



**THE PRESIDENCY
MINISTRY OF DEVOLUTION AND PLANNING**

National Drought Early Warning Bulletin

December 2016



Summary

The short rains season started late and has so far performed below par. The quantity and distribution of rainfall has been inadequate, particularly in arid counties and at the coast. Consequently a widespread vegetation deficit persists. Three more counties have moved into the alarm drought phase since the previous month: Mandera, Samburu and Tana River.

Where rains have been received, the recovery is fragile and slow. In arid and pastoral counties, any improvement in environmental conditions and livestock productivity may be insufficient to sustain households until the long rains begin. In crop-producing counties, the late start and early end to the season mean that yields are likely to be poor. Drought stress is therefore set to deepen and widen in the first quarter of 2017.

1 Drought status

1.1 Drought indicators

Rainfall

In most ASAL counties the short rains finally started in November, some weeks later than usual. All arid counties reported below-average rainfall. The exception was Moyale sub-county of Marsabit which received slightly higher than average rainfall, while in Samburu the amount improved as the month progressed. However, the distribution of rainfall in all arid counties was poor, both spatially and over time.

Semi-arid counties – other than Narok, West Pokot and those at the coast – received higher amounts of rainfall, but only Makueni, Meru and Tharaka Nithi reported that its distribution was reasonable. In coastal counties rainfall was below average and poorly distributed; Kilifi received only one-third of the long-term mean.

Vegetation condition

The Vegetation Condition Index (VCI) communicates the vigour of vegetation cover, comparing it with the range of values for the same period in previous years. Annex 1 contains the VCI data at 28 November 2016. There are five categories: above-normal vegetation, normal vegetation, moderate vegetation deficit, severe vegetation deficit, and extreme vegetation deficit.¹

There is a widespread vegetation deficit across most ASAL counties. These can be grouped in one of four clusters (Table 1).

Table 1: Vegetation deficit, November 2016

Cluster	Counties	Notes
1. Vegetation deficit is below the historical minimum for the period	Garissa, Kilifi, Kwale, Lamu, Tana River	Rainfall received in late November may marginally improve the situation in some areas, but the outlook for the coming dry season is very poor.

¹ It should be noted that there is a delay of two to three weeks before rainfall influences the VCI values, and therefore the current values will not reflect rainfall received in late November.

Cluster	Counties	Notes
2. Vegetation deficit is close to, or equals, the historical minimum for the period	Isiolo, Marsabit, Samburu, Taita Taveta, Wajir	Some significant rains were received that should improve the VCI in December but are unlikely to bring it within normal ranges.
3. Vegetation deficit is below normal and rainfall received so far is poor	Baringo, Laikipia, Mandera, Turkana, West Pokot	The situation is on a worsening trend and will probably result in drought episodes during the next dry season unless further rains are received in December. Turkana and Mandera are at particular risk given their high vulnerability. Baringo may experience a moderate drought in Tiaty and Mogotio sub-counties. VCI values in Laikipia should improve in December following recent rains.
4. Semi-arid counties where the onset of the season was late but good rainfall was received in November	Embu, Kajiado, Kitui, Makueni, Meru, Narok, Tharaka Nithi	While the rainfall received in November should significantly increase the VCI in December, the late onset of the season may lead to poor or failed crop yields unless significant rains are received in December.

Field observations show that pasture and browse are regenerating more slowly than usual, given the late start to the season and the concentration of livestock in areas where forage remains. In some counties insecurity leaves pasture out of reach: examples include the Pokot/Marakwet border, the Marsabit/Wajir border, and the pastoral zone in Meru North. In counties which received higher rainfall, such as Embu, the dry pasture that had remained was then destroyed by surface run-off.

Water sources

The state of water sources mirrors the pattern of rainfall. In arid counties, water sources have not recharged to normal levels: they are at only 40% of normal capacity in Mandera, for example, and 50% in Baringo. Half the pans have filled in Wajir, mostly in the north and east. In Turkana, poor recharge of open sources means that the use of boreholes is increasing, which is not normal at this time of year. Water stress is further exacerbated by poor maintenance, illustrated by the repeated concern about broken sources in the Isiolo and Laikipia bulletins.

