



**THE PRESIDENCY
MINISTRY OF DEVOLUTION AND PLANNING**

National Drought Early Warning Bulletin

December 2017



Summary

Most ASAL counties experienced some improvement in vegetation condition, water availability and access in November. In addition, production indicators in a number of counties have returned to normal. Counties where crop and livestock production indicators have improved in November include: Embu, Kwale, Laikipia, Meru, Marsabit, Narok, Samburu, Baringo, Lamu, Turkana, West Pokot and Nyeri. In these counties pasture and browse condition has generally improved, the water sources currently in use are the normal ones for this time of the year, distances to water points for both households and livestock are within or close to seasonal norms while milk production and livestock prices are improving.

However, a number of counties have not recovered fully from the effects of the previous drought and the prospects for the coming months are uncertain considering that the forecast for December 2017 indicates that most of the ASAL areas are likely to experience generally dry weather conditions during the month while the October-November-December (OND) 2017 seasonal rainfall is expected to cease during the second week of December.

Currently, four counties: Isiolo, Garissa, Kajiado and Tana River are classified in the alarm phase, while all the other counties are in normal or alert, with the trend generally being either stable or improving.

1.0. Drought status

1.1 Drought indicators

Rainfall

Near average to above average rainfall was recorded over most parts of the ASAL counties during the month of November which is the rainfall peak month for the October-November-December (OND) short rains season. Rainfall distribution, both in time and space, was also generally good in various counties especially during the first half of the month. Counties that received Normal-to-above normal rainfall amounts in November include Baringo, Kwale, West Pokot, Marsabit and Turkana

However, a number of counties such as Mandera, Samburu, Kajiado, Makueni, Kilifi, Wajir and Taita Taveta received generally depressed rainfall during the month under review which might not bring about full recovery from the effects of the recent drought. In addition highly depressed rainfall was received in Isiolo, Garissa, Tana River and Kitui.

Vegetation condition

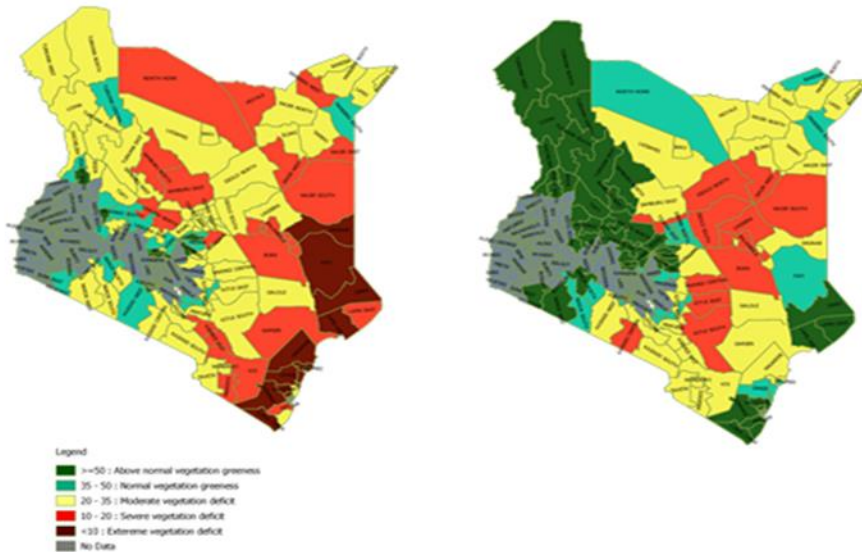
Figure 1 compares the Vegetation Condition Index (VCI) in November 2016 with that in November 2017. The maps shows that the current situation is better than the one recorded last year at end of November.

Annex 1 contains the VCI data as at 27th November 2017. Condition of vegetation in various ASAL counties has improved compared with the situation in October and is likely to improve further in area which received good rainfall in the last half of November.

