

# National Drought Management Authority Baringo County Drought Early Warning Bulletin for June 2019



A Vision 2030 Flagship Project



JUNE 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: Alarm-Worsening</p> <p><b>Biophysical Indicators</b></p> <ul style="list-style-type: none"> <li>Most biophysical indicators show fluctuations within the expected seasonal ranges.</li> <li>Above average rainfall was received in the month of June 2019.</li> <li>The Vegetation Condition Index values for Baringo County are below normal and on an improving trend compared to the last month.</li> <li>The Water levels in most water sources are below normal at (50%- 70 %).</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 poor to good in both quality and quantity and expected to improve with the on-going rains.</li> <li>Livestock body condition is poor to fair in all livelihood zones.</li> <li>Milk production is below normal the seasonal and on an increasing trend.</li> <li>No Drought related Livestock deaths 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 below normal seasonal ranges and improving due to improving livestock body conditions.</li> <li>Distances to water sources for households currently are above normal ranges though on a declining trend due to recharge of most of surface water sources.</li> </ul> <p><b>Utilization indicators:</b></p> <ul style="list-style-type: none"> <li>The number of under-five children at risk of malnutrition was 19.8%, an increase as compared 19.3% in the previous month.</li> <li>Copping strategy index for households is still within normal ranges.</li> </ul>	PASTORAL	ALARM	IMPROVING	
	AGRO PASTORAL	ALARM	IMPROVING	
	IRRIGATED CROP	ALARM	IMPROVING	
	COUNTY	ALARM	IMPROVING	
	<b>Biophysical Indicators</b>	<b>Value for the month Baringo</b>	<b>LTA-Monthly Baringo</b>	<b>Normal ranges Kenya %</b>
	Average rainfall MM (%)	166	110.2	80-120
	VCI-3month	13.46	54	35-50
	% Of water in the water pan	50%-70%		50-60
	<b>Production indicators</b>	<b>Value</b>	<b>Normal ranges</b>	
	Livestock Migration Pattern	Normal	Normal	
	Livestock Body Condition	4-5	3-4	
	Milk Production (Ltr /HH/Month)	1.1	1.8	
	Livestock deaths (for drought)	No deaths	No death	
	<b>Access Indicators</b>	<b>Value</b>	<b>Normal ranges</b>	
Terms of Trade (ToT)	44.5	>63		
Milk Consumption (Ltr)	1.1	>=1.7		
Water for Households-trekking distance (km)	6.3	0-4		
Crops area planted for the season (%) (by July 2018)	3,000(Maize) 2,500(Beans)	LTA (40,046Ha) LTA (20,028Ha)		
<b>Utilization indicators</b>	<b>Value</b>	<b>Normal ranges</b>		
At Risk (%)	19.8%	<15		
CSI	14.22	>19.0		

<ul style="list-style-type: none"> <li>Short rains harvests</li> <li>Short dry spell</li> <li>Reduced milk yields</li> <li>Increased HH Food Stocks</li> <li>Land preparation</li> </ul>	<ul style="list-style-type: none"> <li>Planting/Weeding</li> <li>Long rains</li> <li>High Calving Rate</li> <li>Milk Yields Increase</li> </ul>	<ul style="list-style-type: none"> <li>Long rains harvests</li> <li>A long dry spell</li> <li>Land preparation</li> <li>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

### 1.2 AMOUNT OF RAINFALL AND SPATIAL DISTRIBUTION

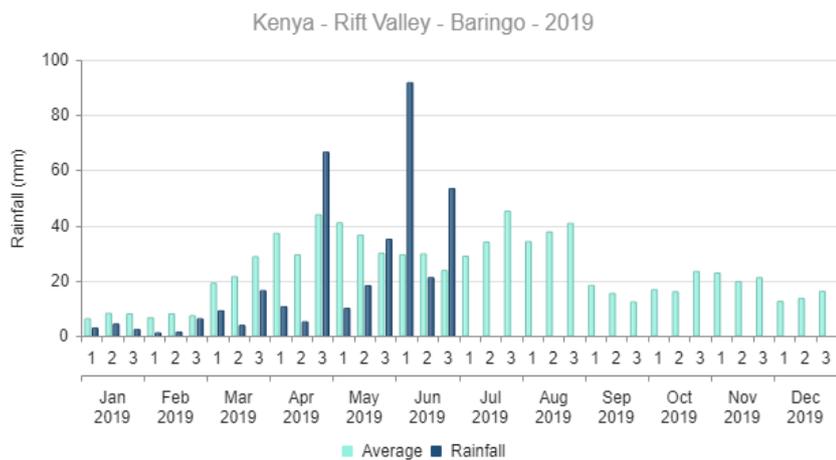


Fig. 1. Rainfall performance

© WFP-VAM, CHIRPS/UCSB

- During the month of June, 91.7mm, 21mm and 53.3mm of rainfall was received in the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> dekad respectively.
- The total amounts received were above the LTA
- Both temporal and spatial distribution was fair across all the sub-counties.
- The current NDVI was also below the LTA.

## 2. IMPACTS ON VEGETATION AND WATER

### 2.1.1 VEGETATION CONDITION INDEX (VCI)

The vegetation condition in the County was below normal and stable as compared to the previous month as shown in the table below.