There is still an acute shortage of water in Kilifi, but in most other semi-arid counties the situation has improved. In Makueni, newly constructed dams such as Mbasya, which was supported by the drought contingency fund, are now fully impounded, while in Taita Taveta the main sources (Mwatate dam, and Manoa and Ziwa La Ngo'mbe pans) are almost full to capacity.

Livestock production

The impact of the season on livestock body condition is not yet fully apparent, although in areas which received some rain the trend is positive; here, trekking distances and watering intervals have both reduced. The number of counties reporting drought-related livestock deaths also fell from eight last month to six this month (Tana River, Lamu, Kwale, Taita Taveta, Marsabit and Samburu), while Kwale noted that the mortality rate has reduced. In Garissa, livestock body condition remains poor but no deaths were reported, while in Kilifi, the feed interventions funded with drought contingency finance are helping to contain livestock losses.

One striking feature of several bulletins is the continued very low levels of milk production. In Mandera, Marsabit and Wajir, average household milk production in November was lower than the minimum recorded for that month, and only 11%, 37% and 40% respectively of the long-term mean; parts of Laisamis and North Horr reported no milk production at all. Milk production continued to fall in Garissa, Isiolo, Samburu and Turkana, while in Tana River it reached a new low of 2.5 litres, or just six percent of the long-term mean.

Crop production

The late start to the season will affect the short rains crop; the false onset in parts of Kitui and Nyeri has already led to germination losses. Moreover, if good rains are not sustained until the end of the year, yields are likely to be poor. Kitui and Makueni both anticipate some level of crop failure, especially for cereals, although Meru expects a good harvest in early 2017 if the rains continue as they are.

In some counties such as Baringo, Laikipia (mixed farming livelihood zone) and Nyeri (Kieni) the area under production has reduced. In Baringo this is due to falling river levels and in Nyeri to the high cost of land preparation and inputs, compounded by the loss of income from the last season. The Baringo bulletin reports a good maize yield, except for some areas in the Kerio Valley, while the ongoing maize harvest in agro-pastoral areas of Samburu has replenished household stocks and led to a slight fall in the price of maize flour.

Access to water

In counties where the short rains have so far performed poorly, distances to water continue to lengthen. For example, distances for both households and livestock in West Pokot increased on the previous month and are now around twice the long-term mean. In Turkana, the distance for livestock increased by 28% on the previous month though remains below the long-term mean. And while the average distance for households in Marsabit fell on the previous month it continues to rise in parts of North Horr and Laisamis.

In some counties distances have reduced with the onset of the rains but yet remain well above the average for this time of year. In Meru (North), the household distance fell by 2km but is still three times the long-term mean, while in Garissa the distance halved but remains nearly twice the long-term mean. In Kitui, the distances for both households and livestock were stable or fell slightly but are both nearly twice the long-term mean. It is important to note that these are averages: the distances in particular parts of a county – such as the west and south of Wajir, or the pastoral zone of Narok – can be much longer.

Water trucking has been scaled down to 20 centres in Mandera and to areas of Kwale that have not received rain. However, it continues in the livestock and marginal mixed farming zones of Kilifi and to 108 centres in Tana River. Water trucking is the reason why distances to water for households in Kilifi and Tana River have reduced slightly on the previous month, despite the high degree of drought stress. Even so, the distance in Kilifi is still twice the long-term mean.

Terms of trade

Each month, the drought early warning system monitors the relative price of goats and maize, showing the number of kilogrammes of cereal that can be exchanged for one goat.² Table 2 summarises the trend when compared with the previous month. The largest fall on the previous month was in Garissa where the terms of trade halved.

Table 2: Terms of trade, November 2016

<i>Trend</i>	Improving	Stable	Worsening
Below long-term mean (LTM)	Tana River Tharaka Nithi	Meru (North)	Garissa Isiolo Kilifi Makueni Mandera Marsabit Samburu West Pokot
At / close to LTM			
Above LTM	Baringo Kitui Laikipia Turkana		Kajiado Wajir

Note: Data based on 17 counties

Livestock prices in Kilifi have collapsed over the past three months. The average price of cattle fell by 20% on the previous month, and that of goats by 18%. Cattle are now worth only half the long-term mean, though in the livestock/ranching livelihood zone, where the price is as low as Ksh. 5,000, their value is just one-third of the long-term mean. A programme of offtake for slaughter through the drought contingency fund is paying a maximum of Ksh. 10,000 per animal.

