

National Drought Management Authority
LAMU COUNTY
DROUGHT EARLY WARNING BULLETING FOR DECEMBER 2018



A Vision 2030 Flagship Project



December 2018: EW PHASE

Drought Status: NORMAL

Shughuli za kawaida

Drought Situation & EW Phase Classification

Biophysical Indicators

- The County received below average rainfall during the Month under review.
- The vegetation condition Index (VCI-3Month) was showing a decrease of 1.9 percent compared to previous month.
- The VCI indicated vegetation greenness above normal. The overall drought phase in the county was at Normal in December.
- Forage condition was good to fair across all livelihoods zones during the month.

Socio Economic Indicators

Production indicators

- All livestock species exhibited fair to good body condition and on improving trend.
- Maize crop is in different stages of growth from flowering and grain filling and others harvesting.
- Milk production decreased by 18 percent compared to previous month of November.

Access indicators

- Terms of trade were favorable to livestock sellers in pastoral livelihood zones.
- Water access for both human and livestock was good and stable in all the livelihood zones except in the Islands.
- Milk consumption remained stable and is lower than the long term Average.

Utilization indicators

- The proportion of children at risk of malnutrition cases decreased slightly and above the normal range as indicated by percent of mid upper arm Circumference (MUAC).
- The average coping strategy increased compared to previous month.

Early Warning (EW) Phase Classification

Livelihood Zone	Phase	Trend
Agro pastoral/Fishing	Normal	Declining
Mixed farming/Irrigated cropping	Normal	Declining
Fisheries /Mangroves	Normal	Declining
Farming/Casual Labour	Normal	Declining
Agro pastoral	Normal	Stable
County	Normal	Stable
Biophysical Indicators	Value	Normal Range/Value
Rainfall (% of Normal)	9%	80 -120
VCI-3Month	68.79	<35
Forage condition	Good to fair	Good
Production indicators	Value	Normal
Crop Condition(specify crop)Maize	Good	Good
Livestock Body Condition	Good to fair	Good
Milk Production	2.3	>3 Litres
Livestock Migration Pattern	Normal	Normal
Livestock deaths (from drought)	No death	No death
Access Indicators	Value	Normal
Terms of Trade (ToT)	133	84
Milk Consumption	1.3	>2litres
Return distance to water sources (HH).	2.4	<5 Km
Cost of water at source (20 litres)	5-10	<5Kshs
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	4.6%	>5%
Coping Strategy Index (CSI)	8.69	<0.95

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
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1.0 CLIMATIC CONDITIONS

1.1 Rainfall performance

- Rainfall Received during the month under review, with high intensity compared to the previous months as recorded in the first to second dekad of December as in figure 1 below.
- The onset of OND is on third dekad of October.
- The current NDVI value is above the historical NDVI values, thus improving with the precipitation during the short rains.

Figure 1: Rainfall Satellite data. (Source: WFP-VAM, CHIRPS/UCSB)