COUNTY	Sub County	VCI as at 29 <sup>th</sup> May 2019	VCI as at 25 <sup>th</sup> June 2019	
BARINGO	County	13.46	12.43	Below normal and stable vegetation conditions experienced in Baringo county compared to last month. All sub-counties are experiencing depletion in vegetation cover as indicated in the table though the situation is expected to improve with the received rains.
	Central	13.38	1.17	
	Eldama	11.44	4.53	
	Mogotio	5.4	16.83	
	North	12.43	6.33	
	South	14.53	15.31	
	Tiaty	16.12	15.79	

Table.1. Source BOKU



Fig 2. VCI

The vegetation condition index for Baringo County was at 12.43 indicating below normal vegetation greenness as compared to the LTA. In comparison to the previous month the current vegetation cover has reduced slightly in quantity and quality. However the situation is expected to improve due to the recent rains received throughout the county.

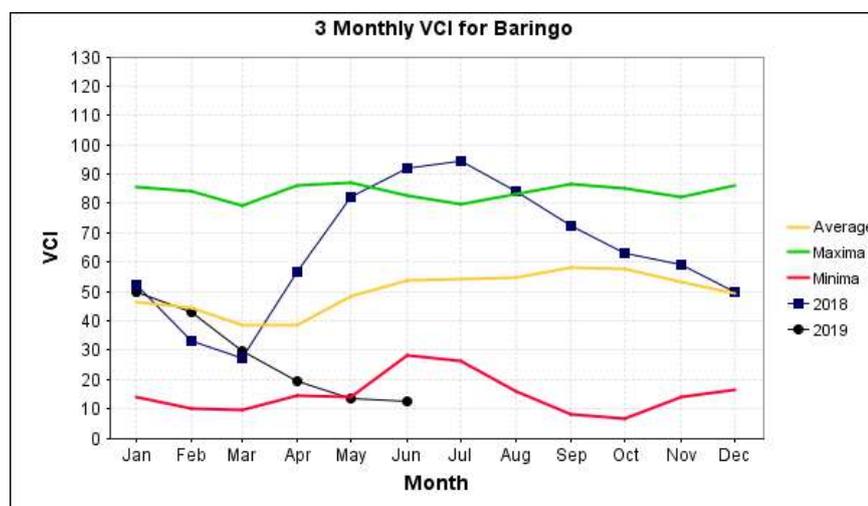
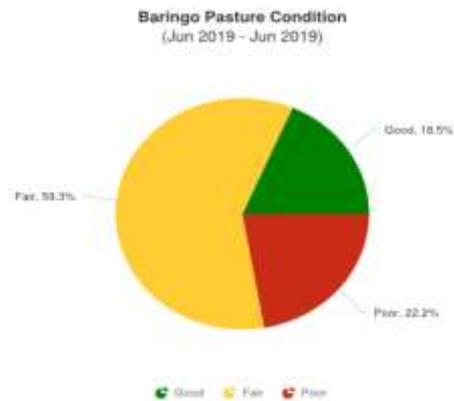


Fig.3.VCI trend

The vegetation condition is on a stable trend and expected to improve throughout the county due to the on-going rains.

## 2.1.2 Pasture



- The pasture condition is fair to good both in quantity and quality in irrigated livelihood Zone. While poor to fair in Agro Pastoral and Pastoral livelihood zones; these conditions are below normal at this time of the year.
- The pasture is expected to last for two to three

months across all livelihood zones.

Fig.4.Pasture Condition

## 2.1.3 Browse

- The browse condition is fair to good in quantity and quality across all livelihood zones; however the condition is below the normal seasonal ranges for this time of the year.
- The available browse is expected to last for two to three months in pastoral and agro pastoral livelihood Zones and four months in irrigated cropping livelihood zone.

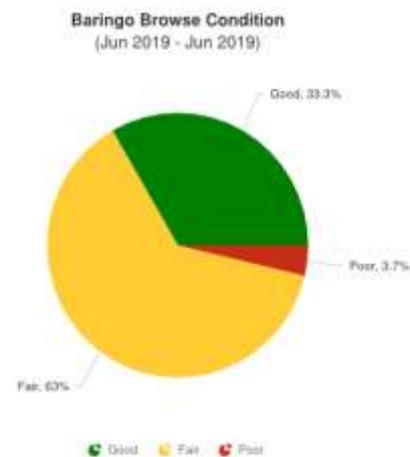


Fig.5. Browse Condition

## 2.2 WATER RESOURCE

### 2.2.1 Sources

- The main water sources for both livestock and human consumption across all livelihoods were Rivers, traditional river wells and water pans.
- Most water pans and dams were at 50% to 70% of their full capacity.
- Water quality and quantity across pastoral and agro-pastoral livelihoods is fair, which is not normal for this time of the year.
- The current water sources are expected to last for three month in irrigated farming livelihood zone.
- In pastoral and agro pastoral livelihood zones, the water is likely to last for one to two months due to rains being experienced.