Large falls in the price of cattle were also recorded in Tana River (32%), Kitui (31%), Garissa (23%), and Meru (15%). The price of goats fell by 45% in Garissa.

There were few significant movements in the price of maize, with the exception of Baringo, Embu and Narok where the price per kg rose by Kshs. 4-5. The fall in the maize price in Tana River, from Kshs. 58 to Kshs. 50 per kg, was attributed to the distribution of relief food. Market data from Turkana illustrates the wide differences that can exist within a county; the average price of maize at present is Kshs. 74 per kg, close to the long-term mean, but in the fisheries livelihood zone the price is Kshs. 91 per kg.

Health and nutrition

The bulletins monitor the percentage of children under five at risk of malnutrition, determined by a mid-upper arm circumference (MUAC) measurement (Table 3). The same eight counties as last month have

² These terms of trade are an important indicator of pastoralists' purchasing power. As drought stress increases, animals lose condition and more of them enter the market causing the price to fall. At the same time, the price of cereals tends to rise as stocks become depleted prior to harvest. Thus, livestock-keepers are caught in a pincer movement, as the value of their principal asset decreases and the price of the food they need increases.

MUAC rates above the 15% threshold of concern: Garissa, Isiolo, Mandera, Marsabit, Meru (North), Samburu, Turkana and Wajir. Of these, the highest is Samburu at 26.4%.

There are noticeably fewer counties this month where the MUAC rate is worsening, down from 14 to six. The most significant rises in the MUAC rate on the previous month were in Kilifi (by 19%) and Kajiado (by 12%). The most significant falls on the previous month were in Garissa and Embu where the rate fell by 22% in both counties, attributed to integrated health outreach in the former and increased milk consumption in the latter.

As usual, the bulletins highlight specific areas of concern including:

- Kawop and Lodung’okwe in Samburu: 44.6% and 32.3% respectively
- Magadi and Mbirikani in Kajiado: 24% and 18.1% respectively (both higher than in the previous month)
- Marginal mixed farming livelihood zone in Kitui: 18.2%
- Kakuyuni in the mixed farming livelihood zone in Kilifi: 13%

Table 3: Children at risk of malnutrition (MUAC), November 2016

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

Note: Counties highlighted in bold have MUAC rates above 15%

1.2 Drought phase classification

The drought phase is determined by the indicators discussed in the previous sections (Table 4). Livelihood zones that differ from the overall county status are shown in footnotes. Since last month, more counties have moved into the alarm drought phase (from five to eight). The livestock/ranching livelihood zone in Kilifi remains in the emergency drought phase.

The other significant change on the previous month is that half the counties are now reporting an improving trend following the onset of the short rains. However, given that the season has been below normal, this trend is unlikely to be sustained for long.

Table 4: Drought phase classification, November 2016

<i>Drought status</i>	<i>Trend</i>	Improving	Stable	Worsening
Normal		Meru (North)	Nyeri (Kieni) Tharaka Nithi	Baringo ³
Alert		Embu (Mbeere) Kajiado Kitui Laikipia ⁴ Makueni Wajir ⁵	Narok ⁶	Isiolo ⁷ Taita Taveta Turkana ⁸ West Pokot
Alarm		Kwale ⁹ Mandera Marsabit ¹⁰ Samburu ¹¹		Garissa Kilifi ¹² Lamu Tana River ¹³
Emergency				
Recovery				

2 Other food security challenges

Insecurity and conflict continue to undermine food security in a number of ASAL counties. Violent incidents were reported in West Pokot on the borders with both Trans Nzoia and Elgeyo Marakwet counties; the former led to loss of life while the latter caused the closure of a market. In Turkana, conflict erupted in the Lomelo area close to the border with Pokot. Tension is also high in parts of Isiolo (Gafarsa, Kombola and Belgesh), but so far without incident, while insecurity has increased in the Isiolo/Meru border area.

Human/wildlife conflict is worsening in Taita Taveta, and was also reported by Baringo, Samburu, West Pokot and Lamu.