- Isiolo County has remained in the severe vegetation deficit band.
- Nine counties: Mandera, Wajir, Tana River, Kajiado, Kitui, Taita Taveta, Garissa, Makueni and Kilifi; have a moderate vegetation deficit
- 13 counties: Laikipia, Meru, West Pokot, Marsabit, Embu, Nyeri, Samburu, Tharaka Nithi, Narok, Baringo, Turkana, Kwale and Lamu have either vegetation greenness above-normal or normal vegetation greenness

- Counties with either above-normal or normal vegetation greenness which have some of their sub-counties in the moderate vegetation deficit band include;
 - Laisimis, Moyale and Saku (Marsabit)
 - Samburu East (Samburu)
 - Tharaka (Tharaka Nithi)

Vegetation Condition Index (3 Month) : November 2016 & November 2017



Water sources

Water situation across the counties has improved compared to the previous month, with most open water sources being replenished to between 60 and 90 percent of their full capacity average and generally return distances from the households to water sources have significantly reduced. For example, water volume in most water pans in Baringo are above their normal levels while in Mandera the sources currently in use are the normal ones for this time of the year except Lafey and Mandera East sub counties which received below normal and currently depend on borehole as water pans in these areas did not impound water,

A few counties like Isiolo however are still experiencing severe water shortage where most shallow wells in Hawaye, Dadacha Bassa, Alango, and Dololo Dakiye remained dry in the month of November causing severe water shortages both for livestock and human consumption while in Tana River water pans in the hinterlands of the county are still dry and people are relying on traditional wells and water trucking as the main sources of their water for domestic use. In Kajiado, the recharge of pans and dams was 20 percent with most of pans expected to last for two to three weeks while dams were expected to last for about one and half months.

Livestock production

In comparison to the previous month body condition of livestock has improved significantly in many counties following regeneration of pasture and browse and reduction in trekking distances from grazing areas to water points. Majority of livestock have also returned home or are grazing closer to their homesteads following the regeneration of forage and recharge of water sources. The effect of the previous off-season rains combined with the ongoing OND rains has had a positive impact on pasture

regeneration leading to the improvement in the body condition of livestock across the county which in turn has led to the increase in milk production.

However in some counties like Kajiado, Isiolo, Garissa, Samburu, Tana River, Narok and Kitui livestock body condition has not improved considerably and ranged from poor to fair. In Isiolo for example, body condition for cattle and sheep was poor while that of camel was fair attributed to the limited state of pasture and browse condition coupled with long distances to water sources. Impact of the short rains is yet to be felt in terms of livestock productivity in most parts of Kajiado Central, South, West and a few areas in Kajiado East which have so far received little rain. In the pastoral livelihood zone in Narok cattle are in fair body condition currently but their state is likely to deteriorate because pasture has not yet regenerated and water scarcity still prevails.

Crop production

The state of crop production in the marginal agricultural counties is good to fair with most of the early planted maize in Embu, Makueni, Kwale, Meru, Narok, Kilifi, Tharaka, and Nyeri currently at knee height stage while some are at the tasseling stage. In Laikipia West Sub County where off season rains were received during the month of July, harvesting of maize was ongoing reducing households' dependence on markets. A 90 kg bag of maize was going for an average of Kshs 1,800 in Laikipia West, down from an average of Kshs 4,000 in July.

Crop production was less successful in Meru North where replanting was taking place in parts of Kianjai, Akithi and Muthara wards after a number of farms were flooded following heavy rains that fell in the area at the beginning of the month. In Marsabit county waterlogging damaged about 100 acres of cropland in Moyale and Saku sub counties while irrigation infrastructure was destroyed by the floods in Mado Adhi, Dirdima and Kinisa areas. Similarly crop performance was negatively affected following delayed onset of short rains and germination losses in a large section of the marginal mixed farming livelihood zone in Kitui County.

Farmers in the marginal agricultural counties continued to grapple with Fall Armyworm (FAW) invasion. Cases of FAW infestation were reported by the following counties: Kitui, Embu, Kwale, Baringo, Tharaka Nithi, Nyeri, Taita Taveta and Makueni. FAW targets mainly maize but also affects other crops such as sorghum, millet, pulses and vegetables.

