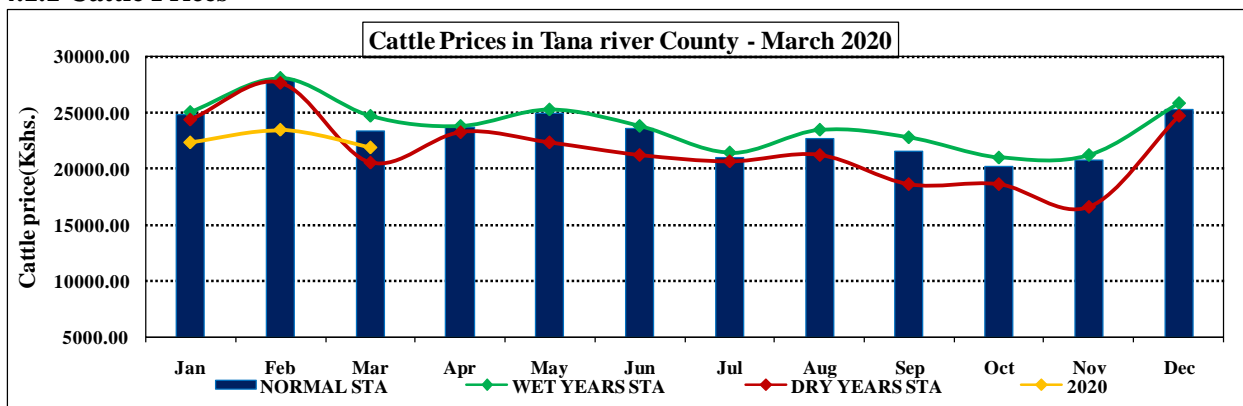


Fig.12.

- The average price for the medium sized cattle increased by 6% to Ksh.21, 933 in the reporting month as compared to Ksh.23,444 of the previous month.

### 4.1.2 Goat Prices

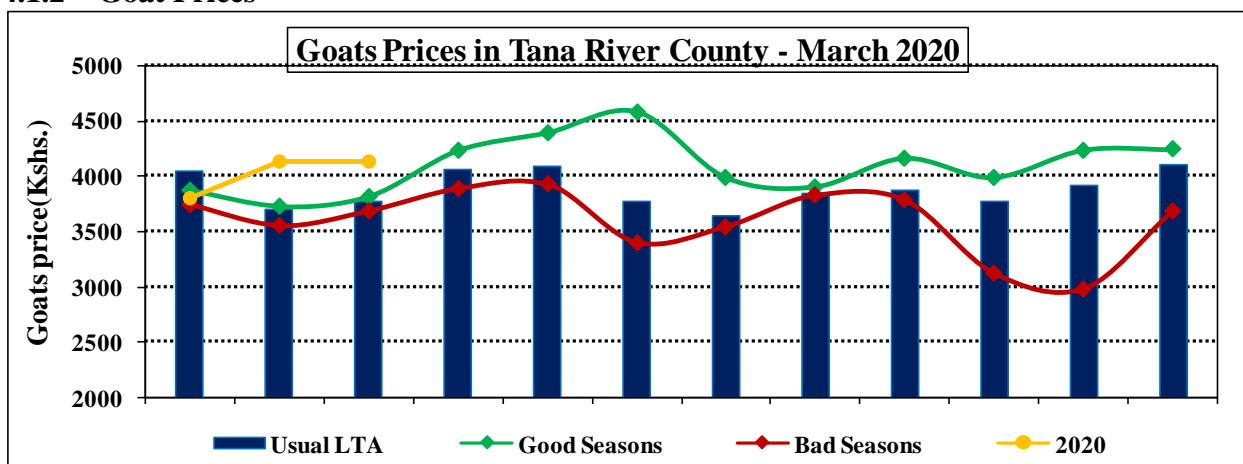


Fig.13.