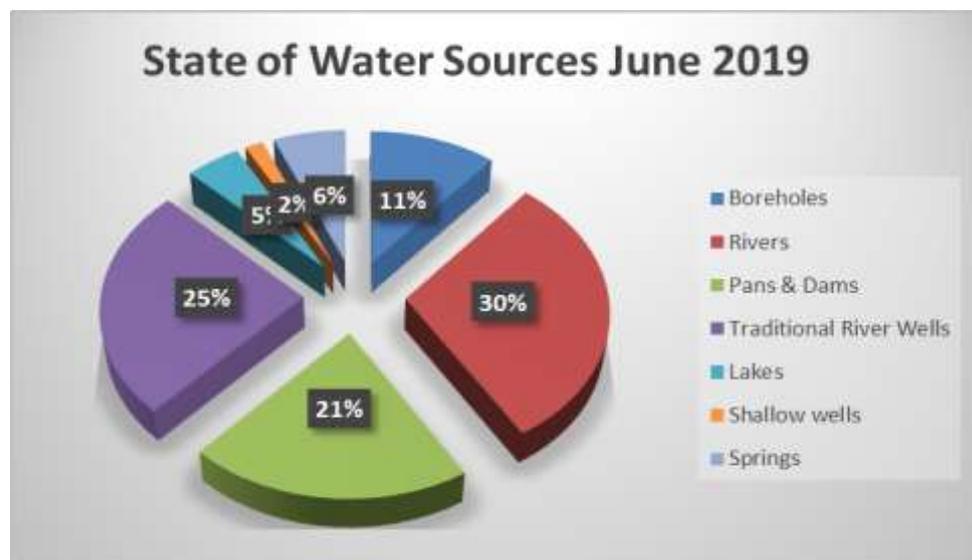


Fig.6 State of water Sources

### 1.3.2 Household access and Utilization

- The average household trekking distance to water sources reduced by 26% from 8.5km to 6.3km in comparison to the previous month.
- The distances are above the LTA by 85%.
- Irrigated cropping zone recorded the least average distance of 2km while pastoral livelihood recorded the highest average of 7km.
- The decrease in distances is attributed to on-going rains across all livelihood zones.

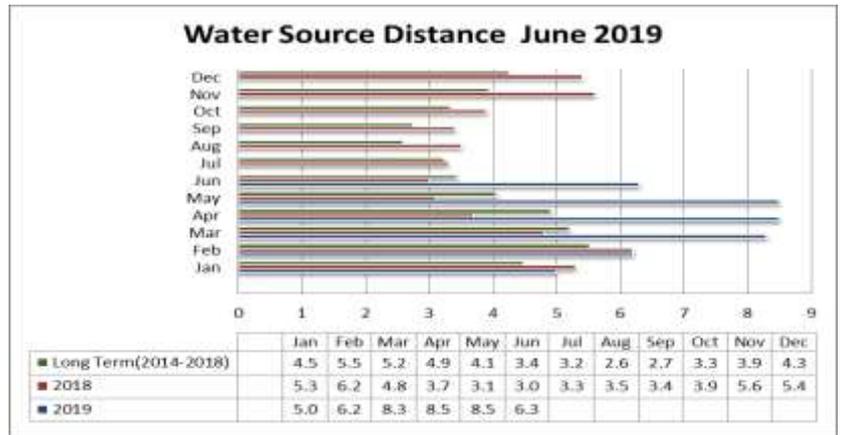


Fig.7. Water Source Trekking Distances

### 2.2.3 Livestock access

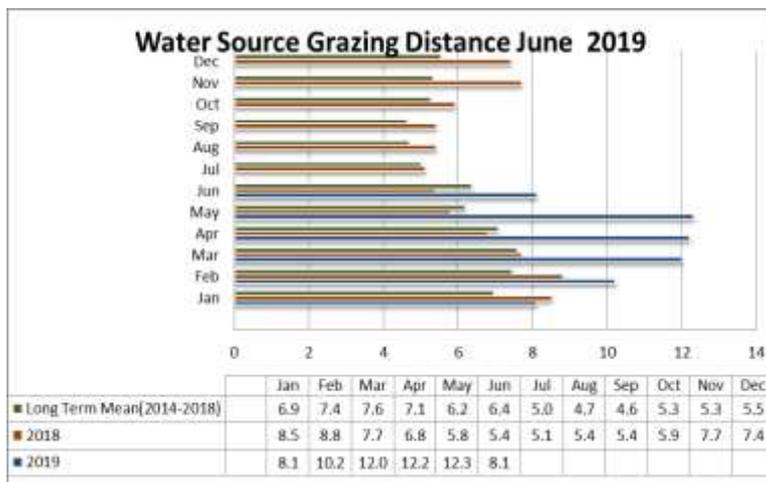


Fig.8. Water Source Grazing Distance

- The return distance for livestock from grazing zones to water points reduced from 12.3km to 8.1km recorded the previous month. The pastoral livelihood zone covered the longest average distance of 9.1km while irrigated livelihood zone covered the shortest average distance of 2km.
- The situation is attributed to regenerating pastures and water availability at the traditional grazing zones across all livelihood zones forcing herders to move back.