Access to water

Rainfall received across ASAL counties eased the strain of accessing water for both domestic and livestock use. In most semi-arid counties the distances to water sources are at or slightly above the long term mean. However despite a reduction in average return distances to the main water sources in November compared to October, the current distances are still above the long term mean in counties such as: Garissa, Kilifi, Tana River, Kajiado, Taita Taveta, Makueni and Mandera, implying that recharge of surface water sources such as pans and dams in these areas was below normal

For instance, in Garissa, the average return distance from household to water sources reduced from 14 km in October to 6 km in November, but the current distance is above the long term average (LTA) of 3.7 km. In Kajiado, the average household distance to water decreased from 6.4 km in October to 5.2 km, while the average distance for livestock fell from 10.3 km to 8.0, however both were above the LTA of 4.4 km and 6.0 km for households and livestock respectively

Terms of trade

Significant improvement in the terms of trade (ToT) was realized in counties like Laikipia, Marsabit, Meru, Samburu and Kwale, 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 November compared to the previous month. The shift in ToT can be attributed to the drop in maize prices in most of the counties. In Laikipia, proceeds from the sale of a goat could purchase 72.4 kg of maize compared to 62 kg in October an increase by 17 percent. In Samburu, a rise in livestock prices coupled with a decrease in maize prices favoured pastoralists' purchasing power. In Kwale, increase in availability of casual labour opportunities during the month led to a rise in households' purchasing power by a 56.2 percent margin.

On the other hand, in Kilifi County, ToT for the month under review were unfavourable since the proceeds from the sale of a goat could purchase 52 kg of maize in November compared with the LTA of 68.3 kg which is 24 percent below the long term mean. Generally ToT are expected to gradually improve as maize prices are likely to fall with harvesting taking place while livestock prices are expected to increase with improved body condition of livestock. Table 1 shows the trend in the terms of trade (ToT) in ASAL counties.

Table 1.0: Terms of trade, November 2017

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

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.

Overall, the trend in most ASAL counties is improving or stable. Eight counties have MUAC rates above the 15 percent threshold. These counties include: Garissa, Isiolo, Kajiado, Mandera, Marsabit, Meru (Meru North), Samburu and Wajir. The highest MUAC rate in November was in Isiolo, at 30.8 percent, while other counties with rates above 20 percent were: Mandera - 29.5 percent, Meru North - 24.3 percent and Samburu at 20.2 percent. The largest decrease in MUAC rate in November compared with October was in Tana River by 39 percent and in Samburu by 17 percent while in Wajir the rates fell by 14 percent.

In Kwale, the proportion of children at risk of malnutrition increased slightly by 11.8 percent from 6.8 percent in October to 7.6 percent in November. The current rate was also the highest recorded this year which was largely attributed to the interruption of health services during the just concluded nurses' strike. In Kajiado the average MUAC rate rose further to 18 percent from 17.6 percent recorded in October but the situation appears worse in Kajiado West and South where reports from ongoing nutrition outreach programmes show severely malnutrition rates at 7 percent, moderate malnutrition is at 31 percent while 53 percent of the pregnant and lactating mothers are malnourished. Table 2 summarizes the trend in MUAC rates across the ASAL counties.

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

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

1.2 Drought phase classification

Currently there are 12 counties in normal, seven in alert and four in alarm, compared with six in normal, 12 in alert and five in the alarm drought phase in October. Although key drought indicators in a number of counties have not yet returned to normal, significant improvement has been observed in most of the counties with the trend in all but four counties being either stable or improving. Table 3 shows the trend in drought status in the 23 ASAL counties.

Table 3.0: Drought phase classification, November 2017

Drought status	Trend		
	Improving	Stable	Worsening
Normal	Embu (Mbeere) Kwale Laikipia	Baringo Lamu Turkana	

	Meru (Meru North) Marsabit Narok Samburu	West Pokot Nyeri (Kieni)	
Alert	Tharaka Nithi (Tharaka) Wajir Kitui Makueni Taita Taveta		Kilifi Mandera
Alarm	Garissa Kajiado		Isiolo Tana River
Emergency			
Recovery			

2.0. Other food security challenges

Generally no major insecurity incidences were reported in November. In Kitui, resource based conflicts between pastoralists from Tana River County and locals were reported in Ngomeni ward; Mwingi North Sub County. Tension in the Tana Delta was reported to be high due to large influx of livestock in the area as result of poor pasture in pastoral areas.

A few cases of flooding were reported in Marsabit, Meru and Narok which affected access to markets and services and also damaged infrastructure and property, while human wildlife conflict was reported by three counties; Baringo, Laikipia and Taita Taveta

3.0. Projected food security situation

Fair to good rainfall performance expected in ASAL areas is likely to support further regeneration of pasture and browse which will lead to some slight improvement in livestock body condition and production.

