



**THE PRESIDENCY  
MINISTRY OF DEVOLUTION AND PLANNING**

# National Drought Early Warning Bulletin

**January 2018**



## **Summary**

The short rains season was characterized by a late onset and early cessation. Rainfall received during the month of December was poorly distributed, both in time and space with most ASAL areas experiencing sunny and dry conditions throughout the month. In terms of cumulative amounts, the rains were largely depressed which has led to below average pasture regeneration and poor crop performance across the ASAL region.

During the month of December, the average distances to water for both households and livestock generally reduced compared to the previous month as a result of pasture regeneration and recharge of open water sources in nearly all the ASAL counties. However, localized areas in Isiolo, Wajir, Kajiado, Marsabit, Garissa, Kitui, Narok, Mandera, Samburu and Meru counties which received depressed rainfall were already reporting water scarcity and the situation is likely to worsen given that most of the open water sources are expected to dry up by end of January 2018.

Currently, four counties: Isiolo, Garissa, Kajiado and Tana River are classified in the alarm phase, while 13 counties are in normal and six in alert, with the trend in most counties being stable or improving.

## **1 Drought status**

### **1.1 Drought indicators**

#### ***Rainfall***

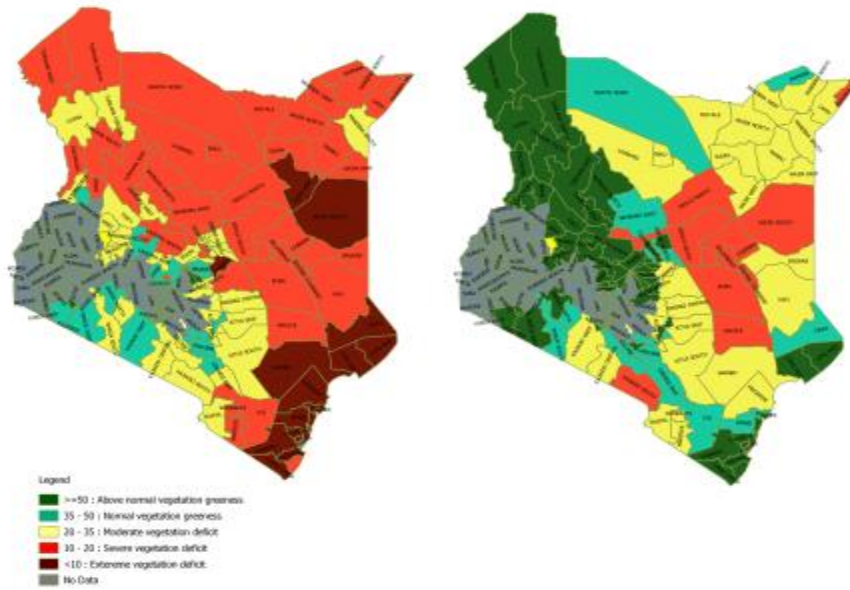
The month of December marks the cessation of the October-November-December (OND) seasonal rainfall and while performance of the season was fairly good in October and November the dry conditions that prevailed in December as well as the early cessation of the seasonal rainfall resulted in some reduction in pasture production and poor crop performance in many ASAL counties.

Most ASAL areas experienced below normal rainfall during the month of December 2017 that were poorly distributed across space and time. Essentially counties in the North western and North eastern parts of the country such as Mandera, Wajir, Garissa, Isiolo, Tana River, Turkana and Marsabit remained sunny and dry throughout the month.

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

The condition of vegetation in most counties has improved, but overall, the current VCI values show that the state of vegetation greenness in most counties is well below the normal ranges for the period implying that the OND season has not been sufficient to generate an adequate recovery. **Figure 1** compares the Vegetation Condition Index (VCI) in December 2016 with that in December 2017. While the current situation is significantly better than the one in December 2016, there is still some considerable vegetation deficits in counties such as Isiolo, Garissa, Wajir, Mandera, Kajiado and Tana River.

### Vegetation Condition Index (3 Month) : December 2016 & December 2017



According to the detailed VCI data as at 25<sup>th</sup> December 2017 contained in Annex 2 the following counties are at present experiencing either severe or moderate vegetation deficit and are likely to face significant drought risks in the course of the January to March 2018 dry season.

**Severe vegetation deficit:** The entire Isiolo County has remained in the severe vegetation deficit band. Counties which have some of their sub-counties in the severe vegetation deficit category include; Mandera East, Wajir South, Balambala, Ladgera and Dujis (Garissa), Bura and Galole (Tana River) and Kajiado South.