In Turkana, flooding displaced some farmers along the River Turkwel.

³ Pastoral livelihood zone: alert.

⁴ Mixed farming livelihood zone: normal and stable.

⁵ Pastoral (cattle) livelihood zone: alarm.

⁶ Mixed farming livelihood zone: normal.

⁷ Agro-pastoral and firewood/charcoal/pastoral livelihood zones: improving.

⁸ Fisheries and formal employment/casual labour livelihood zones: alarm.

⁹ Mixed farming livelihood zone: alert.

¹⁰ Fisherfolk/casual labour/petty trading livelihood zone: normal and stable.

¹¹ Agro-pastoral livelihood zone: alert.

¹² Livestock/ranching livelihood zone: emergency. Food cropping livelihood zone: alert.

¹³ Marginal mixed farming livelihood zone: alert.

3 Actions being taken

Since July 2016, the NDMA has disbursed Ksh 172 million of drought contingency finance in 12 counties, complementing what the counties and their partners are already doing (Table 5).

Table 5: DCF disbursements, July-November 2016

County	Coordination	Education	Health & Nutrition	Livestock	Security	Water	Total
Garissa	1,585,800		1,172,000	5,373,700		2,893,300	11,024,800
Garissa	1,593,100	7,732,200	4,084,800	9,704,300		4,591,400	27,705,800
Kajiado	1,000,300		1,094,300	5,148,000		2,599,200	9,841,800
Kilifi	627,900		545,500	4,323,800	115,450	961,000	6,573,650
Kilifi				5,020,400			5,020,400
Kilifi				10,261,400		7,622,800	17,884,200
Kilifi			2,963,700				2,963,700
Kitui	931,200		1,076,100	4,699,600		1,060,300	7,767,200
Kwale	689,575		594,650	4,035,250	93,000	1,126,568	6,539,043
Kwale			1,835,200	8,725,000		1,506,000	12,066,200
Lamu	333,200		567,800	3,063,900	253,200	1,767,800	5,985,900
Lamu						418,000	418,000
Lamu				3,377,600			3,377,600
Makueni	784,700		1,362,600	2,046,800		862,300	5,056,400
Marsabit	3,776,000		4,420,600	4,622,600	555,200	3,273,400	16,647,800
Narok				3,331,440		3,056,640	6,388,080
Taita Taveta	700,100		188,000	2,618,900	653,100	3,572,880	7,732,980
Tana River	714,600	315,000	795,000	904,800	519,000	50,000	3,298,400
Tana River	235,200	3,265,300		1,592,900		1,248,600	6,342,000
Wajir	1,048,500		1,816,200	898,000		6,092,000	9,854,700
Total	14,020,175	11,312,500	22,516,450	79,748,390	2,188,950	42,702,188	172,488,653

4 Projected food security situation

The less than satisfactory performance of the short rains season thus far means that there is likely to be widespread drought stress in the first quarter of 2017. In arid and pastoral counties, the quantity and distribution of rainfall has not been sufficient to generate a level of recovery in environmental conditions and livestock productivity that can see households through the next dry season. In crop-producing counties, the late start to the season and its imminent end mean that some crops are unlikely to reach maturity. The consequences for counties where drought stress is already acute, such as Kilifi, Lamu, Kwale, Garissa and Tana River, will be severe. However, unless significant rainfall is received in December, a much larger number of counties, particularly in the north, will be at risk.

5 Conclusions and recommendations

The following recommendations are made:

1. **Continued activation and implementation of drought contingency plans.** County Steering Groups should continue to carry out rapid assessments as required and intervene urgently to protect lives and livelihoods. Short-term priorities include:
 - a. Rapid repair and maintenance of water points.
 - b. Provision of fodder or feed for livestock.
 - c. Expansion of animal health surveillance and response.
 - d. Livestock offtake, where appropriate, preferably using market mechanisms.
 - e. Expansion of nutrition monitoring and provision of supplementary/therapeutic feeds.
 - f. Expansion of public health interventions as water availability declines, including water treatment.
 - g. Provision of food for fees where appropriate, given the start of the new academic year.
 - h. Peace building and conflict management, particularly in areas of resource stress.
2. **Preparation for drought conditions continuing and worsening in 2017.** Counties and sectors should prepare to deal with serious drought conditions across a larger geographical area between January and April 2017.
3. **Accelerated implementation of measures that will reduce drought vulnerability,** in line with the Common Programme Framework for Ending Drought Emergencies, as well as their integration within planning frameworks for the 2017-18 budget year, including:
 - a. Investment in appropriate and sustainable water infrastructure.
 - b. Repair or expansion of the rural road network.
 - c. Expanded access to appropriate education, health and nutrition services.
 - d. Measures that manage conflict and build peace.
 - e. Strengthening of market systems and producer power in markets.