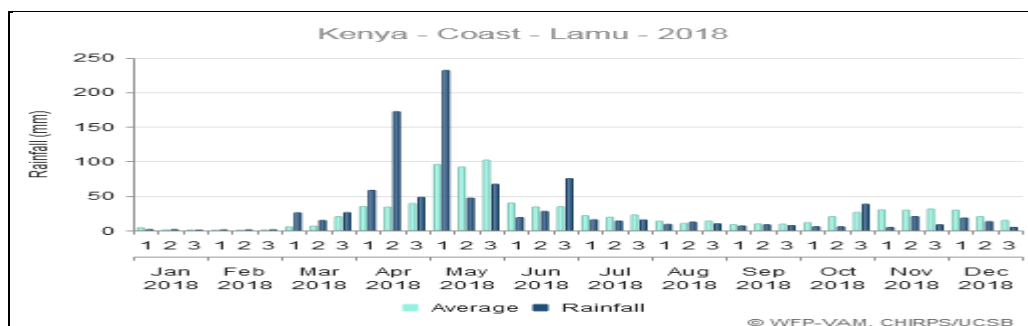


Figure 1: Rain fall performance

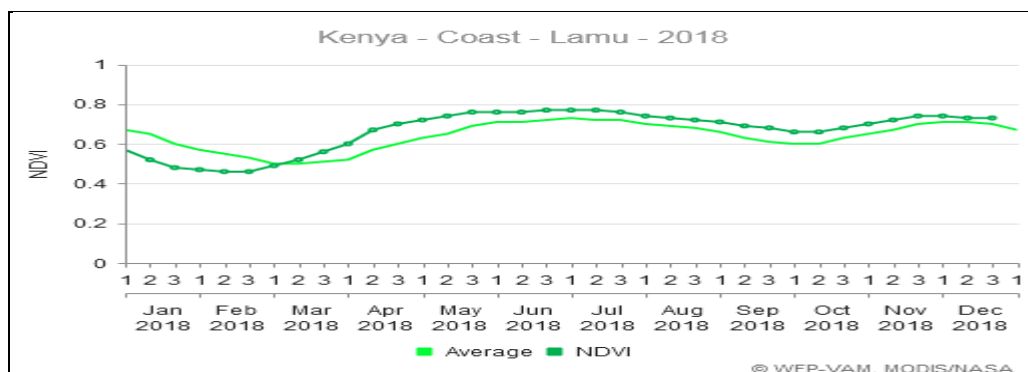


Figure 2: NDVI data.{Source: wfp-Vam}

1.2 Amount of rainfall and spatial distribution

- According to VAM WFP rainfall data, the County received a total of 35.6mm of rainfall in the Month of December during the 1st , 2nd and 3rd dekad.
- There was an increase of 9% rainfall compared to previous month; however this was below the long term average of 64.2mm for the three dekads as in figure 1 above.
- This 35.6mm of rainfall was higher than the amount of 10.5 mm received in same period of the previous year.
- The rainfall received was uneven with poor both in spatial and temporal distribution in all parts of the livelihood zones of the county.

1.3 Flooding or any other hazards.

- No floods and hazards report during the month under review.

2.0 VEGETATION CONDITION

2.1 Vegetation Condition Index (VCI)

- The vegetation condition index for the month of December decreased by 1.9 percent compared to the previous month. This was due to low precipitation received during the Month.
- The vegetation condition index for the month of December was 68.79 compared to 70.12 in the previous month.
- The VCI indicated vegetation greenness above normal in the County.
- The VCI-3Months is above the long-term average and the previous year as shown in the figures 3, 4 and table1 below.

Table 1:December 2018 VCI (3M)

ADMINISTRATIVE UNITS	Vegetation greenness	
	VCI-3Month as at 26 th November 2018	VCI-3Month as at 3 rd December 2018
County	70.12	68.79
Lamu East	74.86	72.69
Lamu West	67.38	66.53

Figures below show three Months Vegetation Condition Index (VCI) matrixes for Lamu County {Source: Boku University, Austria}

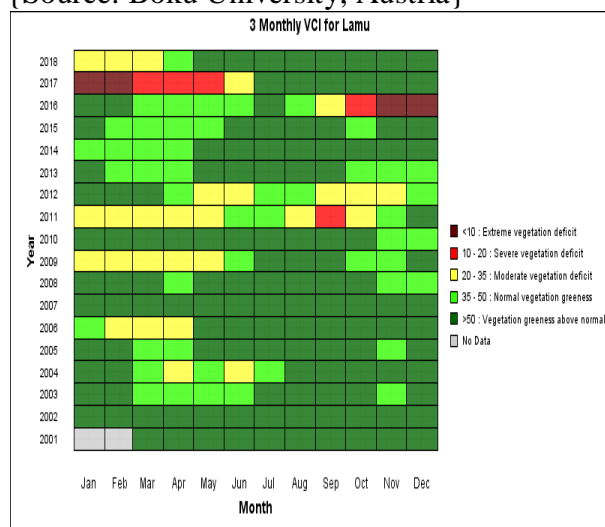


Figure 3: VCI-Lamu county

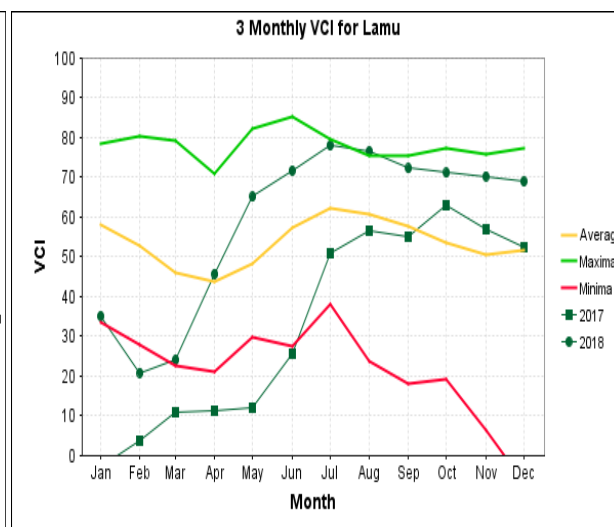


Figure 4: VCI-Lamu county

OBSERVATIONS

Pasture and Browse Conditions

2.1.2 Pasture

Pasture condition was good across all livelihood zones both in quality and quantity 80 percent of Community members interviewed stated that pasture was very good while 20 percent indicated that pasture was good but with improving trend as in figure 5. Pasture condition by livelihood zones; Agro pastoral is good, mixed farming is good and fishing/ mangrove was good as well. The available pasture is expected to last not more than three months due to the presence of in-migrant livestock from neighbouring counties. The current pasture situation is within the normal range.

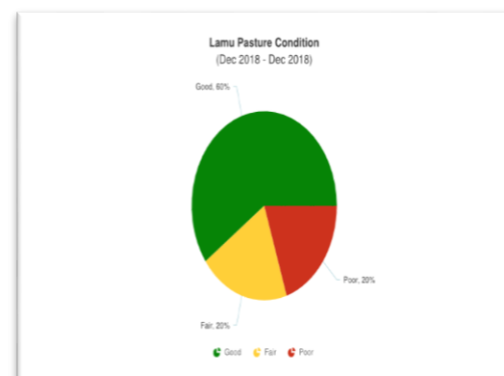


Figure 5: Pasture condition

2.1.3 Browse

The quantity and quality of browse was good across all livelihood zones in the County. Community members interviewed indicated; 60percent of the respondents stated that browse was very good while 40percent stated it was poor but on improving trend due to off seasons rains and low rate of transpiration as in figure 6. Browse condition by livelihood zones; Agro pastoral and fishing mangrove was poor while mixed farming was fair. The available browse quantity is above normal compared to normal year. The browse is expected to last for more than three months. The current browse situation is above the normal range.

