



**THE PRESIDENCY**

**MINISTRY OF DEVOLUTION AND ARID AND SEMI ARID LANDS**

# National Drought Early Warning Bulletin

**May 2018**



## **Summary**

All ASAL counties received favourable rainfall in April which supported considerable improvement in pasture and browse situation, water availability and access. Water levels have improved since most surface water sources were recharged to over 80 percent of their normal capacity. Livestock body condition and milk production are starting to improve, while overall, the season has been favourable to crop production.

### **1.0. Drought status**

#### **1.1 Drought indicators**

##### ***Rainfall***

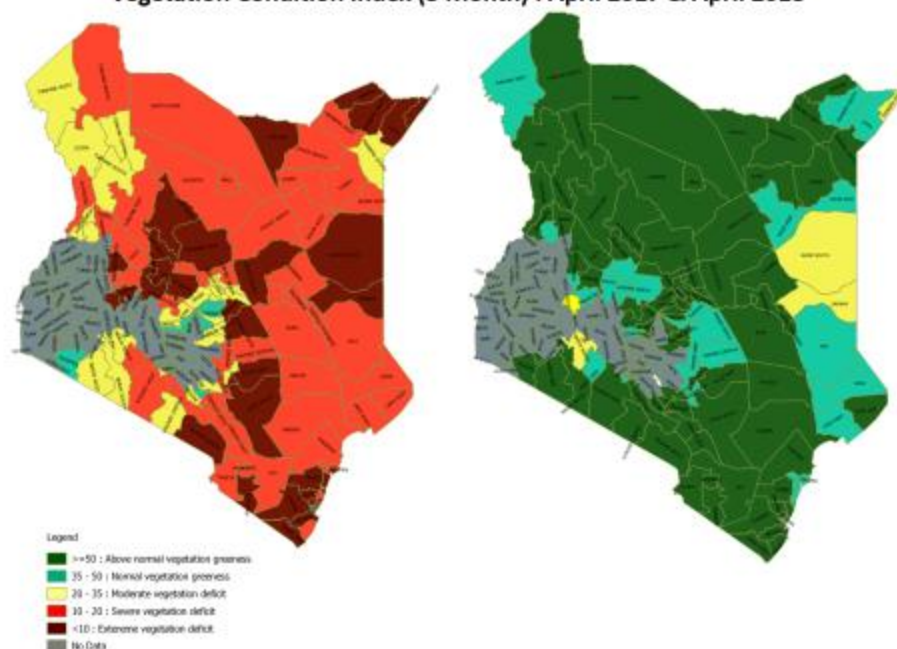
In April 2018, nearly all ASAL areas received enhanced rainfall that was characterized by heavy storms. In many areas, intense rains were received throughout the month and consequently, by the end of the month, several counties had recorded more than 100 percent of their long term mean rainfall for April. For example, the rains received in Garissa, Turkana, Laikipia, Makueni, Embu and Marsabit were 353, 276, 260, 216, 206 and 204 percent of normal respectively.

The above normal rainfall conditions that prevailed during the month under review led to flooding across ASAL counties after major rivers such as Tana, Athi, Sabaki and Ewaso Nyiro burst their banks leading to loss of lives, damage of property and infrastructure, disruption of learning in schools and displacement of more than 40,000 families.

##### ***Vegetation condition***

Figure 1 compares the vegetation condition index (VCI) in late April 2017 with that in late April 2018. As the right hand VCI map for 2018 illustrates, vegetation greenness has greatly recovered in all ASAL areas, with nearly all arid and semi-arid counties having vegetation greenness within normal to above normal ranges.

**Vegetation Condition Index (3 Month) : April 2017 & April 2018**



### ***Water sources***

The current sources of water for both domestic and livestock use are water pans, dams, shallow wells, rock catchments ponds, boreholes, rivers and piped water systems. Recharge to the open water sources is 80 to 100 percent of their capacities, which has greatly improved water availability. For instance, most water pans and dams in Turkana are full, while 97 percent of surface water sources in Marsabit have impounded water to the maximum level.

### ***Livestock production***

Quantity and quality of both pasture and browse in most ASAL areas is good in all the livelihood zones. Pasture and browse condition considerably improved in April when compared to the preceding month which was attributed to the cumulative effect of the above normal rains that promoted massive pasture and browse growth and regeneration. Nearly all counties reported the current state of pasture as being above normal when compared to the same period of the year.