**Moderate vegetation deficit:** Counties in the moderate vegetation deficit class are; Mandera, Wajir, Garissa, Tana River, Kajiado, Kitui and Taita Taveta. Counties with either above-normal or normal vegetation greenness which have some of their sub-counties in the moderate vegetation deficit band include; Laisamis, Moyale and Saku (Marsabit), Tharaka and Kaloleni (Kilifi).

#### **Water sources**

The rains received in October and November have replenished the open water sources to some levels in a majority of the ASAL counties and therefore the main water sources for both domestic and livestock use during the month of December are the normal ones for this time of the year. For example, in Kwale and Baringo, pans and dams had impounded water up to 70 percent of their full capacity. In Kitui, the open water sources in the mixed farming livelihood zone had recharged to about 70 percent while ponds, pans and dams in the marginal mixed farming livelihood zone were 40 percent full.

However, in other areas, like Marsabit and Wajir water shortage had started to be experienced and reliance on boreholes increased compared to the previous month due to drying of natural ponds and seasonal rivers. Water availability in Isiolo was also below normal with most shallow wells in Garbatulla and Merti sub-counties recording very low yield. In Mandera water trucking is currently ongoing in twenty centres in Lafey, Mandera East and North sub counties where water pans had not impounded water. In Kajiado, recharge of pans and dams during the 2017 short rains was less than 10 percent and about 35

percent of the population were currently relying on boreholes and shallow wells as the main source of water for both livestock and domestic use which is unusual during this time of year.

### ***Livestock production***

Livestock body condition in most livelihood zones ranges from fair to good across the ASAL counties. The body condition of livestock improved significantly compared to the previous month, a scenario attributed to improved forage and water resources for livestock.

However, livestock body condition has not improved in some counties such as Kajiado where cattle are still emaciated and the impact of November rains is yet to be felt in terms of livestock productivity. In Isiolo, livestock body condition for cattle and sheep was poor while that of camel and goat was fair and on a stable condition across all the livelihood zones attributed to the limited state of pasture and browse condition coupled with long distances to water sources. Other areas where livestock body condition has not improved as expected include Lafey and parts of Mandera East Sub County, the pastoral livelihood zone in Narok, and Nguni and Nuu wards in Kitui County.

### ***Crop production***

The OND short rains were characterized by a late onset and early cessation which has impacted negatively on the state of crop production in the marginal agricultural counties. For example: Delayed onset and poor performance of the season has affected crop production in the marginal mixed farming livelihood zone of Makueni, in Baringo, Kitui and Nyeri. In Laikipia cases of frost damage on both crops and pasture were observed in Tigithi and Ngobit Wards.

Cases of Fall Armyworm (FAW) infestation were reported in the following counties: Kitui, Embu, Kwale, Baringo, Tharaka Nithi, Nyeri, Taita Taveta and Makueni. There are ongoing efforts to control the pest and almost all County Governments have intensified sensitization campaigns on early detection and control of FAW which might curb further spread and prevent substantial loss in production.

On the other hand, crops are performing fairly well in counties which received near normal rainfall such as the mixed crop livelihood zone in Makueni, in Kwale, Embu, Kilifi, Narok, Meru and Tharaka. Maize, beans, millet, sorghum, cow peas, green grams in these areas were reported to be in tussling, flowering and podding stages with some of the early planted crops approaching maturity stage.

### ***Access to water***

The current average distances to water for both households and livestock have generally reduced compared to the previous month as a result of pasture regeneration and recharge of open water sources in nearly all the ASAL counties.

However, some counties such as Kitui, Narok, Mandera, Samburu, Meru, Garissa and Kajiado recorded an increase in average return distances to the main water sources in December compared to November due to poor rainfall performance during the month of December. In Kajiado, for example, households in the pastoral livelihood zone were covering up to 15 km to and from the water sources while the return distance trekked by livestock from grazing areas to water points averaged 20 km. In Meru, increase in water distances was attributed to damaged water intakes, broken pipes and reduced flows in the seasonal rivers and streams. Given that the current dry weather conditions are likely to persist until late March 2018, distances are expected to increase further from next month.

### **Terms of trade**

Significant improvement in the terms of trade (ToT) was realized in counties like Kilifi, Samburu, Wajir, Mandera, Tharaka Nithi, Kajiado, Nyeri, Laikipia, Meru and West Pokot, indicating that livestock keepers in these counties were able to purchase additional quantities of maize from the sale of a goat in the month of December compared to the previous month. The increase in ToT was attributed to some notable decrease in maize prices while goat prices had increased as a result of a rise in demand for goats during the festival season and good body condition of goats in most ASAL areas.