Availability of maize at lower prices from areas where harvesting of maize as started might stabilize the terms of trade for pastoralists. Terms of trade will probably improve further as a result of the expected increase in goat prices during December festive season.

However rainfall over most ASAL regions is forecasted to cease during the second week of December hence the level of recovery could be modest and may perhaps be inadequate to push households through the next dry season from January to April.

4.0. 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

Continuous monitoring and scouting for signs and symptoms of the Fall Armyworm (FAW) to mitigate against the spread/threat of this new migratory 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

Besides the immediate interventions required, medium to long-term interventions that will build community resilience in line with the Common Programme Framework for Ending Drought Emergencies should be stepped up

Annex 1.0: Vegetation Condition Index (VCI) as at 27th November 2017

ADMINISTRATIVE UNIT		VEGETATION GREENNESS		DROUGHT CATEGORIES/REMARKS		
COUNTY	Sub County	VCI-3 month As at 30 th October 2017	VCI-3 month As at 27 th Nov 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	77.84	80.96	Rainfall estimate shows that most of the county received 100-150% of LTA for period 25 th Oct to 22 nd Nov. 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	75.96	76.84			
	Eldama	75.24	65.06			
	Mogotio	78.21	78.03			
	North	73.28	74.33			
	South	83.15	84.56			
	Tiaty	78.24	86.87			
MANDERA	County	32.99	32.35	So far rains have been close to the LTA for the period in part of Banissa while most other areas received about 50-80% of LTA. The extreme south area (Kutulo) received enhanced rainfall above 100% of LTA. The VCI end of November show that apart Banissa and M South, the vegetation greenness is below normal for the period. Hence, unless more rains are received in end of November and beginning of December, the vegetation will probably not recover to normal ranges in many areas with consequent unfolding of a significant drought in the course of the next dry season		
	Banissa	40.13	44.86			
	M East	21.38	25.03			
	Lafey	25.48	25.76			
	M North	29.74	28.88			
	M South	41.8	38.5			
	M West	31.98	29			
TURKANA	County	51.33	71.13	In the last month the rainfall received has been above normal especially in T. South, East and Central while the northern area received slightly below LTA. The good rainfall received since July has continued to increase the VCI, which is currently well above the normal ranges for the period.		
	T Central	54.71	63.44			
	T. East	63.78	79.36			
	T. Loima	43.72	60.25			
	T. North	51.61	83.49			
	T. South	46.23	59.58			
	T. West	47.86	64.65			
MARSABIT	County	32.29	38.08	Above/ normal average rainfall received in most of N. Horr, while below normal rainfall in areas southern Laisamis and northern Moyale. This situation could lead to significant drought hotspots spell during the dry season.		
	Laisaimis	26.21	30.46			
	Moyale	20.07	24.49			
	N. Horr	39.11	46.57			
	Saku	26.75	24.31			
WAJIR	County	24.63	23.18	Very good rainfall (normal/above normal) received across the county but there are hotspots below normal in part of W. South (especially in proximity with the border of Garissa/ Ladgera). Based on the rainfall estimate, it is expected that the VCI will significantly improve in the next weeks in W. North, East and West.		
	W East	30.65	30.55			
	W. Eldas	24.22	20.68			
	W. North	33.45	32.38			
	W. South	18.37	18.01			
	W. Torbaj	34.8	30.33			
	W West	17.69	16.61			
SAMBURU	County	32.56	46.36	The tip of S. North (areas bordering Turkana and Marsabit) received above average rainfall while two large hotspots in S. West (around Barsaloi) and East received only 50-80% of normal. Unless more rains are received, the recovery in S. East from the last drought spell may not be sufficient to avoid large hotspots with vegetation deficits in the course of the next dry season.		
	S East	16.71	30.81			
	S. North	42.64	58.03			
	S. West	62.68	69.72			