- The average price of a goat remained stable at Ksh.4, 133 as compared to previous month attributed to market dynamics.
- The average Goat prices were lowest in Mixed and Marginal Mixed livelihood zone at Ksh. 4,000.
- The prices were above the long-term average . This is attributed to the availability of pasture and browse in all livelihood zones.

## 4.2. CROP PRICES

### 4.2.1 Maize

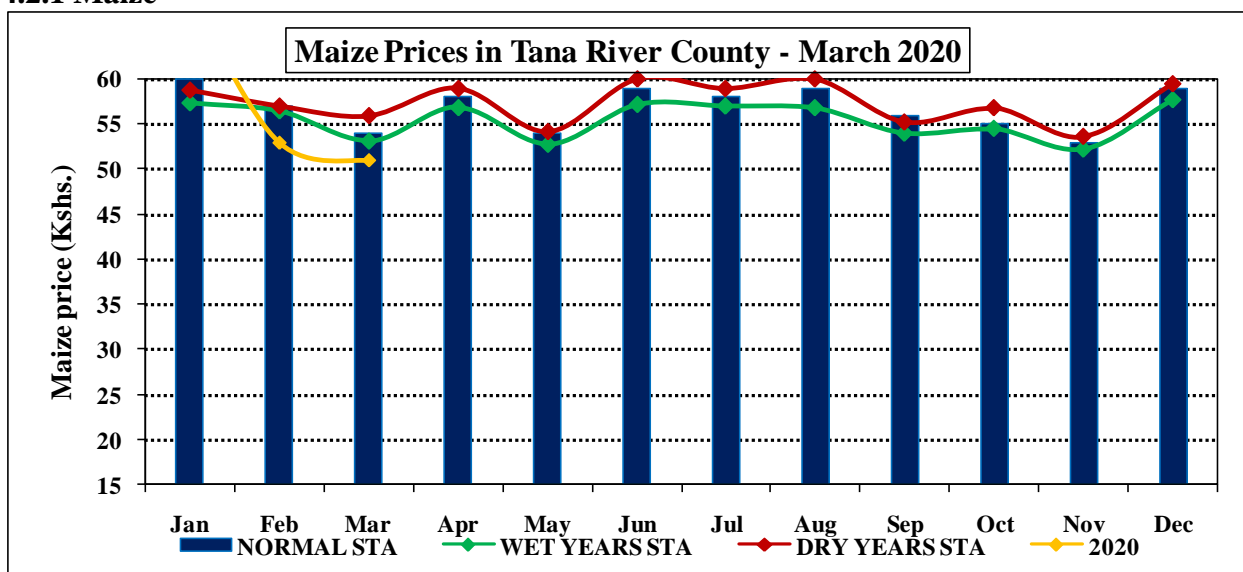


Fig.14.

- The average price for kilogram maize was Ksh.51 during the month, which was a decrease compared to the previous month. The price was below the long-term average at this time of the year by 6%.