However, current terms of trade in Kajiado, Kitui, Isiolo, Meru, West Pokot and Kwale are still below their long term average (LTA) and it is likely that the situation will remain unfavourable until the next rainy season. Table 1 shows the trend in the terms of trade (ToT) in ASAL counties.

**Table 1.0: Terms of trade, December 2017**

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

### **Health and nutrition**

Generally, the trend in the proportion of children at risk of malnutrition by mid upper arm circumference (MUAC) of less than 135 mm across the ASAL counties is improving or stable. Average MUAC rates in ten counties have fallen below the long term average (LTA) indicating some improvement in the nutritional status of children aged below five years.

During the month, Isiolo County had the highest percentage of children at risk of malnutrition of 28.9 percent. Other counties with MUAC rates above the 15 percent threshold include: Mandera - 27.4 percent, Meru North - 20.6 percent, Marsabit - 19.4, Kajiado - 17.8 and Samburu at 17.2 percent. Table 2 summarizes the trend in MUAC rates across the ASAL counties.

**Table 2.0: Children at risk of malnutrition (MUAC), December 2017**

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

## 1.2 Drought phase classification

There are currently 13 counties where drought conditions are categorized as normal, six in alert and four in alarm, compared with 12 in normal, 7 in alert and four in the alarm drought phase in November. In five counties the trend is improving while the trend in nine counties is stable. Table 3 shows the trend in drought status in the 23 ASAL counties.

**Table 3.0: Drought phase classification, December 2017**

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

## **2 Other food security challenges**

There were fewer reports of resource based conflicts in December compared with the previous months. This was due to improved pasture and browse condition which has reduced pressure and competition over grazing resources. Generally the security situation has improved in most counties, for instance, in Laikipia livestock markets such as Olmoran that had been inactive since July due to insecurity are currently operational.

However, in West Pokot, one case of banditry attack was reported in Pokot Central along Pokot-Marakwet border at Chesegeon where 48 cattle were stolen. In Meru North, tension remained high in Igembe Central and Igembe North due to insecurity and cattle rustling in the area. In addition, it was reported that farmers living in the lower areas of Kangeta ward in Igembe Central Sub County were unable to access their farms due to insecurity and banditry. In Kitui, high influx of livestock from Tana-River County was reported in Ngomeni, Tsekuru and Mutha wards.

An outbreak of Foot and Mouth disease (FMD) was reported in the parts of the marginal mixed farming zone in Embu (Mbeere) and quarantine imposed. The county also remains on alert following a cholera outbreak.

Human wildlife conflicts continued affecting food security in Baringo, Laikipia and Taita Taveta during the month under review.

### 3 Response

#### Annex 1: Drought contingency fund approvals and disbursements, (Nov 2017-Jan 2018)

DCF-P & R Disbursements (Nov 2017 – Jan 2018)					
Requisition	Sector				Grand Total
	Coordination	Livestock	Security	Water	
Isiolo(627)		809,300			809,300
Laikipia(631)	1,987,700				1,987,700
Lamu(625)		1,800,966			1,800,966
Marsabit(626)	338,200				338,200
Samburu(632)	432,800	1,313,600			1,746,400
Tana River(638)	288,000				288,000
Wajir(637)	76,700		3,888,700		3,965,400
Kitui (P-14)				2,044,900	2,044,900
Grand Total	3,123,400	3,923,866	3,888,700	2,044,900	12,980,866



#### **4 Projected food security situation**

Pasture and browse situation in arid and semi-arid counties is expected to diminish gradually as a result of the projected sunny and dry conditions in January. In addition, average distances to water for both households and livestock are likely to increase since it is anticipated that most of the open water sources will dry up in the next four to six weeks. This is likely to lead to some considerable deterioration in livestock body condition and milk production.

Poor crop harvest will be expected in most of the marginal agricultural counties due to a combination of poor rainfall performance and the fall armyworm infestation.

However, in some counties such as Kwale, Mbeere, Kilifi, Makueni, Narok, Tharaka, Meru North where fair crop performing is foreseeable, the expected harvest is likely to replenish household stocks, lessen market dependence and improve incomes.

