



OCTOBER TO DECEMBER 2022 SEASON SUMMARY REPORT

DRIVE INDEX BASED LIVESTOCK TAKAFUL (IBLT)

1. BACKGROUND

DRIVE is a Horn of Africa project funded by the World Bank and implemented by governments with an aim of enhancing pastoralists' access to financial services for drought risk mitigation, include them in the value chains, and facilitate the livestock trade in the Horn of Africa. DRIVE was launched in 31 August 2022 and has two components:

- Component I: Package of financial services for climate resilience
- Component II: Livestock Value Chains and Trade Facilitation.

ZEP-RE (PTA Reinsurance Company) oversees Component I implementation in four countries (Kenya, Somalia, Ethiopia, and Djibouti). This component has insurance, savings, digital accounts, and platform coordination. Component II is implemented by the Ministry of Finance and Ministry of Livestock, Forestry and Range. In Somalia, the government is targeting the implementation of the DRIVE Project in all arid and semi-arid lands (ASAL) with an aim of reaching pastoralists with resilience building tools against drought as well as develop capacity for the livestock value chain development. The IBLI product was developed to be used to back pastoralists' savings in the case of severe drought. It is designed to keep animals alive in an affordable way and to rapidly trigger and distribute payouts without the need for evidence of livestock dying. The IBLI product is designed based on a forage scarcity index developed using anomalies in the Normalized Difference Vegetation Index (NDVI) based on eVIIRS data from 2002 to 2021. Table 1 below summarizes the product features that has been distributed in Somalia for the 2022 – 2023 season.

Table 1: Summary Product Description

Feature	Description
Index	The index is a Normalized Difference Vegetation Index – NDVI, using remote-sensed data (from satellites) on pasture levels.
Coverage period	The monitoring period for Somalia is based on the length of the vegetation growing season only (rainy season). Short Rains – October – December (Deyr) Long Rains – March – June (Gu) While the contracts are issued on an annual basis, covering all the seasons:
Unit Areas of Coverage (Insurance) [UAI]	Several UAIs per region determined based on the homogeneity of vegetation conditions and pastoral migration extents. Also, rangeland dominance, forage availability, seasonality and drought history are also considered.
Trigger & Exit	The trigger level has been set at the 25 th percentile and the exit level at the 5 th percentile. The selected trigger corresponds to a return period, which expresses the frequency with which the contract would have triggered based on the selected threshold and the underlying NDVI data. This

	model adopts 1 in 4 seasons return period for the trigger (25 th percentile) and an Exit threshold at 1 in 20 seasons return period (5 th percentile).
NDVI Data	EVIIRs 375m

This report covers the first payout of the Short Rains, Short Dry season covering the months of October 2022 – December 2022. For this season only 5 UAs were covered i.e., Burtinle, Garoowe, Iskushuban, Qardho and Sanaag.

2. UNDERWRITING AND CLAIM DETAILS

UNDERWRITING DETAILS

Insured:	Pastoralists in the Puntland region of Somalia against prolonged forage scarcity ONLY because of drought.
Product description:	The product’s main aim is to provide cover against prolonged forage scarcity ONLY because of a drought. It triggers payment to pastoralists to help maintain their livestock in the face of severe forage scarcity. The payment amount depends on the value derived from an the NDVI index.
Coverage period:	1 st October 2022 to 30 th September 2023
Calculation period:	1 st October 2022 to 31 st December 2022 (Short rains, Phase 1 & 2)
Type of Cover:	Index based livestock takaful based on Normalized Difference Vegetative Index, NDVI
Scope of Cover (Perils):	Forage scarcity because of drought.
Areas of Cover:	Somalia (Burtinle, Garoowe, Iskushuban, Qardho and Sanaag)
No. of insured farmers:	1,787
Sum Insured:	USD 1,023,990
Premium:	USD 185,213

CLAIM DETAILS

Period Of Loss:	1 st October 2022 to 31 st December 2022 (Short Rains, Phase 1 & 2)
Date Reported:	February 2023
Calculated payout:	Nil
Loss Ratio:	USD 0 / USD 185,213 = 0%