### 4.3. Livestock Price Ratio/Terms of Trade

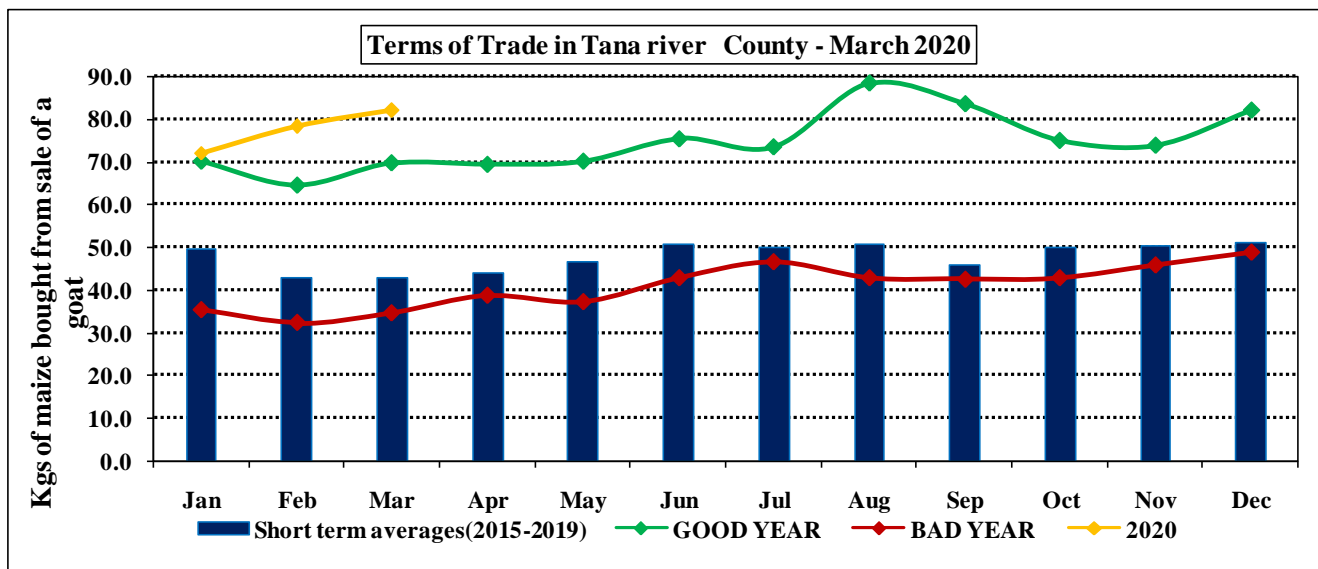


Fig .15.

- The terms of trade increased from 78 in February to 82 during the month of March 2020.
- The current term of trade is above the long-term average. This is attributed to market dynamics and the fact livestock still have a good body condition.

## 5.1. FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1.1. Milk Consumption

- The average milk consumption per household per day decreased to 1.6 litres compared to the previous month. The amount consumed is below the long term average at this time of the year. Reduction in milk consumption is attributed to low milk production at households level.

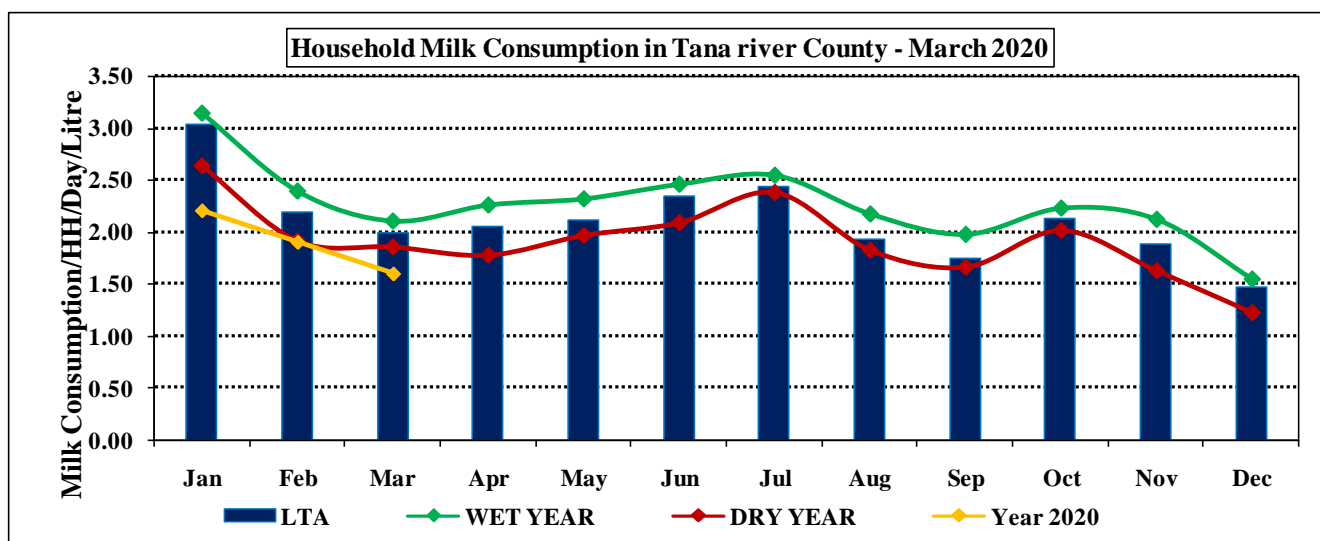
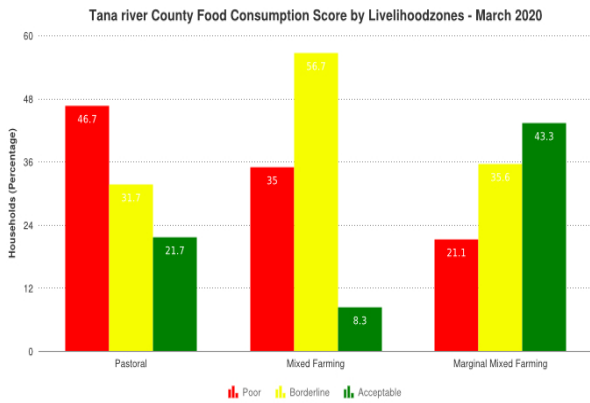