### 3.0.0 PRODUCTION INDICATORS

#### 3.1 Livestock Production

##### 3.1.1 Livestock Body Condition

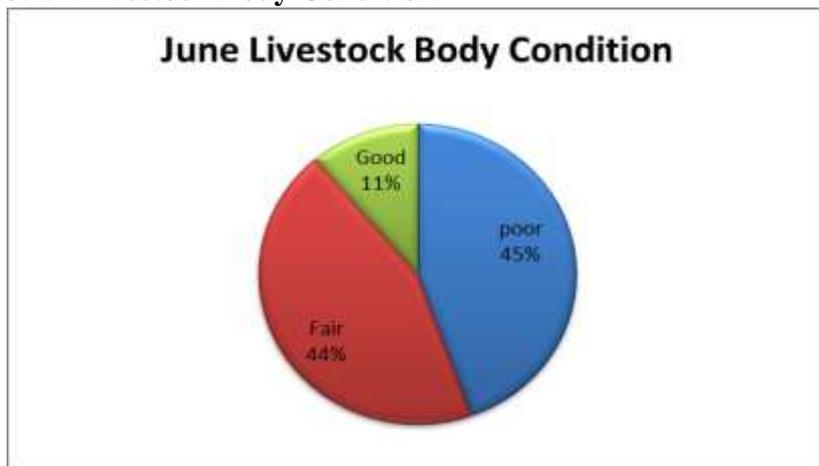


Fig.9. Livestock body condition

- During the month 45% of households interviewed reported poor livestock body condition with 44% indicating fair and 11% reporting good.
- As occasioned by regeneration of pasture and recharge water sources across livelihood zones.
- The situation is likely to improve given the current rains.

##### 3.1.2 Livestock Diseases

- Foot and Mouth and CPPR were reported in Agro-pastoral and mixed farming livelihood zones of Mochongoi in Baringo South and Baringo North sub-counties. The livestock departed is currently carrying out vaccinations against these diseases.

##### 3.1.3 Milk Production

- The average milk produced per household per day was 1.1 litres a slight increase as compared to the previous month.
- The amount is below long-term average by 39%.
- The milk was mainly from camels and Goats.

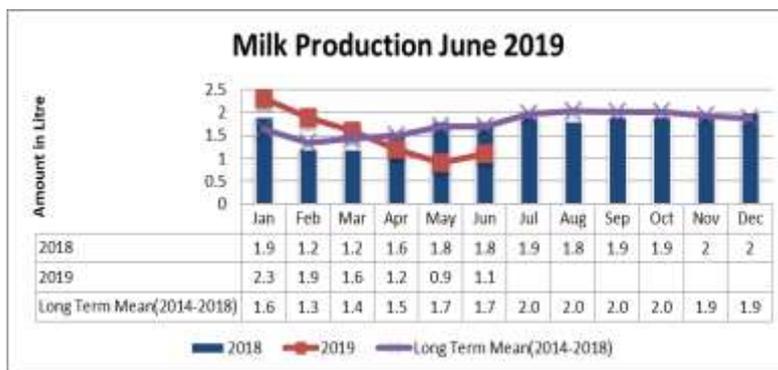


Fig.10. Milk Production

### RAIN FED CROP PRODUCTION.

#### 3.2.1 Stage and Condition of food Crops

- Farmers have planted their farms after the rains were received throughout the county; however the farmers are mostly planting short term maturing crops such as cowpeas, beans and green grams. The acreage under both rain fed and irrigated agriculture is anticipated to reduce by over 50% in the current cropping season.

## 4.0.0 MARKET PERFORMANCE

### 4.1.0 LIVESTOCK MARKETING

#### 4.1.1 Cattle Prices.

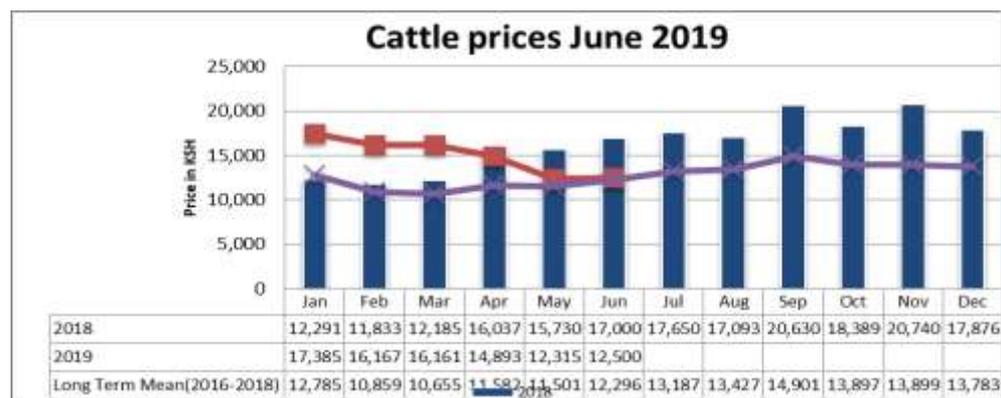


Fig.11. Cattle Prices

- The average price for medium-sized cattle was at Ksh. 12,500 a slight increase as compared to the previous month.
- The price was slightly above the long-term average by two percent.

- Irrigated livelihood zones had the highest average prices of Ksh.19,500 while Agro Pastoral livelihood zone recorded the least average price of Ksh.10,667.
- The low prices were attributed to declined livestock body condition and panic sale across all livelihood zones.