ADMINISTRATIVE UNIT		VEGETATION GREENNESS		DROUGHT CATEGORIES/REMARKS		
COUNTY	Sub County	VCI-3 month As at 30 th October 2017	VCI-3 month As at 27 th November 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
GARISSA	County	31.5	31.15	The northern part (Ladgera, Balambala and part of Dujis) received scanty rains with only 40-60% of LTA, while Fafi and Ijara received good rainfall in most areas. However, a hotspot is noted in Ijara in proximity with its border with Tana River. The current VCI confirms severe vegetation deficit in Balambala and Ladgera which will eventually result in significant drought in the two sub-counties in the course of the next dry season (unless other rains will be received end November/December).		
	Balambala	14.06	11.27			
	Daadab	23.63	23.67			
	Fafi	35.98	38.09			
	Ijara	52.76	50.69			
	Ladgera	13.24	11.16			
	Dujis	42.67	33.57			
ISIOLO	County	13.63	12.63	Only the tip of Isiolo North received good rains while the majority of the county got only 40-80% of normal rains and less in hotspots especially in I. South (20-40%). With this scenario, a severe drought is expected in the next dry season, unless significant rains are received at the end of November and beginning of December		
	I. North	13.36	12.95			
	I. South	14.05	12.14			
TANA RIVER	County	26.05	21.14	The northern part has received depressed rains and as a result Bura sub-county is still in the severe vegetation deficit band with negative trend. A large area across Galole and Garsen received above 100% rainfall that should significantly improve the VCI in the next weeks in these two sub-counties		
	Bura	19.7	14.7			
	Galole	28.46	21.89			
	Garsen	29.93	26.13			
KAJIADO	County	23.09	23.61	So far the rainfall received is below normal (60-80) with worst hotspots in K. South. Also in this case full recovery will not happen unless other rains are received before the end of the rainy season.		
	K. Central	19.07	18.75			
	K. East	25.43	27.66			
	K. North	35.32	42.37			
	K. South	22.84	20.26			
	K. West	24.29	26.89			
LAIKIPIA	County	54.47	61.26	Because of good off-season rains all sub-counties are above normal ranges for the period. However so far the rainy season is performing below average especially in L. North and East.		
	L. East	46.76	50.13			
	L. North	45.63	54.27			
	L. West	74.71	79.71			
THARAKA NITHI	County	31.09	39.58	Vegetation greenness within normal ranges for the period except for Tharaka sub-county that is in the moderate vegetation deficit band. However, good rains have been received that should further improve the VCI in the next weeks		
	Chulga	42.99	51.91			
	Maara	52.16	58.24			
	Tharaka	19.87	28.97			
W POKOT	County	65.23	72.84	Due to significant off-season rains, the vegetation greenness is still above normal ranges for the period in all sub-counties		
	Kacheliba	63.8	72.62			
	Kapenguria	65.59	68.57			
	Pokot South	70.2	72.98			
	Sigor	64.6	76.77			
EMBU	County	44.31	53.62	Vegetation greenness within/ above normal ranges for the period		
	Manyatta	61.41	66.04			
	Mbeere North	40.73	51.17			
	Mbeere South	37.9	48.91			
	Runyenjes	57.03	62.72			