Fig. 16.



### 5.1.2. Food Consumption Score



There was higher proportion of households with poor food consumption gaps in Pastoral (46.7%) and mixed farming livelihood zones (35%).

The proportion of households with borderline food consumption score was high in mixed farming livelihood zones at 56.7% and lowest in Pastoral livelihood zones at 32%.

A proportion of 43.3%, 21.7% and 8.3% of the households across marginal mixed, pastoral and mixed livelihood zones have acceptable food consumption score respectively.

Figure 17:Tana River food consumption

### 5.1.3 Health and Nutrition Status

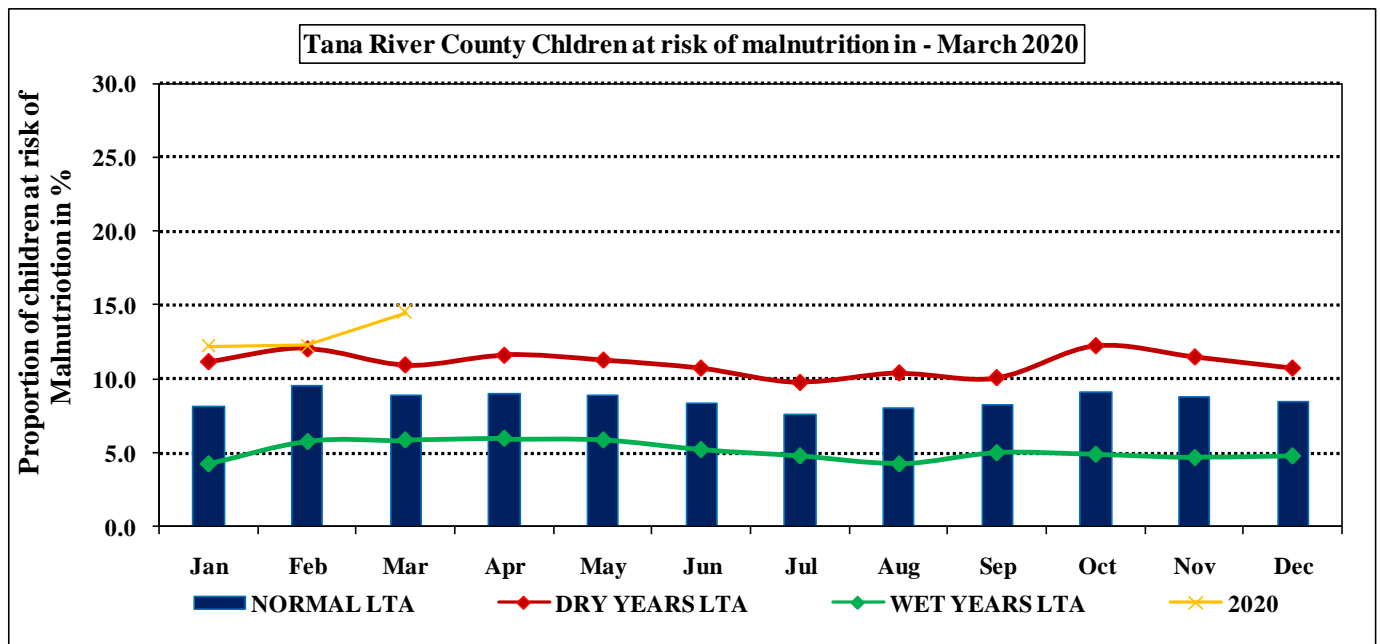


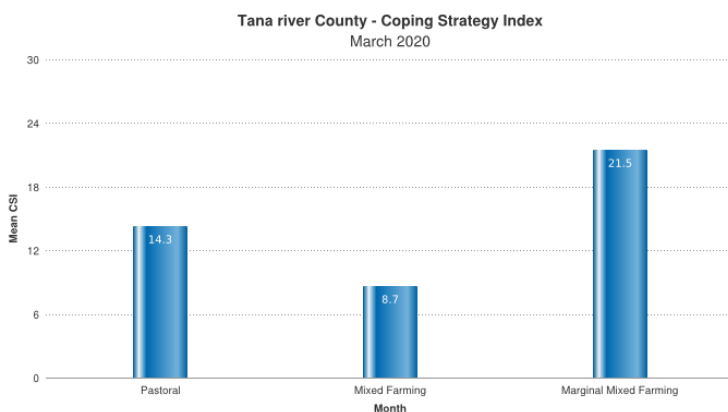
Fig.18.

- The proportion of sampled children under five years of age at risk of malnutrition increased to 14.50% as compared to the previous month at 12.30%. This is attributed to reduction in 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



#### Coping Strategy Index

The average coping strategy index increased to 15.7 in March 2020 compared to last month. Meaning households have started experiencing stress to access food.

Households in Marginal mixed livelihood zone employed most coping strategies at 21.5 followed by Pastoral at 14.3. The mixed farming livelihood zones employed least coping mechanisms at 8.7.

### 6.1 Non-food interventions

- Activation of Covid-19 response plans by Ministry of Health.
- Rehabilitation of dams by Ministry of Water and WFP.
- 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.