Annex 1 Vegetation Condition Index, 28th November 2016

COUNTY	Sub County	VCI-3 as at 31 st Oct 2016	VCI-3 as at 14 th Nov 2016	VCI-3 as at 28 th Nov 2016	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															
BARINGO	County	53.54	46.93	39.16			The vegetation greenness is average for the period, although slightly below normal and with a worsening trend in Tiaty and Mogotio (VCI-1 month 24.84 and 19.54 respectively). This will probably determine a drought situation in the two sub-counties during the next dry season unless additional rains are received in the coming weeks.															
	Central	66.33	58.87	54.74																		
	Eldama	61.98	55.9	46.73																		
	Mogotio	51.75	44.91	34.22																		
	North	58.1	50.82	42.82																		
	South	54.75	49.11	42.34																		
	Tiaty	48.12	41.46	33.96																		
MANDERA	County	47.82	36.57	25.16			The rainy season is so far unsatisfactory with depressed rainfall and poor distribution. As a result, Mandera West is now in the severe vegetation deficit category while all the other sub-counties, except Mandera South, are in the moderate deficit band but with marked worsening trends as shown by the extremely low values of the VCI-1 month. This situation will lead to significant drought stress in the course of the next dry season unless significant rainfall is received before the end of the short rainy season.															
	Banissa	42.16	33.75	23.87																		
	Mandera East	44	33.77	22.78																		
	Lafey	45.93	35.47	23.02																		
	Mandera North	41.84	32.25	21.11																		
	Mandera South	69.88	52.31	37.72																		
	Mandera West	36.28	27.44	19.05																		
								<table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Mandera</td> <td>7.44</td> </tr> <tr> <td>Banissa</td> <td>8.35</td> </tr> <tr> <td>Mandera East</td> <td>5.84</td> </tr> <tr> <td>Lafey</td> <td>4.79</td> </tr> <tr> <td>Mandera North</td> <td>5</td> </tr> <tr> <td>Mandera South</td> <td>13.66</td> </tr> <tr> <td>Mandera West</td> <td>5.4</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Mandera	7.44	Banissa	8.35	Mandera East	5.84	Lafey	4.79	Mandera North	5	Mandera South	13.66
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Lafey	4.79																					
Mandera North	5																					
Mandera South	13.66																					
Mandera West	5.4																					
TURKANA	County	33.67	29.56	24.47			Negative trend, with two sub-counties approaching the severe vegetation deficit band. Rainfall received so far was significant only in Turkana West and part of Turkana Loima, therefore a drought may unfold soon if new rains are not received.															
	Turkana Central	52.81	48.33	43.24																		
	Turkana East	26.1	23.99	20.86																		
	Turkana Loima	35.02	32.29	27.42																		
	Turkana North	32.95	27.87	22.04																		
	Turkana South	35.39	30.76	24.78																		
	Turkana West	30.89	26.05	20.74																		
MARSABIT	County	34.45	27.75	20.52			Very negative trend with two sub-counties entering the severe vegetation deficit band and extremely low VCI-1month indicating a large vegetation deficit for the period 31 st Oct to 28 th November. Good rains have been received in the last few days but only in the highland areas of Saku and Moyale, which should contribute to improve the VCI in December. However, unless significant rains are received in December, the next dry season may be particularly difficult in the lowland areas.															
	Laisaimis	43.29	34.3	25.62																		
	Moyale	27.34	20.38	13.75																		
	North Horr	30.34	25.27	18.91																		
	Saku	51.52	40.11	28.98																		