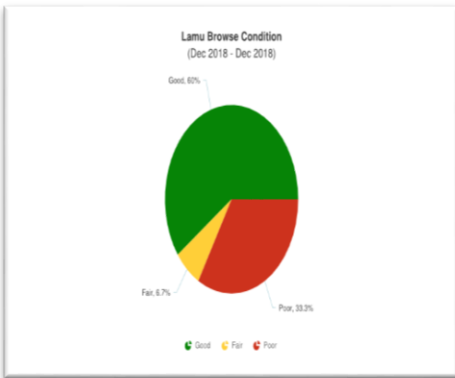


Figure 6: Browse conditions

2.2.0 HYDROLOGICAL DROUGHT

2.2.1 Water Sources and Availability

The state and condition of water sources in the County was good across most livelihood zones except for Bahari ward where the rains performed poorly. However, the current water situation remained the same compared to previous month. The main water sources in the month of December; Pans and dams 12.5percent, shallow wells-41.7percent, Boreholes 12.5percent, Traditional water wells 20.8percent, Lakes 4.2 and Rivers 8.3percent respectively as in figure 7 . The status of main sources of water is above normal at this time of the year.

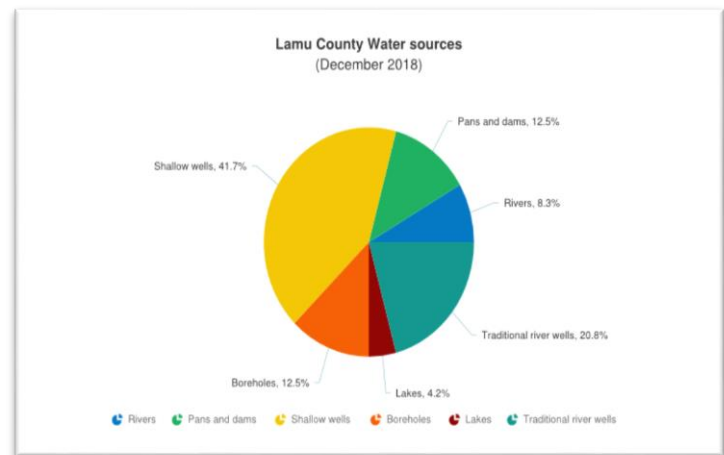


Figure 7: Main source of water

2.2.2 Household access and Utilization

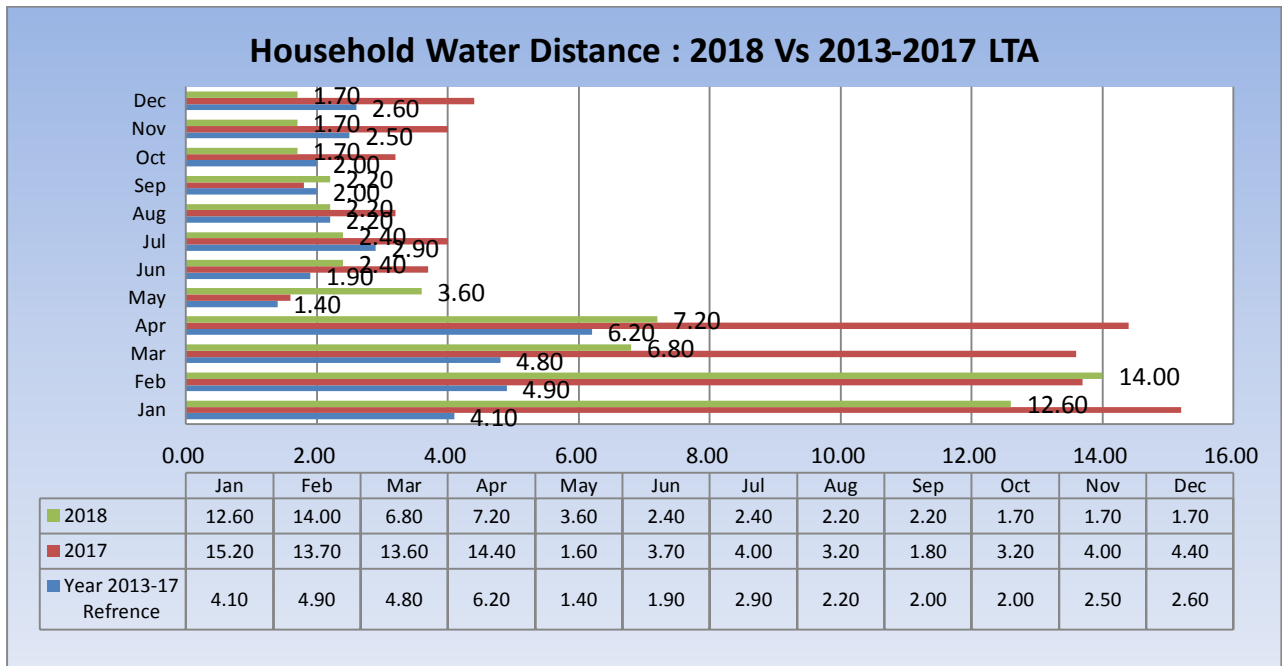


Figure 8: Household water distances

Average Household watering return distance was 2.4Km in December, which was an increase compared to previous month. This was due to below average rainfall received which led to decrease in water levels. Household return water distances per livelihood zone were as follows: the Agro pastoral 3Km, Fishing & Mangrove Harvesting 2.3Km and for Mixed Farming Zone it was 1.4Km and irrigated farming 1.2Km respectively. The 2013-2017 average household water distances for December was 2.4Kilometres which was lower than the current average household watering distance for December as in figure 8. The average household water consumption per person per day is at 15-20 litres in all livelihood zones. Water costs at source are 3-5Kshs in town/village centres for 20 litre Jerrican.