- Cash transfer to 2477 households in Tana North (Sala, Bangale, Hirimani,) by OXFARM/ALDEF/PGL.
- Cash transfer to 1000 floods affected victims in Tana Delta by KRCS.
- Integrated outreaches in hard to reach areas supported by Concern World Wide.
- Distribution of NFIS to flood affected victims in Delta by Ministry of Water/World Vission.

### 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 locusts in Tana North (Boka, Buradhima, 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 4,319 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 short 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 and Mixed livelihood zones are classified under stressed Phase (IPC Phase 2) while, Marginal mixed Zone is classified under Crisis Phase (IPC Phase 3). The County has improved to Stressed food insecurity phase.

### 8.0 RECOMMENDATIONS

#### 8.1.1. General Recommendations:

- a) Preparation and review of Covid -19 response plans by Ministry of Health .
- b) Enhance security surveillance and peace Barazas in hot spot areas.
- c) Enhance integrated outreaches in hard to reach areas across all the sub-counties more so in flood affected areas.
- d) Upscaling of food aid to the population in need in Tana North,Tana River and Tana Delta sub-counties.
- e) Provision of water harvesting facilities by Ministry of Water.
- f) Provision of storage facilities to farmers.
- g) Provision of farm inputs by Ministry of Agriculture.
- h) Capacity building of WRUWAS.