Livestock body condition is generally good across the ASALs although milk production is yet to reach normal amounts. The available pasture is expected to sustain livestock through the June-July-August dry period.

### ***Crop production***

The impact of the heavy rains received during the month was mixed; while they have led to good performance in crops planted on gentle slopes, they have also led to poor performance in farms located on flat plains and low lying areas due to flooding and waterlogging. The main farm activities carried out during the month included weeding and control of pests and diseases. Beans, green grams and cow peas are currently at late flowering to podding stages while maize is at knee height to tussling stage.

Cases of fall armyworm were reported by the following counties: Kitui, Meru, Taita Taveta, Makueni, Nyeri and Marsabit.

### *Access to water*

Return distances to water for both households and livestock reduced in April as most areas continued to receive moderate to heavy rainfall throughout the month. For instance:

- In Wajir, the average return distance from household to water sources reduced from 4.1 km in March to 1.7 km in April, while the average distance for livestock fell from 6.9 km to 4.5.
- There was a 35 percent reduction in the average trekking distance to water points for households in Kwale, from 3.7 km in March to 2.4 km in April, while the return distances from grazing areas to water sources dropped from 11.3 km in March to 8.6 km in April which was 24 percent reduction.
- In Narok, the average distance to watering points for households reduced by 38 percent, while the average distance to main water sources from grazing areas decreased by 9 percent.
- The average return distance to water sources for households in Kitui declined by 51 percent from 6.5 km in March to 3.2 km in April, while distance from grazing areas to watering points dropped by 31 percent from 6.4 to 4.4 km.
- In Samburu, return distances from grazing fields to water sources reduced by 24 percent from 11.3 km in March to 8.6 km in April.

### *Terms of trade*

Table 1 shows the trend in the terms of trade (ToT) in ASAL counties.

**Table 1.0: Terms of trade, April 2018**

<i>Terms of trade (ToT)</i>	<i>Trend</i>		
	<b>Improving</b>	<b>Stable</b>	<b>Worsening</b>
<b>Below long-term average (LTA)</b>	Garissa Marsabit Isiolo Meru (Meru North)		
<b>At / Close to LTA</b>		Embu (Mbeere) Makueni	Kwale
<b>Above LTA</b>	Tana River West Pokot Baringo Mandera Nyeri (Kieni)	Kitui Wajir Kajiado Laikipia Samburu	Kilifi Narok Turkana Lamu Taita Taveta Tharaka Nithi

The largest shift in terms of trade were:

- Manderera: Terms of Trade (ToT) were favourable since the proceeds from the sale of a goat could purchase 58 kg of maize in April compared with the LTA of 46 kg which is 27 percent above the long term mean
- Tana River: ToT improved by 28 percent in April as households could purchase 83 kg of maize compared with 65 kg in March. Terms of trade were 17 percent above LTA
- Samburu: ToT were favourable since the proceeds from the sale of a goat could purchase 73 kg of maize in April compared with the LTA of 46 kg which is 59 percent above the long term mean
- Isiolo: ToT increased significantly from 46 in March to 53 kg of maize in April, a 15 percent rise. However the ToT remained unfavourable as they were 20 percent lower than LTA
- Laikipia: Households could purchase 113 kg of maize from the sale of one goat in April compared with 103 kg in March. Terms of trade were favourable and were 49 percent higher than LTA
- Baringo: ToT improved by 42 percent from 45 in March to 64 in April. Current ToT were 45 percent above LTA

### ***Health and nutrition***

The bulletins monitor the proportion of children under five at risk of malnutrition, determined by a mid-upper arm circumference (MUAC) measurement. The nutrition status of children in most counties improved this month with 20 counties now on a stable or improving trend, compared to 10 in March 2018. This improvement was attributed to improved milk consumption and ongoing interventions such as blanket supplementary feeding programme and cash transfer.