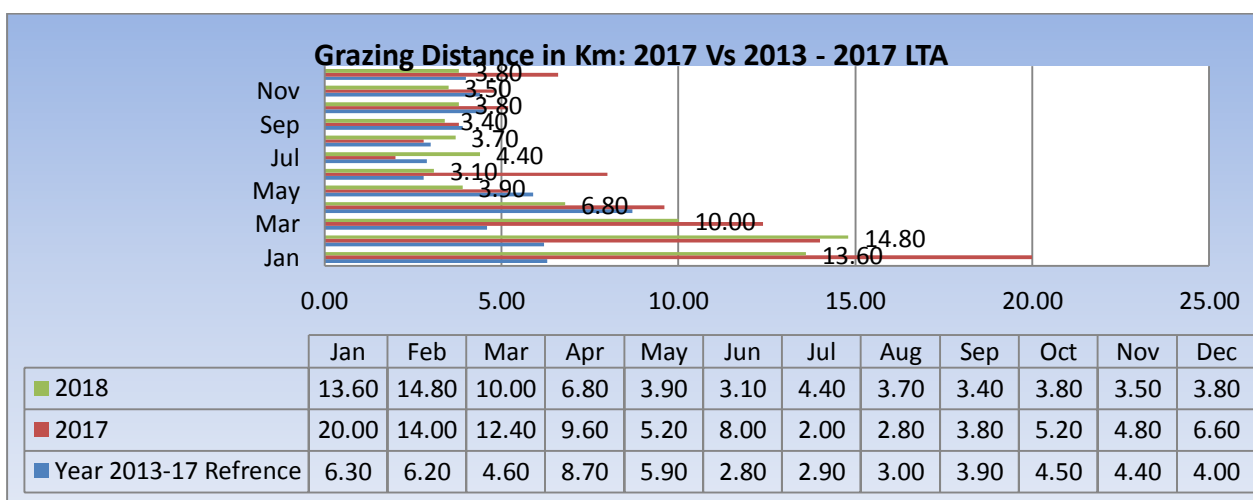
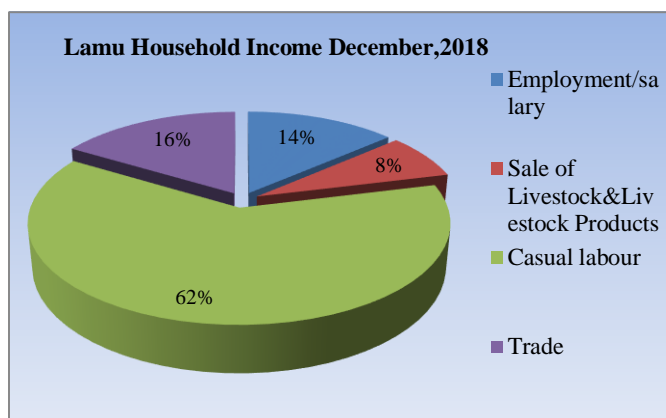


Figure 9: Grazing distance-Km

2.2.3 Livestock access to Water

Livestock average distance to water source from grazing Areas increased to 3.8km compared to the previous month as in figure 9. Grazing return water distances per livelihood zone were as follows: the Agro pastoral 3.6Km, Fishing & Mangrove Harvesting 3.1Km and for Mixed Farming Zone it was 1.9Km and irrigated farming 2.5Km respectively. The increase of grazing water distance compared to last month was due to increase of water level in flooded areas. Watering frequencies for livestock species was same. Most of the livestock species were watered daily due to high recharge levels of the open water sources. The current average grazing distance for December was 3.8Kilometers lower than the long-term average of 4.0 Kilometres.

2.2.4 Household Income



The main household income for the month of December was as follows: Casual labour

62percent, trade 16percent, Employment 14percent, Sale of ;livestock and livestock products 8percent respectively as in figure 10 below.

However, casual labour and employment decreased by one percent each compared to the previous month of November.

Figure 10: Household sources of income

2.4 Implication to Food Security;

- Fishing and Mangrove zones livelihood zones have increasing salinity of water due to less recharge of the shallow wells in the Islands.
- The distances to water sources have had a positive impact on the body condition of animals and household hygiene standards.