#### 8.2.0 Proposed Recommendations

County	Ward	Intervention	No. of beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
<b>Agriculture</b>							
Tana River	All wards	Assorted relief seeds ( drought tolerant & early maturing varieties)	12000hh	Department of agriculture and other stakeholders	30m	Technical skills	2020
Tana river	All wards	Assorted farm inputs (seeds, fertilizers & pesticides)	6000hh	Department of agriculture and other stakeholders	18m	Technical skills	2020
Tana river	All wards along the riverine	Provision of portable water pump sets & accessories;	3000hh	Department of agriculture and other stakeholders	133m	Technical skills	2020

		and revival of dormant minor irrigation schemes					
Tan a river	All wards	Capacity building of farmers on crop production, agro-forestry & marketing	9000hh	Department of agriculture and other stakeholders	6m	Technical skills	2020

### Livestock

Tan a river	All sub counties	Fodder production and conservation	1000 Households	County Government and partners RPLRP, WFP	150 acres of irrigable land Water source Pasture seeds Hay harvesting equipment fodder stores	Qualified extension staff	By June 2021
Tan a river	All sub counties	Rangel and resource management	1000 households	County dept of livestock Purse RPLRP, WFP KRCS FAO	Rangelands Pasture seeds	Qualified extension staff	March – June 2020
Tan a river	All sub counties	Restocking	1500 households	County governments and partners	Funds	Ext. agents	By June 2021

### Health and nutrition

Tan a river	Bangale, Sala Hirimani , Wayu Ward	Mass screeni ng	35000	MOH/KRCS/ COCERNWORLDWIDE	1,500, 000	Staffs/ve hicles	Marc h - May
Tan a river	All hotspots 34 in Tana North/ Galde	Conduc t integrat ed outreac hes	3500	MOH/KRCS/ COCERNWORLDWIDE	2,500, 000	Staffs/ve hicles	Marc h - May
Tan a river	Bangale, sala,hirima ni,Wayu and madogo wards	GFD /Cash Transfe rs to affecte d househ olds	6000	MOH/KRCS/COCERNWORLD WIDE/TRCG/PGI/WFP	9,000, 000	Staffs/ vehicles	Marc h - May
Tan a river	Bangale, sala,hirima ni,Wayu and madogo wards	Provide water treatme nt chemic als	34 HOTSP OTS	MOH/KRCS/COCERNWORLD WIDE	500,0 00	Staffs/ vehicles	Marc h - May
Tan a river	Health facilities	Imam surge training	47 health facilitie s	MOH/CONCERN WORLDWIDE/UNICEF	250,0 00	Staffs/ vehicles	Marc h - May
Tan a river	All wards	BFCI training	20 CUs	MOH/CONCERN WORLDWIDE/UNICEF	500,0 00	Staffs/ vehicles	Marc h - May
<b>Education</b>							
Tan a Rive r	Assa, Bangale, Dukanotu Wayu Waldena Chiffiri Chewele	Provisi on of clean water to 16 pry and 8 Early Years Educati on centers	8522 pupils	MOE TRCG WHH WFP	2.9M	0	Imme diate
	Wachu oda Bilisa Nanighi Mbalambal a Waldena Milalulu and Kipini	Provisi on of handwa shing facilitie s to 60 schools	12000 pupils	MOE TRCG WFP	1.2M	0	1 Mont h

	Milalulu Bilisa Ndura Bangali Chewele Chara Mwina Wayu Chifiri and Hakoka	Provisi on of energy saving jikos	52000 student s	MOE TRCG WFP NDMA		2M	0	3 Mont h