Following the concluded short rains season and the finalization of the payout calculations, **the early payout for October to December 2022 season for the 1,787 pastoralists covered in the 5 regions in Puntland is nil.**

Table 1: Summary of the region's coverage statistics

Unit Area of Coverage	Pastoralists	Total Animals Covered	Total TLUs ¹	Pastoralists payment	Additional ² Subsidy (USD)	Total Premiums (USD)	Total Sum Covered (USD)	Total Claims Payout (USD)
Burtinle	60	2,920	2,864	776	63	7,821	45,000	0
Garowe	817	33,619	33,202	10,564	3,144	108,782	612,750	0
Iskushuban	540	6,442	648	1,675	867	17,617	97,200	0
Qardho	260	8,257	1,244	3,215	2,622	34,769	186,540	0
Sanaag	110	5,500	550	1,422	2,006	16,224	82,500	0
Total	1,787	56,738	38,508	17,651	8,702	185,213	1,023,990	0

A special note for the DRIVE project, is that the takaful product was complemented by a savings product that gives an opportunity to the pastoralists to have some financial resources to cover themselves in cases of not so severe drought, at this time in the case of the five coverage areas. The enrollment bonus of USD 78,400 has been paid out not only as a savings incentive but also as an early response resilience mechanism to protect against the initial effects of drought. The savings amounts paid out are as shown in the table below. Out of the 1,787 registered pastoralists, 1,568 have been paid. The remaining pastoralists will be paid once their bank details have been received.

Table 3: Summary of the enrolment savings bonus paid

UAI	Registered Pastoralists	Paid Pastoralists	Amount Paid (USD)
Burtinle	60	60	3,000
Garowe	817	800	40,000
Iskushuban	540	417	20,850
Qardho	260	186	9,300
Sanaag	110	105	5,250
Total	1,787	1,568	78,400

¹ TLU - Tropical Livestock Unit, is a unit for measuring monetary value of covered livestock, 1 TLU = 1 cow or 10 goats/sheep or 0.7 camel.

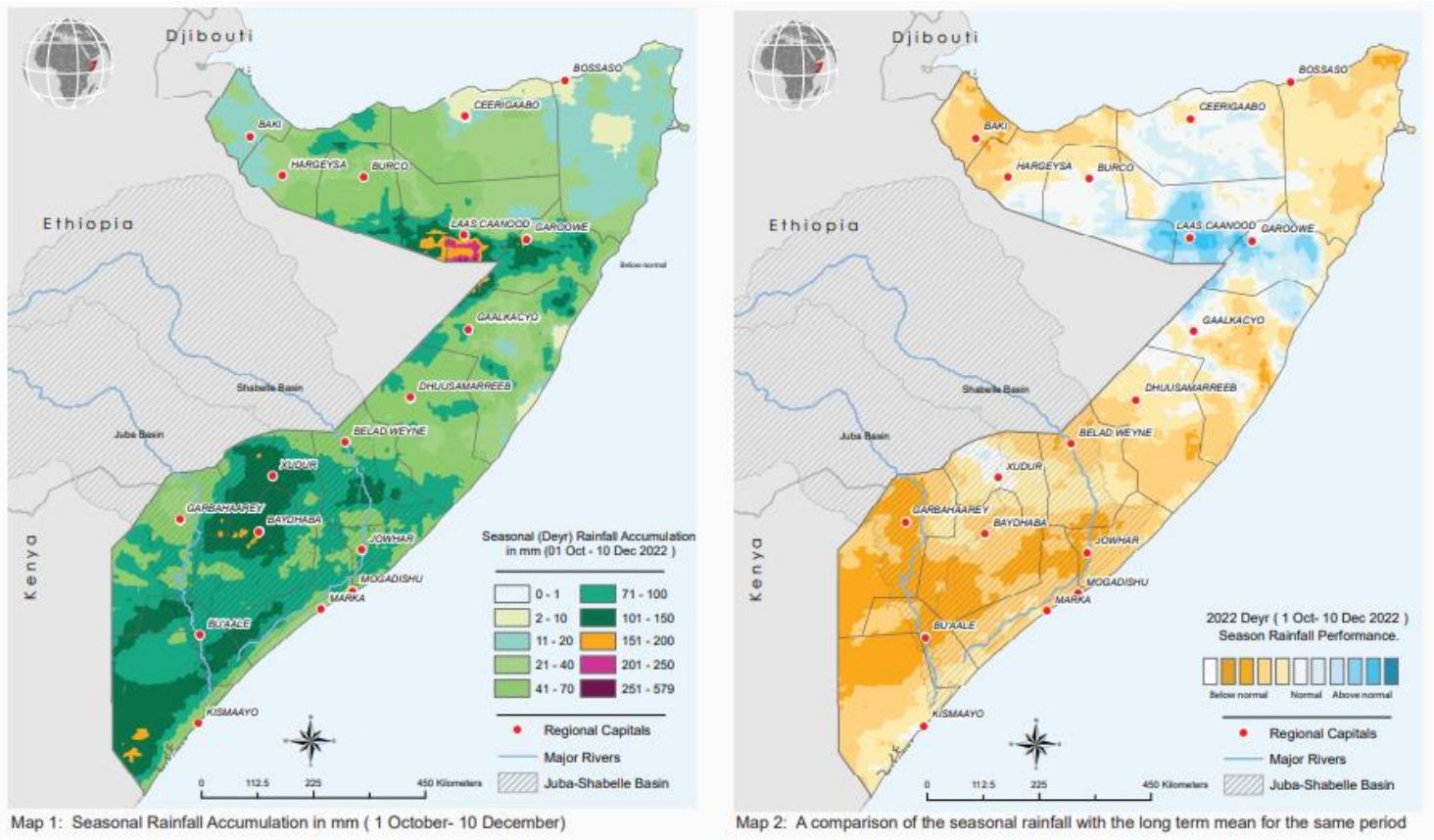
² The product was originally priced using data from the eMODIS satellite which was decommissioned by NASA. This necessitated a repricing to be done using eVIIRS data, which is the same data set used to calculate the payouts. Following the repricing, the total subsidy increased to 95% from 90% since the pastoralists had already paid for insurance. This necessitated an additional payment from the government of USD 8,702