3.0 PRODUCTION INDICATORS

3.1.0 Livestock Production

3.1.1 Livestock Migration Patterns

- There were no reported cases of livestock in or out migration, however the livestock that in-migrated from neighbouring counties in previous months are still present.

3.1.2 Livestock Body Condition

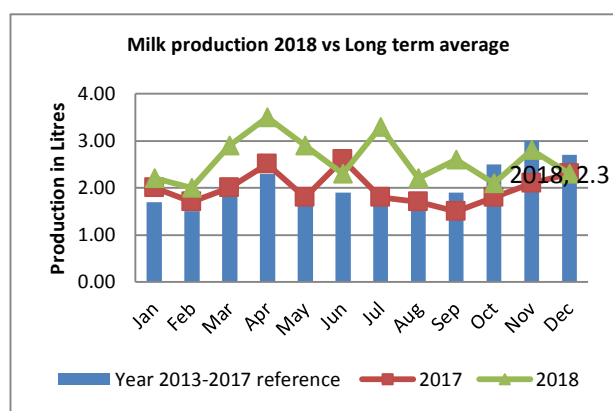
- The livestock body condition was good to fair for all for species in the livelihood zones. This is attributed to increased quality and quantity of pasture and browse due to ongoing short rain season.
- In comparison to similar periods during previous years, the body condition of all species was good and this is attributed to improving forage condition in all the livelihood zones. However, due to ongoing precipitation, the body conditions are expected to improve further.

3.1.3 Livestock Diseases

- There were suspected livestock diseases reported during the month of CCPP (Contagious caprine pleuropneumonia (CCPP) in areas of Kiunga wards affecting small ruminants.

3.1.4 Milk Production

Milk production decreased from 2.8litres in November, 2018 to 2.3litres in December, 2018. This



was lower than the long-term average of 2.7litres in December as in figure 11. Milk productions were distributed as follows: Mixed farming Produced 1.7litres, Fishing 1.6litres, and Irrigated 1.7litres while the Agro pastoral Zone produced average of 2.9litres. Milk prices are retailing at an average price of Kshs.50-100 per Litre across the livelihood zones which is the normal milk price at these period of the year. The change of the household milk production recorded is due to animals returning back to their homestead.

Figure 11: Milk production

3.2 Rain fed crop production

3.2.1 Stage and condition of food crop

- The main crops grown are Maize, Cowpeas, Green grams and Simsim in the County.
- Most farmers are preparing their farms for short rains planting. however few crop farmers have planted.
- The planted maize crop are at height which ranges between 40-60 cm high, compared with normal which is usually above one metre height, however few farmers who planted earlier , their crops are above one metre and at flowering stage.

3.2.2. Crop Harvest

- Few crop farmers are harvesting depending on the period they planted during off season precipitation in mixed farming zone.

3.2.3 Implications on Food Security;

- The good body condition of livestock species especially cattles across the livelihood zones increased the prices resulting to improved income for livestock farmers.

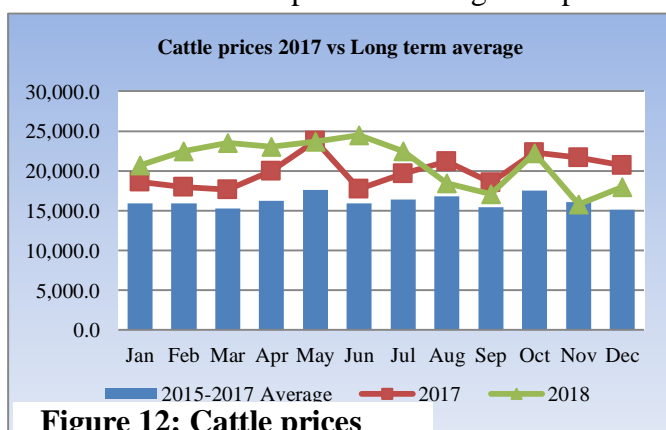


Figure 12: Cattle prices

4.0 MARKET PERFORMANCE

4.1 Livestock marketing

4.1.1 Cattle Prices

Average cattle market price in the month of December increased by 14percent compared

to previous month as in figure 12. This increase in price could be attributed to high demand and the fair rainfall performance. The cattle average market prices were distributed as follows: Faza Kshs 10,840, Witu Kshs 24,000, Kiunga Kshs 11,000, Mswakini 20,000 and Mokowe Kshs 17,500. The average market cattle price for the month of December was Kshs.18, 000 which was higher than the long-term average price of Kshs.15, 100 and lower than the similar period last year.

4.1.2 Small Ruminants Prices

4.1.3 Goat Prices

Goat prices decreased by 1.8 percent in December compared to previous month of November. This price was higher than the long term average by 66percent and the price recorded in previous year at a similar time and following seasonal trends as shown in figure 13. This decrease in price of goats could be attributed to low market demand. The goat average market prices were distributed as follows: Mpeketoni Kshs 4,500, Witu Kshs 5,000, Kiunga Kshs 7,500 and Mokowe Kshs 5,500.