<b>Water Sector</b>							
<b>Immediate recommended Interventions</b>							
<b>Sub Count y/ Ward</b>	<b>Intervention</b>	<b>Location</b>	<b>No. of beneficiari es</b>	<b>Proposed Implemente rs</b>	<b>Required Resources</b>	<b>Available Resources</b>	<b>Time Frame</b>
Tana River County	Repair of 6no Strategic Boreholes	Madogo,Titi la, Idsowe (4no)	10,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	FUNDS & SPARE PARTS/ FITTINGS TECHNICAL STAFF	TECHNICAL STAFF	Feb - April
Tana River County	Flushing, Development and equipping of 2no Strategic Boreholes	Idsowe, Haroresa	7,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	FUNDS FOR MACHINERY OPERATORS, FLUSHING & DEVELOPMENT MACHINERY, FUELS FOR MACHINERY, TECHNICAL STAFF	TECHNICAL STAFF FLUSHING MACHINER Y	Feb - April
Tana River County	Capacity Building of Community Water Committees on WASH Facilities Management, Catchment Protection and O & M.		30 Water Committees	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds Vehicles for mobility		Feb - April
Tana River County	REHABILITATI ON OF SHALLOW WELLS DAMAGED BY FLOODS	WACHU ODA	6,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	TECHNICAL STAFF, FUNDS & SPARE PARTS/ FITTINGS	TECHNICAL STAFF	Feb - April
Tana River County	REHABILITATI ON OF SHALLOW WELLS DAMAGED BY FLOODS	ASSA	1,500	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	TECHNICAL STAFF, FUNDS & SPARE PARTS/ FITTINGS	TECHNICAL STAFF	Feb - April

Tana River County	REHABILITATION OF SHALLOW WELLS DAMAGED BY FLOODS	SALAMA, MWINA	10,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	TECHNICAL STAFF, FUNDS & SPARE PARTS/ FITTINGS	TECHNICAL STAFF	Feb - April
Tana River County	REHABILITATION OF SHALLOW WELLS DAMAGED BY FLOODS	CHARA, WACHU ODA & KONE MANSA	9,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	TECHNICAL STAFF, FUNDS & SPARE PARTS/ FITTINGS	TECHNICAL STAFF	Feb - April
Tana River County	REHABILITATION OF SHALLOW WELLS DAMAGED BY FLOODS	KIPINI	11,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	TECHNICAL STAFF, FUNDS & SPARE PARTS/ FITTINGS	TECHNICAL STAFF	Feb - April
Tana River County	Rehabilitation of Fafbare village water system	Madogo	1,100	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, Technical Staff, Vehicles for Monitoring	Technical Staff	Feb - April
Tana River County	Rehabilitation of Buwa and Asako community water systems, including capacity building of beneficiary communities	Asako	1,500	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, Technical Staff, Vehicles for Monitoring	Technical Staff	Feb - April

#### Medium and Long Term recommended Interventions

Tana River County	Construction of 50,000m <sup>3</sup> - 100,000m <sup>3</sup> large water pans to harvest the excess run off in water stress areas of the County.	Wayu, Haboye, Bangale, Chifiri, Kesi, Hara, Haroresa, Hurara, Assa, Hirimani	35,000	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Funds, Excavation Machinery, Technical Staff Vehicles for mobility during implementation and M & E.	<b>TECHNICAL STAFF</b>	June - October
Tana River County	Rehabilitation and expansion of existing strategic water pans (depending on the outcome of the MAM Long Rains)	Bangale, Kesi, Gofisa, Haroresa, Odoganda, Assa,	16,000	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Funds, Excavation Machinery, Technical Staff Vehicles for mobility during implementation and M & E.	Technical Staff	June - October
Tana River	Closure of the Matomba, Kitere,	Garsen, Kinakomba	25,000	<b>TRCG, GOK, WFP,</b>	Funds,	Technical Staff	Feb - April