3. DROUGHT SITUATION³

The October to December 2022 *Deyr* rainfall season ended recording a historic fifth consecutive poor rainfall season and third failed *Deyr* season, extending the longest drought on record (1981-2022) in Somalia. The poor seasonal rainfall was marked by long delays in the onset of rains, erratic rainfall distribution, and significant rainfall deficits. According to CHIRPS December, the cumulative rainfall for most of southern Somalia ranged from 50-150 millimeters (mm), which is only 30 to 75 percent of the long-term average precipitation in the southern regions. Similarly, while much of central and northwestern Somalia received roughly 25-75 mm of rainfall between October and December, the precipitation was generally 60 to 90 percent of the average.

The season started late and poorly distributed across most parts of the country. The figure below shows 2 maps; map 1 shows the cumulative rainfall amounts for 2022 *Deyr* season (1 October to 10 December), while map 2 shows a comparison of the seasonal rainfall with the long term mean for the same period both based on satellite rainfall estimates data.

Figure 1: Maps showing the rainfall amounts in the various regions in Somalia⁴



Normal to above normal rains are observed in a few places in **Puntland** and Somaliland and localized areas in Mudug, Galgaduud and Bakool regions while below average rains are observed in most parts of the country.

In the northeast, where most of the areas covered are situated, *Deyr* rainfall was delayed and generally had mixed performance across most pastoral livelihood zones of Bari (**Qardho & Iskushuban**), Nugaal (**Garowe & Burtinle**), and northern Mudug from October to December. According to CHIRPS estimates, Bari received 10-25 mm of cumulative rainfall, while coastal and adjacent pastoral areas received 25-50 mm, which are roughly 60 to 90 percent of the long-term

³ [Somalia - Seasonal Monitor: Thu, 2023-01-05 | Famine Early Warning Systems Network \(fews.net\)](https://www.fews.net/somalia-seasonal-monitor-thu-2023-01-05)