**Table 2.0: Children at risk of malnutrition (MUAC), April 2018**

<b><i>MUAC</i></b>	<b><i>Trend</i></b>		
	<b>Improving</b>	<b>Stable</b>	<b>Worsening</b>
<b>Below long term average (LTA)</b>	Marsabit Kilifi Mandera Baringo Wajir Laikipia Meru (Meru North)	West Pokot Taita Taveta Narok Samburu	
<b>At / Close to LTA</b>		Turkana Tharaka Nithi Lamu Nyeri (Kieni)	
<b>Above LTA</b>	Isiolo Kajiado Kitui Tana River	Embu (Mbeere)	Garissa Kwale Makueni

## 1.2 Drought phase classification

Table 3 shows the trend in drought status in the 23 ASAL counties. Following the good rains received in April 2018, environmental indicators in all counties except Tana River have returned to normal with the trend either improving or stable.

**Table 3.0: Drought phase classification, April 2018**

<i>Drought status</i>	<i>Trend</i>		
	<b>Improving</b>	<b>Stable</b>	<b>Worsening</b>
<b>Normal</b>	Baringo Garissa Isiolo Kilifi Kwale Lamu Marsabit Meru (Meru North) Wajir	Kitui Nyeri (Kieni) Samburu Tharaka Nithi (Tharaka) Turkana West Pokot Taita Taveta	Embu (Mbeere) Mandera Laikipia Narok Makueni Kajiado
<b>Alert</b>			
<b>Alarm</b>			
<b>Emergency</b>			
<b>Recovery</b>	Tana River		

## **2.0. Other food security challenges**

Nearly all ASALs counties received heavy rains in April that resulted to flooding, adversely affecting people, infrastructure and livelihoods.

As at 30<sup>th</sup> April 2018, floods had displaced more than 200,000 people and killed about 70 people since March 2018. The most affected counties are: Tana River, Kilifi, Garissa, Isiolo, Turkana, Mandera, Kitui, Wajir, Lamu, Makueni, Marsabit, Taita Taveta, Kajiado and Baringo.

The floods have disrupted livelihoods, with at least 8,450 acres of farmland submerged in water and more than 6,000 livestock killed, destroyed houses and damaged infrastructure, such as roads, schools and health facilities.

The Government of Kenya, Kenya Red Cross Society (KRCS), UN agencies and NGOs have been providing assistance and support to those most severely impacted by the floods with food and non-food items.

### Annex 1.0 Vegetation Condition Index (VCI-3 month) as at 30<sup>th</sup> April 2018

ADMINISTRATIVE UNIT		DROUGHT CATEGORIES/REMARKS			
COUNTY	Sub County	VCI-3 month as at 26 <sup>th</sup> March 2018	VCI-3 month as at 30 <sup>th</sup> April 2018	Colour	VCI values (3-month)
					≥50
					35 to 50
					21 to 34
					10 to 20
					<10
BARINGO	County	27.31	56.71		Good recovery from previous month across all sub counties with all sub counties having normal conditions except Eldama Ravine which is having moderate vegetation deficit
	Central	42.48	46.7		
	Eldama	20.2	27.92		
	Mogotio	17.34	49.97		
	North	25.96	58.11		
	South	30.79	61.32		
	Tiaty	29.94	63.96		
MANDERA	County	48.55	48.55		Good recovery from previous month especially in Mandera East, Lafey, North and South. All sub counties having normal conditions except Mandera East which has moderate vegetation deficit.
	Banissa	22.7	53.88		
	M East	14.25	24.93		
	Lafey	18.14	39.63		
	M North	16.87	47.88		
	M South	26.87	56.16		
	M West	19.64	51.81		
TURKANA	County	39.36	61.68		Very good recovery with all sub-counties in the normal range for the period.
	T Central	62.18	85.82		
	T. East	35.67	62.75		
	T. Loima	41.09	68.99		
	T. North	37.44	53.07		
	T. South	49.02	78.86		
	T. West	29.33	48.78		
MARSABIT	County	26.94	68.93		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received.
	Laisaimis	26.11	67.85		
	Moyale	29.62	74.76		
	N. Horr	26.64	67.93		
	Saku	28.41	71.1		
WAJIR	County	20.69	47.27		Very good recovery with all sub-counties in the normal range for the period except Wajir South.
	W East	26.11	48.05		
	W.Eldas	23.69	57.34		
	W. North	32.9	73.85		
	W. South	11.6	31.06		
	W.Torbaj	27.35	65.55		
	W West	18.66	47.42		
SAMBURU	County	27.16	59.21		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received.
	S East	21.15	51.4		
	S. North	33.17	67.88		