#### **5 Recommendations**

Based on the current situation, review of contingency plans should be enhanced to facilitate early response considering that a drought event may unfold in the next dry season

Livestock disease surveillance and control to curb spread of livestock diseases

Peace building and conflict management activities including human wildlife conflict management should be enhanced to mitigate loss of life, livestock and crop damage

Continuous monitoring and scouting for signs and symptoms of the Fall Armyworm (FAW) to mitigate against spread of the pest

Scale up nutrition services and outreaches for hard to reach areas

Monitoring of potential conflict locations and support initiatives to resolve conflict over resources

## Annex 2.0: Vegetation Condition Index (VCI) as at 25<sup>th</sup> December 2017

ADMINISTRATIVE UNIT		VEGETATION GREENNESS		DROUGHT CATEGORIES/REMARKS		
COUNTY	Sub County	VCI-3 month As at 27 <sup>th</sup> Nov 2017	VCI-3 month As at 25 <sup>th</sup> Dec 2017	Color	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
BARINGO	County	80.96	75.84	Above average rains have in particular been received in Tiaty sub-county. Considering that the County received also good off season rains in June-August, the vegetation greenness is well above the normal ranges for the period		
	Central	76.84	75.07			
	Eldama	65.06	64.46			
	Mogotio	78.03	68.1			
	North	74.33	70.09			
	South	84.56	78.91			
	Tiaty	86.87	81.5			
MANDERA	County	32.35	27.69	Only Banissa is in the normal vegetation band while overall the VCI is on a worsening trend with M. East now in the severe vegetation deficit category. With this situation, the county will probably face significant drought risks in the course of the dry season Jan-March 2018.		
	Banissa	44.86	45.92			
	M East	25.03	19.6			
	Lafey	25.76	21.3			
	M North	28.88	25.73			
	M South	38.5	29.08			
	M West	29	24.28			
TURKANA	County	71.13	69	The good rainfall received since July increases the VCI, which is currently well above the normal ranges for the period in all sub-counties		
	T Central	63.44	68.47			
	T. East	79.36	75.62			
	T. Loima	60.25	63.23			
	T. North	83.49	77.83			
	T. South	59.58	63.26			
	T. West	64.65	59.12			
MARSABIT	County	38.08	37.37	Only N. Horr is within the normal vegetation greenness band while the other sub-counties are experiencing some moderate deficits, which will become more acute in the peak of next dry season		
	Laisaimis	30.46	30.53			
	Moyale	24.49	26.23			
	N. Horr	46.57	44.54			
	Saku	24.31	28.42			
WAJIR	County	23.18	23.17	Although the rainfall estimate showed good rainfall received in November, the vegetation greenness is still poor with W. South already experiencing a severe deficit. Some marginal recovery occurred in W. West. Also this county will face significant drought risks in the course of the dry season, especially in W. South and West which were already badly affected during 2017 drought.		
	W East	30.55	32.29			
	W. Eldas	20.68	24.9			
	W. North	32.38	32.69			
	W. South	18.01	16.95			
	W. Torbaj	30.33	23.7			
	W West	16.61	21.53			
SAMBURU	County	46.36	51.19	There has been a good recovery with vegetation greenness above normal in S. West and North.		
	S East	30.81	38.16			
	S. North	58.03	60.75			
	S. West	69.72	71.51			
GARISSA	County	31.15	28.83	The short rains were insufficient for the county to recover from the last drought. Currently there is a severe vegetation deficit in Balambala and Ladgera which are both close to the extreme deficit band. It is anticipated that significant drought impacts will be experienced in this county, which will require the early implementation of sectoral mitigation activities		
	Balambala	11.27	12.01			
	Daadab	23.67	21.23			
	Fafi	38.09	34.45			
	Ijara	50.69	49.21			