#### 4.1.2 Goat Price



Fig.12. Goat Prices

- The average price of a medium size goat was relatively stable at Ksh. 2,283 as compared to the previous month but below that for same month in 2018.
- The average price of a goat was marginally above the LTA.
- The prices were highest in irrigated cropping livelihood Zone at Ksh. 3,150 and lowest in Agro Pastoral livelihood zone at Ksh.1, 600.
- The prices was due to farmers increased sales in exchange for cereal and pulses purchase in the

local markets and farm inputs

## 4.2.0. CROP PRICES

### 4.2.1 Maize

- The current average price for kilogram maize was stable at Ksh.51 as compared to the previous month.
- The price was relatively comparable to the long-term average at this time of the year
- Pastoral livelihood Zone recorded the highest price of Ksh.55 per Kg while irrigated Livelihood Zone recorded the lowest of Ksh.42 per Kg.
- This can be attributed to declining stocks at household levels and at local retailers.

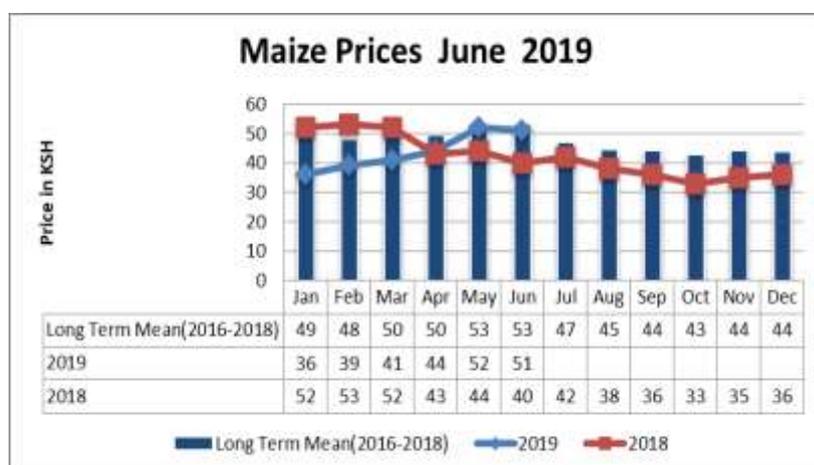
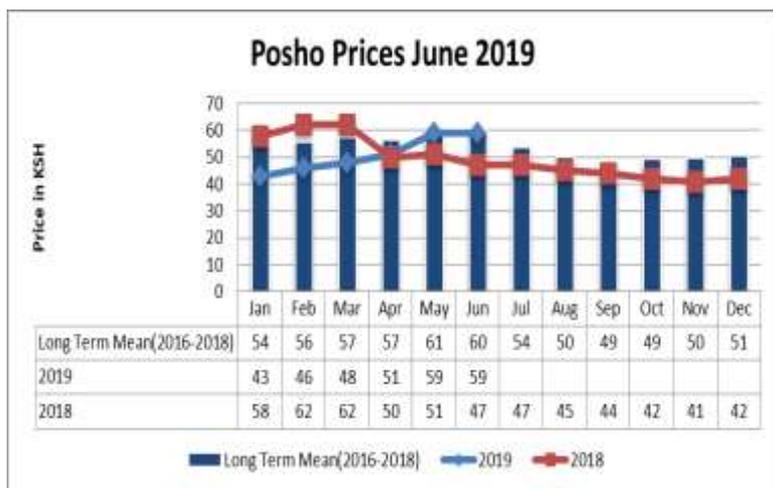


Fig.13. Maize Prices

### 4.2.2 Posho (Maize Meal)

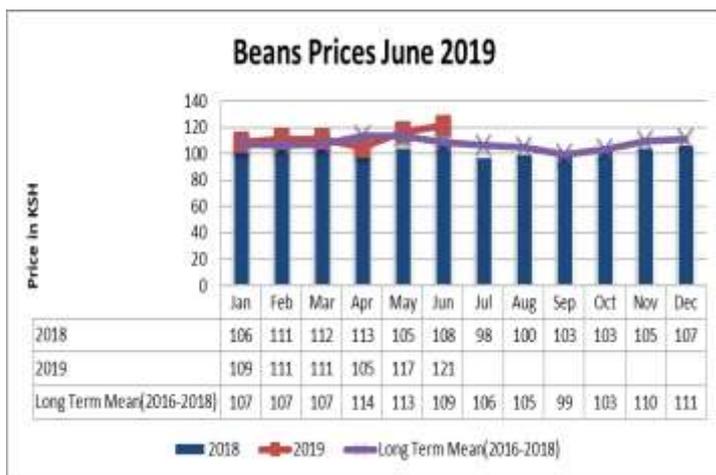


- The price of a kilogram of Posho was at Ksh.59, Similar to the previous month.
- The price was below the long-term average for the month by 2%.
- These prices are attributed appreciating maize prices and diminishing stocks at household level and those held by the retailers.

Fig.14.posho prices

### 4.2.3 Beans Prices

- The average price per kilogram for beans was at Ksh.121 compared to Ksh. 117 the previous month; the increase in prices was attributed to the scarcity of the commodity across livelihood zones and increase for planting materials.