	S. West	30.88	61.1			
ADMINISTRATIVE UNIT		DROUGHT CATEGORIES/REMARKS				
COUNTY	Sub County	VCI-3 month as at 26 <sup>th</sup> March 2018	VCI-3 month as at 30 <sup>th</sup> April 2018	Colour	VCI values (3-month)	Drought Category
					≥50	Vegetation greenness above normal
					35 to 50	Normal vegetation greenness
					21 to 34	Moderate vegetation deficit
					10 to 20	Severe vegetation deficit
					<10	Extreme vegetation deficit
GARISSA	County	12.63	45.51		Very good recovery with all sub-counties in the normal range for the period except Daadab which has moderate vegetation deficit. This is due to good rains received.	
	Balambala	8.05	53.3			
	Daadab	8.58	33.51			
	Fafi	10.21	35.89			
	Ijara	24.26	49.84			
	Lagdera	11.56	71.71			
	Dujis	13.21	51.64			
ISIOLO	County	14.92	71.68		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	I. North	15.78	70.13			
	I. South	13.59	74.06			
TANA RIVER	County	13.71	56.3		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	Bura	10.05	50.97			
	Galole	10.57	52.12			
	Garsen	18.78	63.43			
KAJIADO	County	18.24	55.06		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	K. Central	17.09	52.46			
	K. East	18.04	56.52			
	K. North	28.54	44.94			
	K. South	17.03	59.91			
	K. West	19.73	52.18			
LAIKIPIA	County	22.25	50.02		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	L. East	18.22	58.01			
	L. North	21.75	48.61			
	L. West	25.15	48.81			
THARAKA NITHI	County	20.64	47.38		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	Chuka	28.46	49.39			
	Maara	39.41	51.72			
	Tharaka	11.69	45.23			
WEST POKOT	County	28.06	54.51		Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received	
	Kacheliba	25.78	59.03			
	Kapenguria	27.6	51.29			
	Pokot South	26.42	40.79			
	Sigor	33.57	57.12			
EMBU	County	26.02	58.74			

	Manyatta	40.87	59.21	No improvement recorded but good rains recently received should increase the vegetation greenness significantly in the next weeks		
	Mbeere North	18.78	58.95			
	Mbeere South	24.02	59.74			
	Runyenjes	33.06	53.87			
<b>ADMINISTRATIVE UNIT</b>				<b>DROUGHT CATEGORIES/REMARKS</b>		
<b>COUNTY</b>	<b>Sub County</b>	<b>VCI-3 month as at 26<sup>th</sup> March 2018</b>	<b>VCI-3 month as at 30<sup>th</sup> April 2018</b>	<b>Colour</b>	<b>VCI values (3-month)</b>	<b>Drought Category</b>
					≥50	Vegetation greenness above normal
					35 to 50	Normal vegetation greenness
					21 to 34	Moderate vegetation deficit
					10 to 20	Severe vegetation deficit
					<10	Extreme vegetation deficit
<b>KITUI</b>	<b>County</b>	13.18	51.37	Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received. Major improvements across all sub counties		
	Kitui Central	30.86	58.39			
	Kitui East	9.1	50.17			
	Mwingi Central	8.11	46.35			
	Mwingi North	11.26	47.15			
	Mwingi West	12.99	47.52			
	Kitui Rural	15.41	49.39			
	Kitui South	14.94	55.14			
	Kitui West	21.7	49.82			
<b>MAKUENI</b>	<b>County</b>	28.88	56.12	Very good recovery within all sub-counties in the normal range for the period. This is due to good rains received. Very good improvement across all sub counties.		
	Kaiti	55.94	70.4			
	Kibwezi East	22.75	52.74			
	Kibwezi West	21.49	50.26			
	Kilome	38.75	68.26			
	Makueni	29.47	54.02			
	Mbooni	38.6	63.17			
<b>MERU</b>	<b>County</b>	25.95	55.6	Very good recovery with all sub-counties in the normal range for the period. This is due to good rains received. Very good improvement in Igembe central, south, North and south Imenti, Tigania East and West.		
	Buuri	35.35	53.88			
	Central Imenti	29.68	53.03			
	Igembe Central	15.55	54.93			
	Igembe North	20.99	59.45			
	Igembe South	14.24	58.09			
	North Imenti	18.2	55.47			
	South Imenti	44.02	53.63			
	Tigania East	21.7	52.33			
	Tigania West	27.88	60.99			
<b>NYERI</b>	<b>County</b>	37.56	53.35	Very good recovery within all sub-counties in the normal range for the period. This is due to good rains received. Very good improvement across Kieni and Mukurweini		
	Kieni	32.91	53.26			
	Mathira	55.45	57.1			
	Mukurweini	33.41	61.48			
	Town	40.68	63.87			