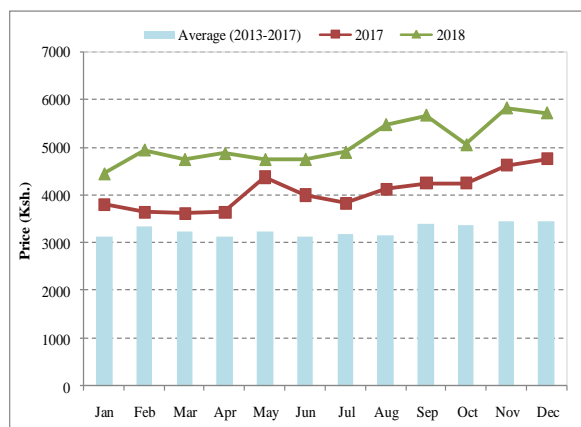


Figure 13: Goat prices

4.2 Crop prices

4.2.1 Maize price

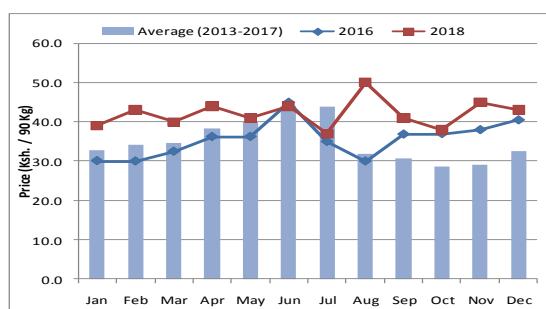


Figure 14: Maize prices

In December, Maize prices slightly decreased from kshs 45 to 43 (4%), this was higher than the long term average of kshs 32.6. The decrease was due to low harvest during the long rains coupled with low demand as shown in figure 14. The prices were distributed as follows: Hindi centre Kshs35, Patte Kshs 25, Witu Kshs 40, Mpeketoni Kshs 20 and Kiunga Kshs 100 respectively. However, price ranges is determined by commodity supply in different

4.2.2 Beans

Average price of Kg of beans was Kshs 104 in December, stable compared to the previous month as in the figure 15 below. The stability in price was attributed to low production. The beans price was distributed as follows: Mswakini /Hindi centre Kshs 140, Patte Kshs100 and Witu Kshs 100, Mpeketoni Kshs 70 and Kiunga Kshs 107. However, price ranges is determined by commodity supply in the different markets. The long-term average price of beans was Kshs 92

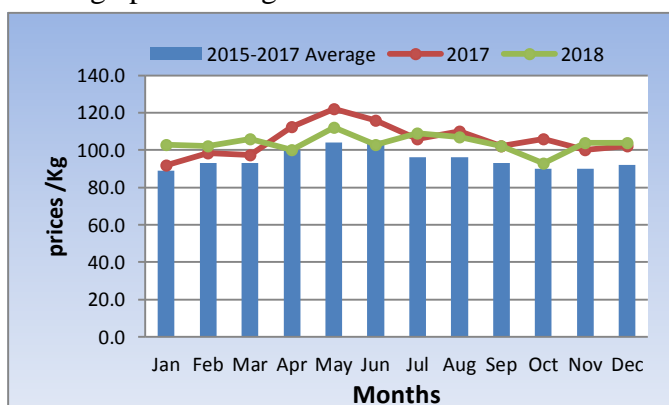


Figure 15: Beans prices

which is lower compared to the current beans price for the month of December.