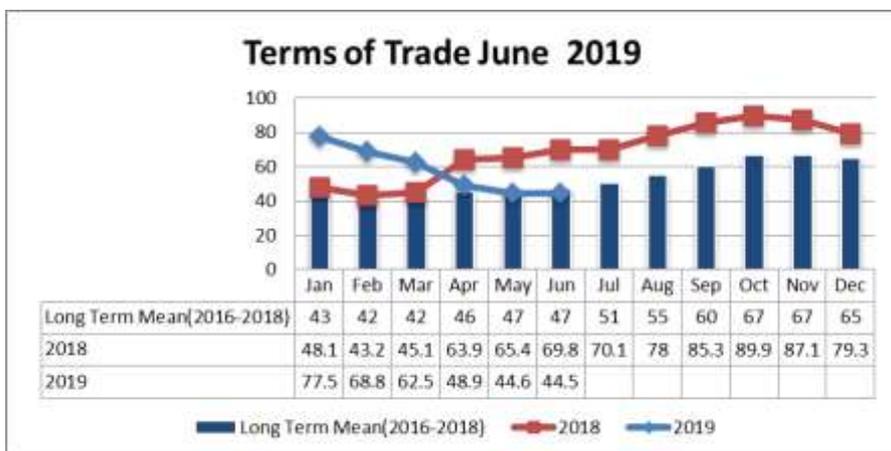


- The current prices are above the long-term average by 11 percent.
- Pastoral Livelihood Zone recorded the highest average prices of Ksh.131 while the irrigated recorded the least prices of Ksh.80.

### 4.3

Fig.15. Beans Prices

### Livestock Price Ratio/Terms of Trade



- The terms of trade were relatively comparable to the previous month at 44.5 currently; this was attributed to decrease in the livestock prices and relative high maize prices.
- The current terms of trade are below the long-term average by five percent.
- Irrigated cropping livelihood zone had the highest terms of trade of 65 while pastoral livelihood Zone had the lowest at 41

Fig.16. Terms of Trade

## 5.0.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk Consumption

- The average milk consumption per household per day steady at 1.1 litres. The milk consumption was highest in the Agro Pastoral livelihood zone at 1.5 litres. While 1 litre in the Pastoral and Irrigated Cropping livelihood Zones respectively.
- The amount consumed was below the long-term mean by 31%.

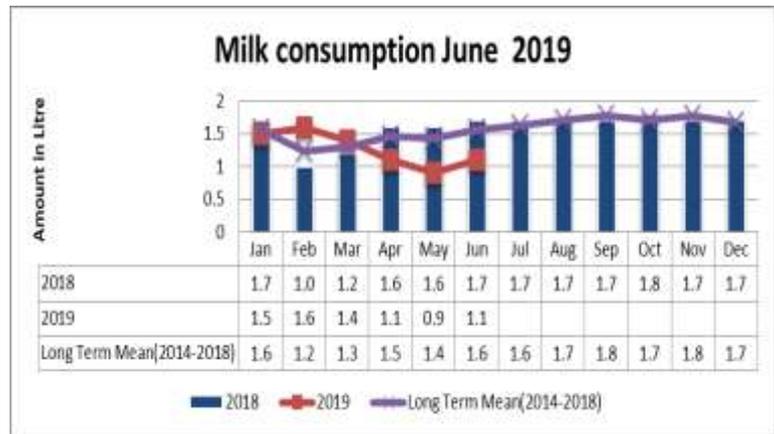


Fig.17. Milk Consumption

### 5.2 Food Consumption Score

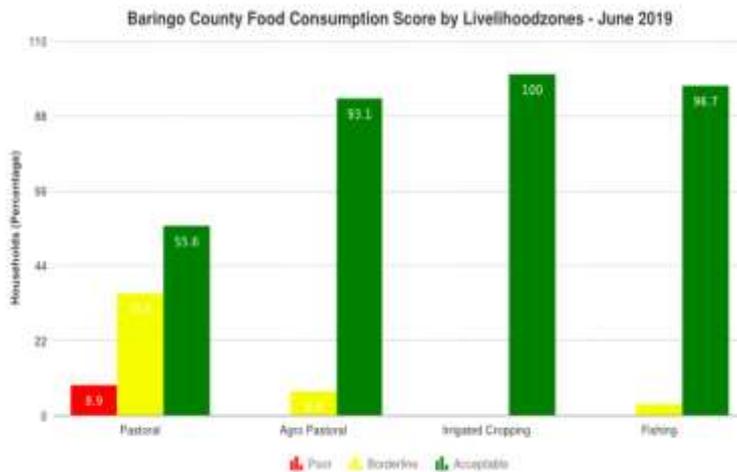


Fig.18. Food Consumption

- There were households with poor food consumption gaps in the Agro Pastoral and Pastoral Livelihood Zones
- The proportion of households with borderline food consumption was 35.6% and 8.9% in pastoral and Pastoral Livelihood Zones.
- The current FCS has improved as compared to the previous month.
- A proportion of 19%, 39% and 42% of the households across the livelihoods have poor, borderline and acceptable

food consumption score

respectively.