	Othaya	42.26	46.93			
	Tetu	35.3	46.29			
KILIFI	<b>County</b>	32.39	56.4	Very good recovery within all sub-counties in the normal range for the period. This is due to good rains received. Very good improvement across Ganze, Magarini and Malindi		
	Ganze	31.28	61.75			
	Kaloleni	49.41	77.18			
	Magarini	29.43	52.92			
	Malindi	22.08	37.47			
	Kilifi-North	39.33	49.76			
	Rabai	44.14	72.31			
	Kilifi-South	56.38	72.15			
KWALE	<b>County</b>	44.8	74.68	The vegetation greenness is within normal ranges for the period across all sub counties.		
	Kinango	43.13	74.05			
	Lungalunga	42.44	80.66			
	Matuga	55.1	70.43			
	Msambweni	49.37	64.18			
LAMU	<b>County</b>	23.84	45.59	The vegetation greenness is within normal ranges for the period across all sub counties with major improvement across all sub counties		
	Lamu East	25.13	51.77			
	Lamu West	23.09	42.02			
<b>ADMINISTRATIVE UNIT</b>			<b>DROUGHT CATEGORIES/REMARKS</b>			
<b>COUNTY</b>	<b>Sub County</b>	<b>VCI-3 month as at 26<sup>th</sup> March 2018</b>	<b>VCI-3 month as at 30<sup>th</sup> April 2018</b>	<b>Colour</b>	<b>VCI values (3-month)</b>	<b>Drought Category</b>
					≥50	Vegetation greenness above normal
					35 to 50	Normal vegetation greenness
					21 to 34	Moderate vegetation deficit
					10 to 20	Severe vegetation deficit
					<10	Extreme vegetation deficit
TAITA TAVETA	<b>County</b>	22.02	62.87	The vegetation greenness is within normal ranges for the period across all sub counties with major improvement in Mwatate.		
	Mwatate	19.78	51.51			
	Taveta	20.18	54.92			
	Voi	23.31	69.85			
	Wundanyi	23.5	69.85			
NAROK	<b>County</b>	39.98	54.49	Only Narok North record a mild vegetation deficit while all other sub-counties are within normal ranges for the period.		
	Narok-East	31.43	49.48			
	Emurua Dikirr	58.01	62.47			
	Kilgoris	45.73	56.73			
	Narok-North	27.84	34.15			
	Narok-South	39.05	56.9			
	Narok-West	46.58	62.87			

## **Annex 2.0 Summary of the drought early warning system**

Each month, field monitors collect data in a number of sentinel sites across 23 arid and semi-arid counties. This is then complemented by information from other sources, particularly satellite data. For all indicators, the current value is compared with the long-term average for the time of year in order to establish whether it falls within seasonal norms.

Four types of indicator are monitored, capturing different kinds of impact (Table 3). The combined analysis from all four indicator groups then determines the particular drought phase: normal, alert, alarm, emergency or recovery (Figure 1). Identifying the correct drought phase helps to guide the most appropriate response for that stage in the drought cycle.

**Table 4.0: Indicators monitored by the drought early warning system**

<b>Type of indicator</b>	<b>Examples of indicators monitored</b>	<b>Types of impact</b>
Biophysical	Rainfall data Vegetation condition State of water sources	Environmental
Production	Livestock body condition Milk production Livestock migration Livestock mortality Crop production	Livestock production Crop production
Access	Terms of trade (meat/maize) Milk consumption Distances to water	Markets Access to food and water
Utilisation	MUAC (Mid-Upper Arm Circumference) Coping strategies	Nutrition Coping strategies

**Figure 2.0: Drought Phase Classification**