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					10 to 20	Severe vegetation deficit
					<10	Extreme vegetation deficit
KITUI	County	24.34	20.62	The vegetation greenness is continuing to worsen in all sub-counties except for K. Central. As a result, K. East, South, and Mwingi Central are now in the severe deficit band. So far the rainy season has been poor with large areas receiving only 40 -80 % of normal rainfall. However, good rains received in Mwingi North should improve the VCI in this sub-county		
	Kitui Central	47.33	48.05			
	Kitui East	20.2	14.65			
	Mwingi Central	19.77	16.82			
	Mwingi North	22.61	24.19			
	Mwingi West	41.59	33.67			
	Kitui Rural	26.7	27.8			
	Kitui South	23.33	18.82			
	Kitui West	39.09	26.69			
MAKUENI	County	35.49	30.28	Vegetation greenness with worsening trend with four sub-counties in the moderate deficit band. The rainy season has performed poorly so far and deficit in precipitations are particularly significant in Kibwezi East and relatively better in Kibwezi East		
	Kaiti	52.1	45.41			
	Kibwezi East	33.4	26.35			
	Kibwezi West	26.39	23.83			
	Kilome	34.27	34.93			
	Makueni	38.68	31.88			
	Mbooni	48.84	40.56			
MERU	County	38.84	47.68	Positive trend with recovery to normal vegetation greenness across all county. However, Meru North in proximity with Isiolo border, part of Tigania and part of North Imenti received poor rainfall so far		
	Buuri	41.82	51.94			
	Central Imenti	47.34	52.86			
	Igembe Central	32.74	40.69			
	Igembe North	31.6	43.27			
	Igembe South	33.34	43.45			
	North Imenti	41.53	44.62			
	South Imenti	58.03	64.04			
	Tigania East	35.85	45.06			
	Tigania West	33.53	40.43			
NYERI	County	61.03	61.72	Vegetation greenness within /above normal ranges for the period		
	Kieni	56.12	60.91			
	Mathira	70.12	68.06			
	Mukurweini	62.21	49.17			
	Town	70.9	65.93			
	Othaya	65.63	62.5			
	Tetu	65.31	61.62			
KILIFI	County	37.5	34.96	Good rains received in October / November have improved the situation substantially but not in Magarini and Malindi sub-counties, where only scanty rains have been received so far		
	Ganze	34.89	35.4			
	Kaloleni	49.57	52.65			
	Magarini	35.93	29.92			
	Malindi	29.15	29.73			
	Kilifi-North	43.04	47.63			
	Rabai	50.78	53.05			
	Kilifi-South	56.7	60.57			

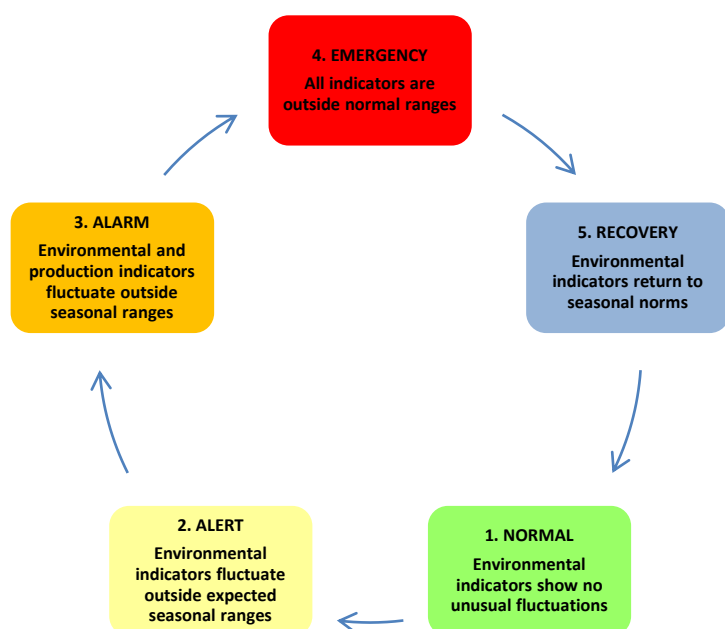
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					21 to 34	Moderate vegetation deficit
					10 to 20	Severe vegetation deficit
					<10	Extreme vegetation deficit
KWALE	County	55.36	57.91	Rainfall received in the last month is above LTA and the vegetation greenness is now above normal ranges for the period		
	Kinango	55.47	57.3			
	Lungalunga	52.32	57.67			
	Matuga	62.1	62.16			
	Msambweni	51.14	55.34			
LAMU	County	62.75	56.62	Both sub-counties experiencing above-normal vegetation greenness.		
	Lamu East	70.05	63.37			
	Lamu West	58.53	52.71			
TAITA T.	County	32.26	29.13	Moderate deficit in all sub-counties with worsening trend. The rains received in November were quite poor in Wundanyi and Taveta.		
	Mwatate	27.88	25.8			
	Taveta	32.47	28.82			
	Voi	34.02	30.82			
	Wundanyi	25.49	22.22			
NAROK	County	46.02	52.49	Full recovery of vegetation greenness in Narok. However Narok north and large part of Narok South have received poor rains in November		
	Narok-East	37.1	40.92			
	Emurua Dikirr	40.97	63.14			
	Kilgoris	44.46	61.53			
	Narok-North	45.37	50.02			
	Narok-South	41.33	47.42			
	Narok-West	55.25	58.12			

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 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.

Figure 1.0: Drought Phase Classification



Annex 3.0 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