- Food security situation across all livelihood zones has improved as compared to the previous month; this is attributed to availability of leafy vegetables across all livelihood zones and cash transfer by WFP in the Pastoral livelihood zone. The situation is expected improve due to the on-going rains across the county thus increase in availability of vegetables and increase in purchasing power.

### 5.3 Health and Nutrition Status

- The proportion of sampled children under five years of age at risk of malnutrition was at 19.8%, an increase as compared to the previous month, the increase is attributed to minimal milk production and consumption at household level together with poor households' purchasing power across livelihoods.
- Komolion, Ribko and Kapenguria wards in the pastoral livelihood zones recorded highest levels of malnutrition at 35%, 33.6% and 33.3% respectively.

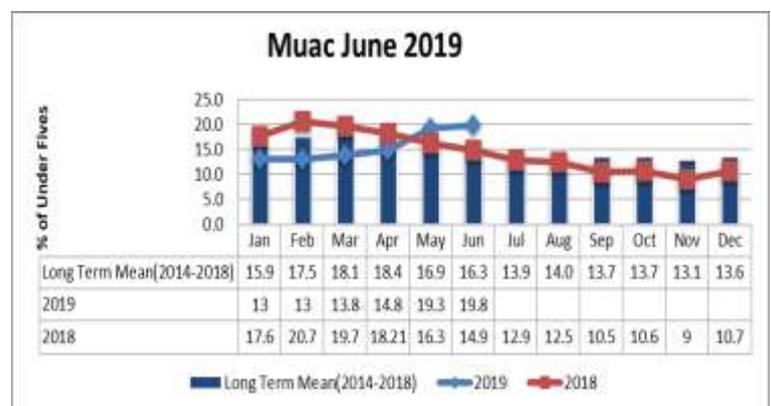


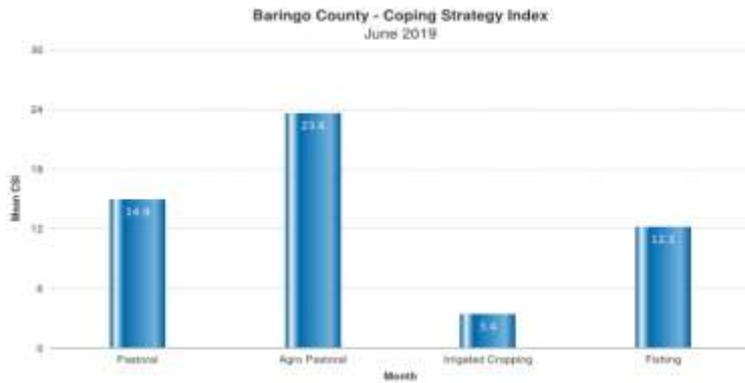
Fig.19. Muac

#### 5.3.2 Health

- During the reporting period the commonly reported illnesses were diarrhoea and malaria across livelihood zones. This was due to poor hygiene practices at Household Level.
- No major human disease outbreaks were reported during the month.

## 5. 4.0 COPING STRATEGIES

### Coping Strategy Index



livelihood zones.

- The average coping strategy index decreased from 16.3 to 14.22 as compared to last month.
- Households in Agro-Pastoral livelihood zone employed most coping strategies at 23.6 followed by Pastoral at 14.9. The irrigated zones employed least coping mechanisms at 3.4.
- This trend is attributed to interventions from partners in the pastoral and Agro pastoral

Fig.20. Coping Strategy Index

## **6.0 CURRENT INTERVENTION MEASURES.**

### **6.1 NON-FOOD INTERVENTIONS**

#### **National Drought Management Authority**

- Training of CMDRR TOTs for Baringo county technical CSG members for 2 weeks

#### **Baringo County Government**

- SFSP (Sustainable Food Systems Program, finalized the mop up exercise for beneficiary Registration. Cash transfers Disbursement to targeted Households (4500) were not conducted in June. BCG and WFP still finalizing work plans and budget for resilience building Project to be implemented in 18 wards across 5 sub counties. Resilience project proposed by communities cut across water and irrigation, livestock production through pasture production and rain water harvesting structures.
- Baringo County department of Health and Nutrition conducted integrated outreaches in 26 sites in Tiaty with support from Kenya Red cross.
- Baringo County SMART survey training conducted for the data collection team
- Vaccination of livestock against FMD & PPR
- Routine disease surveillance for both human and livestock

#### **Regional Pastoral Livelihood Resilience Project**

- Support to livestock vaccination program against FMD & PPR (100,000 doses for FMD, 750,000 doses for PPR)
- Distributed of poultry incubators to six pastoral field schools'/pasture production groups for Income Generation Activities (Kamar, Mugurin, Salabani, Kipcherere, Lelmen & Kapkalelwa)

#### **Anglican Development Service (ADS)**

- ADS supported climate change resilience projects in Ribko, loyamorok and parts of Silale wards in Tiaty sub-county, mainly focusing on water conservation and dry land farming techniques

#### **Action Aid**

- Baringo county government climate change adaptation plan development 2018-2022 supported by ActionAid