4.3 Livestock Price ratio/Terms of Trade

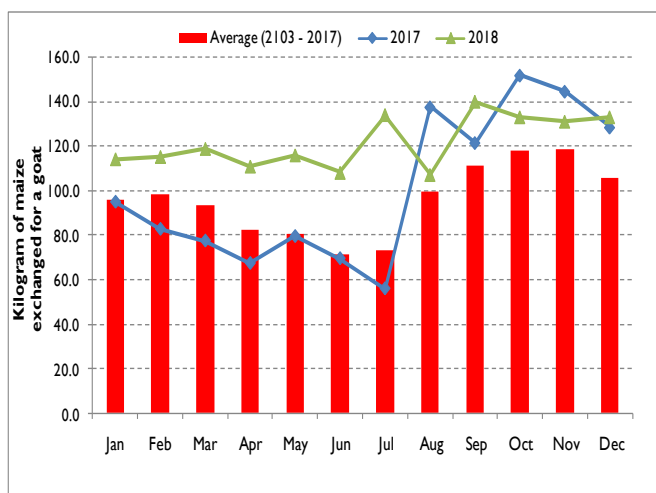


Figure 16: Terms of Trade

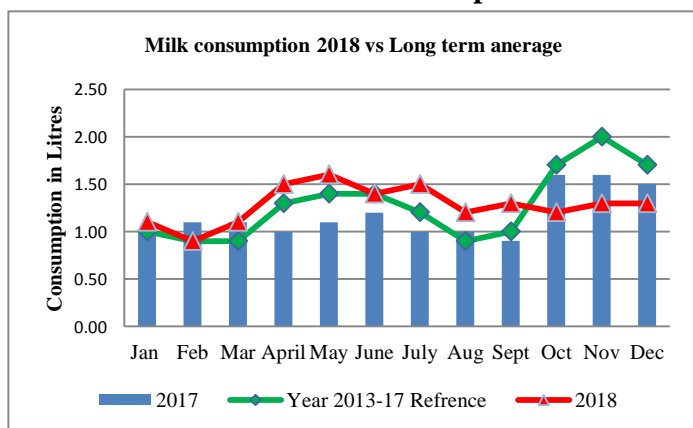
The terms of trade (TOT) increased by 1.5percent compared to previous month of November as in figure 16 alongside. This was lower than the long term average by 25percent. Sale of a medium goat in December would cost a household about 133kg of maize. This showed the exchange ratio increased in favour of goat sellers to crop farmers. However, this was determined by supply in the different markets. The ToT was 167Kg in Lamu West and 120Kg in Lamu East. The ToT for December was lower than the long term average of 106Kg.

4.4 Implication on food security;

- The good body condition of livestock have increased livestock prices especially for cattles,therefore livestock farmers are able to get better value for their livestock contributing to food security in Mixed and Agro pastoral zones.
- Maize prices slightly decreased due to poor long rains harvest coupled with low supply in the markets.
- Farmers are able to sell livestock (especially cattles) at good prices, hence improves food security at household level.
- The Terms of Trade was favorable to pastoral compared to crop farmers.

5.0 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 Milk for Household Consumption



Average milk Consumption was 1.3litres in the month of December, which have stabilized compared to the previous month as in figure 17. Milk consumption was distributed as follows; Agro pastoral 1.8 litres, Mixed farming 1.5, Irrigated cropping 1.4 litres and fishing below one litre. Increase in milk consumption level is as a result of high production of the commodity. December long term average milk consumption was lower than the current average of milk consumption.

Figure 17: Milk consumption

5.2 Health and Nutrition status

5.2.1 MUAC

The proportion of children under five at risk of malnutrition with Mid Upper Arm Circumference below 135mm decreased to 4.6 percent compared to previous month of November. The proportion of children under five with severe category remain zero percent in the month under review indicating significant decline in the number of children with severe category. This was attributed to availability of milk production and consumption at household level though low. The rates of malnutrition cases reduced in Agro pastoral and Mixed farming Zones of Witu, Hindi wards. This figure of 4.6 percent MUAC for December was higher by 10 percent compared to long term average of 4.2 percent as in figure 18.

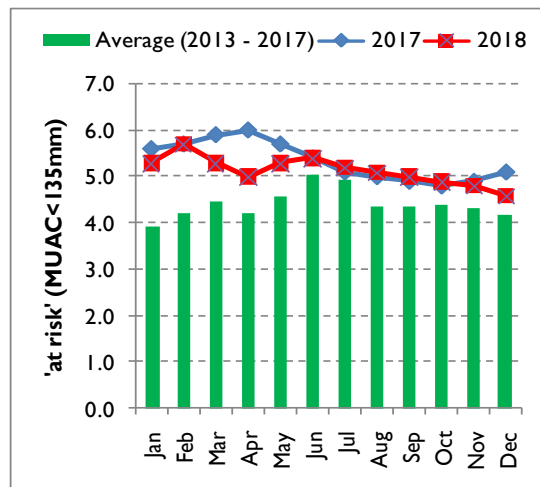


Figure 18: MUAC

5.2.2 Health

There were no cases of major disease outbreak both for children and general population in the County.

5.3 Food consumption score

Acceptable food consumption was noted in Agro pastoral and Mixed farming zone with 98.3 and 45 percent of households respectively, owing to availability of food in the markets; however households have low purchasing power.

Households' percentage with poor food consumption decreased from 8.3 to 6.7 percent at mixed farming and increased borderline of 100 percent in fishing /Mangrove livelihood zones.