County	Handaraku and Kalota Brooks.			<b>UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Excavation and Construction Machinery, Specialized Design and Supervision Team, Technical Staff Vehicles for mobility during implementation and M & E.		
Tana River County	Equipping of Boreholes	Kipini, Handampia	4,000	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Funds, Technical Staff, Vehicles for Monitoring	Technical Staff	Feb - April
Tana River County	Drilling of High Yielding Shallow Wells	Ngao	3,500	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	<b>DRILLING RIG &amp; ASSOCIATED MACHINERY, FUNDS FOR MACHINERY OPERATORS, FUELS FOR MACHINERY, TECHNICAL STAFF</b>	DRILLING RIG & ASSOCIATED MACHINERY TECHNICAL staff	Feb - April
Tana River County	Construction of a Major Water Supply Pipeline from Madogo to Bangale	Bangale	25,000	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	<b>FUNDS, SPECIALIZED DESIGN &amp; SUPERVISION SKILLS, Technical Officers, Vehicles for M &amp; E</b>	Technical Staff	2 Years
Tana River County	CONSTRUCTION OF 250,000LTRS STEEL ELEVATED TANK AT MADOGO PALACE, MADOGO WARD	Madogo	5,000	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Funds, Technical staff	Technical Staff	Feb-Dec
Tana River County	Construction of MADERTE WATER SUPPLY, MADERTE VILLAGE, BUWA LOCATION IN MADOGO WARD	Madogo	1,800	<b>TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.</b>	Funds, <b>DRILLING RIG &amp; ASSOCIATED MACHINERY, FUNDS FOR MACHINERY OPERATORS, FUELS FOR MACHINERY, TECHNICAL STAFF</b>	Technical Staff	Feb-June



Tana River County	Pipeline extension from the tank at Madogo Palace to Boji, Hagarisoti then Adelle (across the lagha)	Madogo	1,400	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, Technical staff, Vehicle for Monitoring	Technical Staff	Feb-June
Tana River County	Hydrogeological survey and Drilling of a Borehole around Katumba area.	Bangale	3,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, DRILLING RIG & ASSOCIATED MACHINERY, FUNDS FOR MACHINERY OPERATORS, FUELS FOR MACHINERY, TECHNICAL STAFF	Technical Staff	Feb-Dec
Tana River County Tana River County	Construction of Kuruso Water Supply Project Construction of 50,000m <sup>3</sup> - 100,000m <sup>3</sup> large water pans to harvest the excess run off in water stress areas of the County.	Madogo Wayu, Haboye, Bangale, Chifiri, Kesi, Hara, Haroresa, Hurara, Assa, Hirimani	1,800 35,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS. TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, DRILLING RIG & ASSOCIATED MACHINERY, FUNDS FOR MACHINERY OPERATORS, FUELS FOR MACHINERY, TECHNICAL STAFF Funds, Excavation Machinery, Technical Staff Vehicles for mobility during implementation and M & E.	Technical Staff TECHNICAL STAFF	Feb-June June - October
Tana River County	Rehabilitation and expansion of existing strategic water pans (depending on the outcome of the MAM Long Rains)	Bangale, Kesi, Gofisa, Haroresa, Odoganda, Assa,	16,000	TRCG, GOK, WFP, UNICEF, GAA, WV, NDMA, OXFAM GB, KRCS.	Funds, Excavation Machinery, Technical Staff Vehicles for mobility during implementation and M & E.	Technical Staff	June - October

## 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
Green	> +1.5 or more	Wet Conditions
Light Green	0 to +1.5	No drought
Yellow	-0.1 to -0.99	Mild drought
Red	-1 to -1.99	Severe drought
Dark Red	<-2 and less	Extreme drought

**Table 3: Vegetation Condition Index Values (VCI)**

Color	VCI values	Agricultural Drought Category
	3-monthly average	
Green	≥50	Wet
Light Green	35 to 50	No agricultural drought
Yellow	21 to 34	Moderate agricultural drought
Red	10 to 20	Severe agricultural drought
Dark Red	<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.