#### **World Vision Kenya**

- Technical assessment for various BHs with high yield in drought prone areas of Koloa and Tirioko to undertake repairs, equipping and some pipeline extension
- Currently working on database for 300 beneficiaries to be supported under the cash transfer program
- Construction of masonry water tank for Esageri primary school to support vulnerable children with special needs in the school
- Distribution of farm inputs (seedling) to farmers a long Mario River in Tirioko

### **6.2 Food interventions**

- a) Food aid in all livelihood Zones by GOK/KRC. A total of 4,660 household were reached; Maize- 88,248Kgs (88.2 MT), Beans- 38,000Kgs ( 38.0 MT) and Cooking Oil- 540liters (20pcs@20l, 14pcs@10L
- b) Water trucking to institutions and health facilities by NDMA/BCG

## 7.0 Emerging Issues

### 7.1 Insecurity/Conflict/Human Displacement

	Wild Animal	Areas Reported	Livestock
1.	Baboons	Ribko, Akoret, Kolloa, Ng'oron	Shoats
2.	Lynx	Akoret, Ribko, Kolloa	Shoats
3.	Hyena	Ribko, Akoret, Komolion	Shoats

- There were insecurity incidences in Kasiela area Baringo south Sub County where cattle were stolen.
- Tensions are also high in areas of Chemoe ,Kagir,Tuluk,Chemanangoi,Nawe Natan and Ng'aratuko in Baringo North.
- Human-wildlife conflicts where a number of livestock were killed as highlighted in the Table.

### 7.2 Migration

- There have been no cases of livestock migrations reported during the month of June in the county; however, the livestock are still at the dry season convergence zones.

### 7.3 FOOD SECURITY PROGNOSIS

Rejuvenating forage and browse, recharge of water sources has resulted in reduced water access distance for both livestock and households in most parts of the county particularly, the pastoral and Agro-pastoral posing a relief to the livestock sector. This situation coupled with improved livestock body condition and milk availability is likely to result into decrease in malnutrition among the under-fives, increased livestock market prices and Household purchasing power that will affect the overall County food and nutrition security across Livelihoods. This situation is likely to be short lived due to poor performance of the Long rains season in the County.

The current situation will require urgent multi-sector preparedness strategies and resource mobilization and allocation, more proactive preparedness mechanisms from the Baringo County government drawing from the County emergency fund with focus on overall health and nutrition integrated outreaches, WASH through provision of clean portable water and water treatment chemicals to schools and households. The on-going relief food provision operations and all other safety net initiatives should be sustained across the vulnerable households in the hotspot livelihoods to ensure the County guarantees the safety of all lives and livelihoods.

## 8.0 RECOMMENDATIONS

### 8.1.1. General Recommendations:

- Strengthening drought status CSG surveillance and reporting for inform timely resource mobilization, response, monitoring and reporting.
- Regular Sub- County drought coordination, monitoring and reporting meetings with emphasis on the nature of on-going interventions partnerships and resources gaps.
- Strengthen management capacities of community project management committees for longer term sustainability
- Support inter-community peace building activities and meeting on existing hot spots

### 8.2.0 Proposed Recommendations

#### 8.2.1. Water Sector

- Capacity strengthening for community water resource management committees
- Support decongestion of community water point through construction of water kiosks and pipeline extension
- Mechanized Desilting and expansion of 24 No. Critical water pans during this dry period.
- Scale up water trucking to schools and health institutions and provision of Water treatment Chemicals to forestall closures.
- Provision of fuel/diesel subsidy to community high yielding boreholes.
- Repair and servicing of the existing water bowsers

- Allocation of resources to the rapid response teams to address the current water crisis in the County.
- Repair of broken down water supply systems and critical boreholes to ensure normalcy.

### 8.2.2. Nutrition and Health

- Stepping up of Vitamin A Supplementation
- Scale up mass screening in Baringo North, Tiaty and Baringo South and Mogotio.
- Intensify Nutrition Surveillance and service provision in the hard to reach areas to support case findings through nutrition and health outreaches through partnership with stakeholders

### 8.2.3. Education

- Provision of School meals programme to the ECDEs to reduce pressure on the regular school meals programme in primary schools.
- Provision for rain water harvesting in schools, hard hit by water shortages occasioned by drought
- Pipeline extension to schools that are neighboring permanent water source e.g. boreholes

### 8.2.4. Livestock and Veterinary sector.

- Disease surveillance and vaccination over notifiable diseases to ensure normal livestock market operations.
- Provision of livestock Concentrate feeds to the vulnerable herds in the hotspots.
- Purchase and distribution of livestock feeds to areas experiencing acute pasture shortage especially in Tiaty, Baringo North, South and Mogotio Sub-counties.
- Promotion of accelerated commercial livestock off-take
- Support pasture establishment and management for pastoral and agro-pastoral communities

### 8.2.5. Agriculture Sector

- Pre- positioning of farm inputs provision to support households in the irrigated livelihood zones.
- Dissemination of live messages to communities on post-harvest management strategies.
- Expand the irrigation schemes to increase crop production and support training of scheme management committees

## REFERENCE TABLES

**Table 3: 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.
<b>Recovery:</b>			
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 4: 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 5: Vegetation Condition Index Values (VCI)**

Color	VCI values	Agricultural Drought Category
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	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 6: 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.