	Lagdera	11.16	10.33	
	Dujis	33.57	19.31	
ISIOLO	County	12.63	12.26	This county is one of the worst drought affected since the short rains performed poorly. Also in this case, it is necessary to activate the drought response plans ASAP so as to prevent some of the worst drought impacts expected in Jan-March
	I. North	12.95	12.79	
	I. South	12.14	11.44	
TANA RIVER	County	21.14	20.02	
Bura	14.7	12.58		
Galole	21.89	16.31		
Garsen	26.13	28.66		
KAJIADO	County	23.61	24.55	The rainfall received was below normal in K. South and Central where recovery from the last drought spell has not occurred. The meagre grazing will be insufficient to keep the local herds and as a result massive migration of livestock might occur within and outside the county. This will require the implementation of mitigation activities to support coping strategies of drought affected populations
	K. Central	18.75	20.23	
	K. East	27.66	37.15	
	K. North	42.37	54.04	
	K. South	20.26	19.98	
LAIKIPIA	County	61.26	62.62	Because of good off-season rains all sub-counties are above normal ranges for the period. As a result , the vegetation greenness is above normal ranges for the period
	L. East	50.13	52.47	
	L. North	54.27	58.23	
	L. West	79.71	75.75	
THARAKA NITHI	County	39.58	43.48	Vegetation greenness within normal ranges for the period except for Tharaka sub-county that is in the moderate vegetation deficit band
	Chuka	51.91	58.36	
	Maara	58.24	60.12	
	Tharaka	28.97	32.55	
WEST POKOT	County	72.84	70.71	The vegetation greenness is still above normal ranges for the period in all sub-counties
	Kacheliba	72.62	68.81	
	Kapenguria	68.57	66.57	
	Pokot South	72.98	72.44	
	Sigor	76.77	76.66	
EMBU	County	53.62	57.38	Vegetation greenness above normal ranges for the period
	Manyatta	66.04	60.32	
	Mbeere North	51.17	54.56	
	Mbeere South	48.91	57.07	
	Runyenjes	62.72	61.61	
KITUI	County	20.62	27.08	The vegetation greenness has significantly improved in K. Rural, while vegetation deficits are recorded in most of the sub-counties with K. East and Mwingi Central close to the severe deficit band
	Kitui Central	48.05	53.2	
	Kitui East	14.65	20.26	
	Mwingi Central	16.82	20.46	
	Mwingi North	24.19	26.23	
	Mwingi West	33.67	33.28	
	Kitui Rural	27.8	41.87	
	Kitui South	18.82	28.9	
	Kitui West	26.69	34.12	
MAKUENI	County	30.28	40.56	The vegetation greenness has improved in all sub-counties which are now within normal ranges for the period.
	Kaiti	45.41	52.77	
	Kibwezi East	26.35	37.3	
	Kibwezi West	23.83	35.64	
	Kilome	34.93	49.43	
	Makueni	31.88	41.01	
Mbooni	40.56	45.53		

<b>MERU</b>	<b>County</b>	47.68	54.38	<b>Normal / above normal vegetation greenness across all sub- counties.</b>
	Buuri	51.94	60.59	
	Central Imenti	52.86	57.62	
	Igembe Central	40.69	47.2	
	Igembe North	43.27	55.8	
	Igembe South	43.45	45.54	
	North Imenti	44.62	51.03	
	South Imenti	64.04	62.22	
	Tigania East	45.06	52.14	
	Tigania West	40.43	49.09	
<b>NYERU</b>	<b>County</b>	61.72	62.66	<b>Vegetation greenness within /above normal ranges for the period</b>
	Kieni	60.91	63.75	
	Mathira	68.06	59.24	
	Mukurweini	49.17	41.7	
	Town	65.93	62.46	
	Othaya	62.5	68.84	
	Tetu	61.62	41.39	
<b>KILIFI</b>	<b>County</b>	34.96	45.34	<b>Good recovery of greenness in Malindi sub-county while a mild deficit is still recorded in Magarini</b>
	Ganze	35.4	62.58	
	Kaloleni	52.65	34.55	
	Magarini	29.92	35.34	
	Malindi	29.73	54.3	
	Kilifi-North	47.63	61.08	
	Rabai	53.05	65.78	
	Kilifi-South	60.57	41.39	
<b>KWALE</b>	<b>County</b>	57.91	63.18	<b>The vegetation greenness is above normal ranges for the period</b>
	Kinango	57.3	64.81	
	Lungalunga	57.67	63.05	
	Matuga	62.16	59.19	
	Msambweni	55.34	54.41	
<b>LAMU</b>	<b>County</b>	56.62	52.35	<b>Both sub-counties experiencing above-normal vegetation greenness.</b>
	Lamu East	63.37	56.29	
	Lamu West	52.71	50.07	
<b>TAITA TAVETA</b>	<b>County</b>	29.13	36.27	<b>Moderate deficit in all sub-counties except for Voi which has recovered to normal.</b>
	Mwatate	25.8	32.92	
	Taveta	28.82	30.42	
	Voi	30.82	40.28	
	Wundanyi	22.22	29.42	
<b>NAROK</b>	<b>County</b>	52.49	53.03	<b>Full recovery of vegetation greenness in Narok.</b>
	Narok-East	40.92	39.61	
	Emurua Dikirr	63.14	77.77	
	Kilgoris	61.53	68.6	
	Narok-North	50.02	56.8	
	Narok-South	47.42	49.85	
	Narok-West	58.12	50.7	

### Annex 3.0: 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 5). 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: Indicators monitored by the drought early warning system**

Type of indicator	Examples of indicators monitored	Types of impact
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**