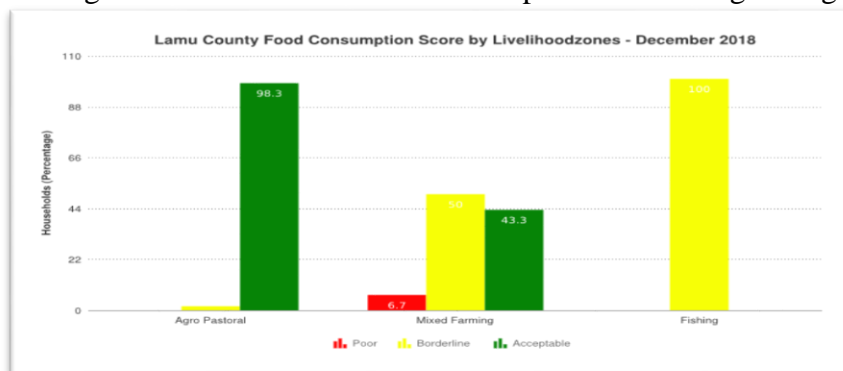


Figure 19: Food consumption score

5.4 Coping strategy index

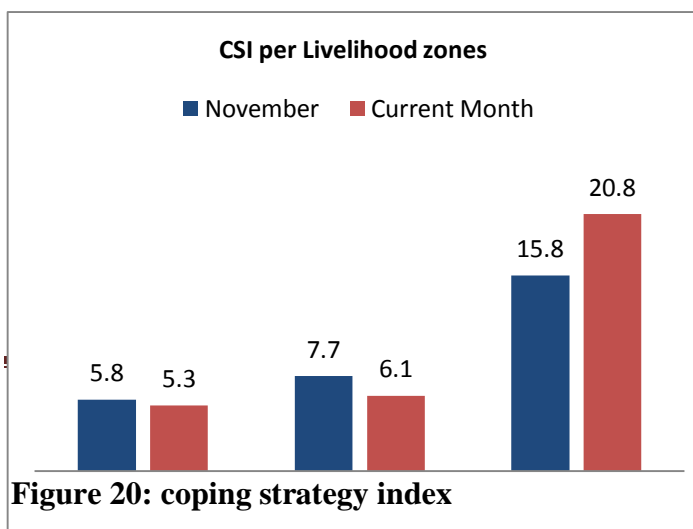


Figure 20: coping strategy index

The mean coping strategy Index in the Month of December increased by 1.4 percent (8.69) compared previous month (8.57) in November, indicating increased coping strategies at household level. Agro pastoral Zone had CSI of 5.3; Mixed Farming livelihood zone had 6.1 while Fishing Livelihood zone had the highest coping strategy index of 20.8 as figure 20 below. Common coping

strategies employed by food insecure households in the month of December were; Reduction in the number of meals, Purchase on credit/remittances from relatives, Borrow food from friends or relatives, and Opting for less preferred or less expensive food.

5.5 Implication on Food Security

- Improved/stability in milk consumption at household levels across all the Livelihood zones could lead to increased dietary diversification and thereafter a positive impact on food insecurity.

6.0 CURRENT INTERVENTION MEASURES (ACTION)

6.1 Food and Non-food interventions

6.2 Drought Response Interventions

- Cash transfer by the Social protection department to 3,000 households for older persons, Orphans and people with disabilities respectively for the entire county. The cash transfer will improve the purchasing power of the households to access food of their preferences.
- Kenya climates Smart Agriculture Project through their Rapid Results Initiatives are planning to construct water pans and rehabilitate Djabias in Lamu County.

7.0 EMERGING ISSUES

7.1 Insecurity

- A lorry carrying foodstuff and KDF landcruiser exploded during this Month.

7.2 Migration

- There were no abnormal cases of human migration during the month.

7.3 Food security prognosis

- Markets will continue to operate normally despite poor infrastructure and insecurity.
- The improving livestock body condition expected to improve the purchasing power of farmers to access commodities in the markets hence improve food insecurity at household level.
- Most of the open water sources are fully recharged, thus both household and livestock trekking distances will remain stable.
- Cereal prices are expected to decrease while those of goat prices are projected to increase, thus terms of trade expected to improve for livestock farmers.
- Nutrition status will improve due improved milk production and consumption as pasture and browse will improve further.
- Forage conditions are projected continue improving and hence stabilize livestock body conditions, production and prices in coming months.
- Main food commodities prices are expected to decrease specially farm products locally produced.
- The December 3-Month Vegetation Condition Index indicating above normal greenness for the entire County and hence expected to improve further due ongoing short rains.

8.0 RECOMMENDATIONS BY SECTORS;

8.1 Water

- Water hygiene and sanitation standards must be observed in order to minimize chances of outbreak of water borne diseases.
- Constructions/rehabilitation of water pans/dam for preparedness.
- Conducting of hydro geological survey and drilling of boreholes.
- Promotion of rain water harvesting, repair of Djabias, roof catchment areas, installation of gutters and tanks in Villages and Institutions.

8.2 Livestock

- Accelerate completion of Nagele Livestock market for Linkage to other Livestock markets.
- Livestock disease surveillance, Vaccinations and control to curb spread of livestock diseases.
- Upscale efforts aimed at stock piling livestock feeds in strategic hay reserves for use during the dry season by providing farmer groups with pasture seeds so as to maximize production over the short rains period.
- Promote Pasture and fodder planting in the county during and after the short rains.
- Provision of hay band machines for harvesting.
- Promote livestock insurance services.

8.3 Agriculture

- Build Capacity of crop farmers to plant drought resistance food crops.
- Mobilization and sensitization of farmers' on crop insurance.
- Provision of seeds and fertilizers to farmers during the short rains period.
- Training communities on CMDRR

8.4 Health and Nutrition

- Strengthen malnutrition screening and active case search as well as strengthen integrated management of acute malnutrition in the community.
- Enhance disease and nutritional surveillance in hot spot areas.

8.5 Education

- Support to schools feeding programmes for the most vulnerable communities focusing on the most vulnerable areas in the county to minimize drop outs.
- Provide Food for fees for students hailing from Vulnerable and poor families.

8.6 Peace and Security Sector

- Peace and security meetings should be enhanced in the County

- Inter Counties peace and security to be enhanced in order to avert future conflicts.

8.7 Information Communication Technology

- Promote use of ICT on drought information(Forums) sharing and development programmes.

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

Table 4: Livestock Body Condition

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

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

Definition of Early Warning Phases

The EW phases are defined as follow:

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

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

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