					Administrative Unit	VCI- 1 Month
					Marsabit	9.07
					Laisamis	11.41
					Moyale	1.84
					North Horr	9.6
					Saku	8.76
WAJIR	County	41.32	29.29	19.08	Three sub-counties are now in the severe vegetation deficit band and in general the situation is worsening, as shown by the extremely low values of VCI-1month (extreme deficit in all sub-counties). Some good rains were received in the last few days (but not in Wajir South) which should improve the VCI in December. However, these might not be sufficient to avoid the unfolding of a drought during the next dry season.	
	Wajir East	37.06	27.33	17.42		
	Eldas	48.06	33.92	23.11		
	Wajir North	49.53	37.07	26.96		
	Wajir South	33.95	22.91	12.98		
	Tarbaj	54.88	40.62	27.68		
	Wajir West	34.99	23.32	15.29		
					Administrative Unit	VCI – 1 Month
					Wajir	4.2
					Wajir East	4.97
					Eldas	5.56
					Wajir North	8
					Wajir South	1.31
					Wajir West	7.29
SAMBURU	County	29.24	23.6	17.17	Samburu County experienced a very significant vegetation deficit for the period, although some rains received in November should partially improve the VCI in December.	
	Samburu East	27.5	20.83	13.37		
	Samburu North	26.62	22.67	18.05		
	Samburu West	45.67	38.32	29.79		
GARISSA	County	24.37	18.25	11.31	By the end of November, Garissa County experienced the lowest vegetation greenness ever recorded for the period since the satellite Modis started to operate in 2001, with three sub-counties now in the extreme vegetation deficit band. The VCI-1 month shows that the vegetation performance in the last four weeks was extremely poor. Some rains received in November could slightly improve the VCI situation in December but the County will face a severe drought in the course of the next dry season unless late rains are received in December (which are quite improbable).	
	Balambala	39.35	28.45	18.47		
	Daadab	24.31	17	8.73		
	Fafi	14.66	10.97	6.33		
	Ijara	14.62	12.62	9.04		
	Lagdera	49.99	37.22	24.13		
	Dujis	30.12	24.44	15.62		
					Administrative Unit	VCI – 1 Month
					Garissa	3.39
					Balambala	3.52
					Daadab	0.81
					Fafi	2.56
					Ijara	5.96
					Ledgera	4.86
					Dujis	4.78
ISIOLO	County	43.02	30.81	21.03	Vegetation greenness below normal in both sub-counties with a VCI-1 month showing extreme vegetation deficit in the last four	
	Isiolo North	43.66	31.21	21.46		

	Isiolo South	42.03	30.2	20.38	<p>weeks. However, some rains received in November should partially improve the VCI values in December.</p> <table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Isiolo</td> <td>5.68</td> </tr> <tr> <td>Isiolo North</td> <td>5.7</td> </tr> <tr> <td>Isiolo South</td> <td>5.66</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Isiolo	5.68	Isiolo North	5.7	Isiolo South	5.66		
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TANA RIVER	County	32.83	26.56	18.19	<p>Although some rains have been received in Bura sub-county, the vegetation greenness is far below normal for the period and will cause a significant drought during the next dry season unless substantial rains are received in December.</p> <table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Tana River</td> <td>6.6</td> </tr> <tr> <td>Bura</td> <td>4.99</td> </tr> <tr> <td>Galole</td> <td>8.74</td> </tr> <tr> <td>Garsen</td> <td>6.63</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Tana River	6.6	Bura	4.99	Galole	8.74	Garsen	6.63
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Garsen	6.63														
	Bura	32.12	24.36	16.2											
	Galole	37.98	31.73	22.32											
	Garsen	30.23	25.2	17.31											
KAJIADO	County	37.21	35.66	29.92	<p>There is a moderate vegetation deficit in three sub-counties. However, some significant rains were received in November and are expected to improve the VCI in December to within normal ranges, or slightly below normal.</p>										
		Kajiado Central	33.23	31.32		26.42									
		Kajiado East	33.99	31.05		23.68									
		Kajiado North	60.58	57.31		56.58									
		Kajiado South	34.82	33.8		25.6									
		Kajiado West	42.25	41.11		37.48									
LAIKIPIA	County	40.12	34.94	28.38	<p>In line with other counties, the onset of the rainy season was late and therefore the vegetation greenness is currently significantly below normal, with Laikipia North in the severe drought band. However, some good rains were received in the third week of November and are expected to increase the VCI in December.</p>										
		Laikipia East	36.97	31.74		27.63									
		Laikipia North	32.08	26.48		19.32									
		Laikipia West	56.67	52.31		45.71									
THARAKA	County	54.09	42.62	31.95	<p>As above.</p>										
		Chulga	62.34	53.11		49.47									
		Maara	62.06	55.52		49.22									
		Tharaka	48.43	34.55		19.83									
WEST POKOT	County	46.3	40.65	33.56	<p>There has been depressed rainfall with poor distribution which is determining a negative trend in the vegetation greenness, especially in Kacheliba and Sigor sub-counties. This will probably cause a drought spell during the next dry season unless more rains are received in December.</p>										
		Kacheliba	40.54	33.9		25.34									
		Kapenguria	56.54	50.66		43.28									
		Pokot South	61.78	55.99		52.89									
		Sigor	38.98	35.4		28.87									
EMBU	County	55.35	45.52	36.43	<p>Mbeere North and South are currently experiencing a moderate vegetation deficit, but the significant rains received in the last two-three weeks are expected to improve the VCI to within normal ranges in December. However, crop production will be sustained only if significant rainfall continues in December,</p>										
		Manyatta	63.49	58.41		56.66									
		Mbeere North	46.49	35.78		23.81									
		Mbeere South	55.39	43.75		31.55									
		Runyenjes	66.14	59.72		60.57									
KITUI	County	41.51	33.49	23.9	<p>The VCI-3month shows moderate deficit across all sub-counties although the significant rains received in the last couple of weeks should significantly increase the vegetation greenness in December.</p>										
		Kitui Central	49.19	43.28		37.84									
		Kitui East	41.96	33.62		25.78									
		Mwingi Central	48.33	35.01		24.58									

	Mwingi North	44.46	32.26	21.33	Crop production will perform sufficiently only if significant rains are received in December.																		
	Mwingi West	46.76	38.3	26.99																			
	Kitui Rural	35.57	32.6	26.96																			
	Kitui South	36.22	31.22	21.47																			
	Kitui West	48.36	42.14	33.18																			
MAKUENI	County	37.38	33.27	25.93	There is a severe vegetation deficit in Kibwezi East and West and a generally below normal situation across all sub-counties, except Kaiti and Mbooni. The good rains received in the last few weeks should improve the VCI in December, but sufficient crop production will be achieved only if rains continue in December.																		
	Kaiti	67.8	58.19	49.11																			
	Kibwezi East	28.33	26.48	18.69																			
	Kibwezi West	27.8	25.61	19.27																			
	Kilome	37.99	31.58	25.1																			
	Makueni	40.66	35.92	29.79																			
	Mbooni	60.65	52.3	42.07																			
MERU	County	48.85	39.55	31.86	Some moderate deficit is experienced in most sub-counties but the good rains received in the last ten days should increase the VCI in December. However, since crops are still at the initial stages of growth, they will not perform sufficiently unless significant rains are received in December.																		
	Buuri	40.28	35.4	32																			
	Central Imenti	55.14	48.31	41.21																			
	Igembe Central	53.68	40.52	30.32																			
	Igembe North	54.81	39.41	27.54																			
	Igembe South	57.45	43.69	32.61																			
	North Imenti	45.08	36.82	23.48																			
	South Imenti	63.71	58.63	53.72																			
	Tigania East	34.91	27.36	23.52																			
	Tigania West	38.83	31.6	21.33																			
NYERI	County	53.69	49.5	49.05	The vegetation greenness is within normal ranges due to the good rains received in November.																		
	Kieni	51.16	48.11	47.54																			
	Mathira	50.09	45.41	45.07																			
	Mukurweini	57.39	47.7	50.01																			
	Town	50.16	41.92	31.53																			
	Othaya	63.48	58.45	60.66																			
	Tetu	61.52	57.58	58.3																			
KILIFI	County	18.25	13.22	5.27	The rains received so far are very poor and all sub-counties, except Kilifi South, are now in the extreme vegetation deficit category, with negative values of VCI (below 0). The VCI-1 month shows staggering deficits far below 0 (with 0 being the lowest recorded vegetation deficit before this season). The next dry season will further exacerbate the already critical situation.																		
	Ganze	13.95	9.81	2.8																			
	Kaloleni	9.51	4.67	-6.57																			
	Magarini	18.92	13.99	7.53																			
	Malindi	14.89	8.83	-1.17																			
	Kilifi-North	21.02	14.26	-0.08																			
	Rabai	33.88	24.37	7.13																			
	Kilifi-South	45.49	39.2	25.22																			
					<table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Kilifi</td> <td>-6.56</td> </tr> <tr> <td>Ganze</td> <td>-7.24</td> </tr> <tr> <td>Kaloleni</td> <td>-21.93</td> </tr> <tr> <td>Magarini</td> <td>-2.15</td> </tr> <tr> <td>Malindi</td> <td>-15.77</td> </tr> <tr> <td>Kilifi-North</td> <td>-21.34</td> </tr> <tr> <td>Rabai</td> <td>-20.88</td> </tr> <tr> <td>Kilifi-South</td> <td>-6.56</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Kilifi	-6.56	Ganze	-7.24	Kaloleni	-21.93	Magarini	-2.15	Malindi	-15.77	Kilifi-North	-21.34	Rabai	-20.88	Kilifi-South	-6.56
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Kilifi-North	-21.34																						
Rabai	-20.88																						
Kilifi-South	-6.56																						
KWALE	County	19.14	15.36	7.07	Like Kilifi, Kwale County is also experiencing the worst drought situation ever recorded for this period. The crop season has already failed and the few rains received will not enable a recovery from the drought spell, especially in Kinango.																		
	Kinango	13.57	10.28	3.52																			
	Lungalunga	19.86	16.11	7.15																			
	Matuga	34.65	29.28	16.02																			

	Msambweni	41.29	35.8	25.38	<table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Kwale</td> <td>-5.59</td> </tr> <tr> <td>Kinango</td> <td>-5.93</td> </tr> <tr> <td>Lungalunga</td> <td>-7.01</td> </tr> <tr> <td>Matuga</td> <td>-5.5</td> </tr> <tr> <td>Msambweni</td> <td>4.87</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Kwale	-5.59	Kinango	-5.93	Lungalunga	-7.01	Matuga	-5.5	Msambweni	4.87
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Msambweni	4.87																
LAMU	County	19.14	14.13	6.37	The extreme vegetation deficit in Lamu County is in line with that in Kilifi and Kwale.												
	Lamu East	30.51	23.88	15.36													
	Lamu West	12.5	8.43	1.12													
					<table border="1"> <thead> <tr> <th>Administrative Unit</th> <th>VCI – 1 Month</th> </tr> </thead> <tbody> <tr> <td>Lamu</td> <td>-3.82</td> </tr> <tr> <td>Lamu East</td> <td>3.92</td> </tr> <tr> <td>Lamu West</td> <td>-8.34</td> </tr> </tbody> </table>	Administrative Unit	VCI – 1 Month	Lamu	-3.82	Lamu East	3.92	Lamu West	-8.34				
Administrative Unit	VCI – 1 Month																
Lamu	-3.82																
Lamu East	3.92																
Lamu West	-8.34																
TAITA TAVETA	County	35.88	29.77	20.92	The vegetation deficit is particularly severe in Mwatate and Voi sub-counties. Some rains were received but the distribution was poor. Crops were planted only in areas receiving some rains, but they will probably fail unless significant rains are received in December.												
	Mwatate	32.15	24.83	17.04													
	Taveta	54.48	46.18	34.01													
	Voi	28.47	23.72	16.17													
	Wundanyi	43.85	36.46	25.41													
NAROK	County	30.22	33.25	34.63	There is a slight vegetation deficit in Narok East and South, but good rains were received which should increase the VCI in December to within normal ranges.												
	Narok-East	34.57	33.54	32.56													
	EmuruaDikirr	32.42	40.39	46.33													
	Kilgoris	20.25	30.8	37.31													
	Narok North	36.02	36.33	40.26													
	Narok South	31.54	30.5	30.67													
	Narok West	29.02	34.91	34.39													

Annex 2 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 5: 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 1: Drought Phase Classification