⁴ <https://reliefweb.int/report/somalia/somalia-wash-cluster-2022-deyr-rainfall-performance-15th-december-2022>

average rainfall performance in the northeast. In contrast, rainfall totals in Jerriban of northern Mudug and most of Nugaal were 25-100 mm and 50-150 mm, respectively, 110 to 150 percent of the average. **However, local ground-truthing indicates rainfall totals were closer to average or only slightly above average in these regions.** In late December, near-average to above-average rainfall was reported in northern parts of *Hawd* and localized areas of *Addun Pastoral* and atypically moderate-to-heavy rainfall in coastal livelihood zones, **most regions of the northeast experienced below-average Deyr seasonal rainfall.** As a result, drought conditions prevail in most northeastern areas, especially *Northern Inland* and *Addun Pastoral* areas where rangeland and water resources remain below average and atypical livestock movements are increasing.

In the northwest, the October-December *Deyr* rainfall was late and poorly distributed across most pastoral and agropastoral livelihood zones of Awdal, Woqooyi Galbeed, Togdheer, **Sanaag**, and Sool regions. According to CHIRPS data, most northwestern regions received 25-75 mm of rainfall, which is 10-50 mm below the local long-term average for *Deyr seasonal* rainfall. However, local field reports indicate rainfall was closer to average to only slightly above average in these areas. The erratic and short length of the rainfall season negatively impacted the availability of water, pasture, and browse, triggering significant internal and external livestock migration to areas that received heavier rainfall. Additionally, atypical light to moderate rains in late December in coastal and adjacent areas of **Sanaag**, Woqooyi Galbeed, and Awdal regions will provide some relief to the area.

4. DATA AND MAPS

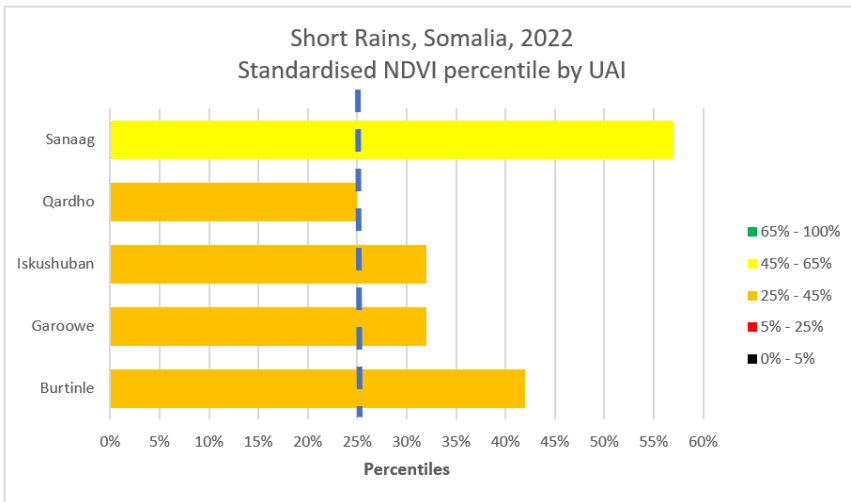
The table below shows a brief description of the data set use

Table 3: Summary of the data characteristics

Data Source & Data Characteristic	
ITEM	Description
Data Source	eVIIRS
Characteristics	Visible and infrared imagery along with global observations of Earth’s land, atmosphere, cryosphere, and ocean.
Historical time series length	10 years but with 10 years backwards normalization
Spatial Resolution	375 m X 375 m
Temporal Resolution	7- or 10-day data composited data sets updated every 5 days
Data Availability (free or premium)	Free
Instruments	Suomi National Polar-orbiting Partnership (Suomi NPP) and NOAA-20 satellites

The early payout for October to December 2022 season for the 1,787 pastoralists covered in the 5 regions in Puntland is nil. The graph below shows the percentiles per UAI for historical data (2002 – 2021) and for the period under review (October – December 2022). From the graph, there was no expectation of trigger based on the NDVI levels, with Qardho coming close to triggering a payout at 25%. Key to note that is that the percentiles are representative of the levels of the NDVI during the period under observation. This has been done cumulatively for October – December 2022 and compared with the long-term distribution. However, the percentiles cannot be directly used to convert to a payout amount for each district due to the technicalities of the z-score and payout calculation. From the graph below, none of the UAIs covered in Somalia triggered a payout as they all show figures above 25%.

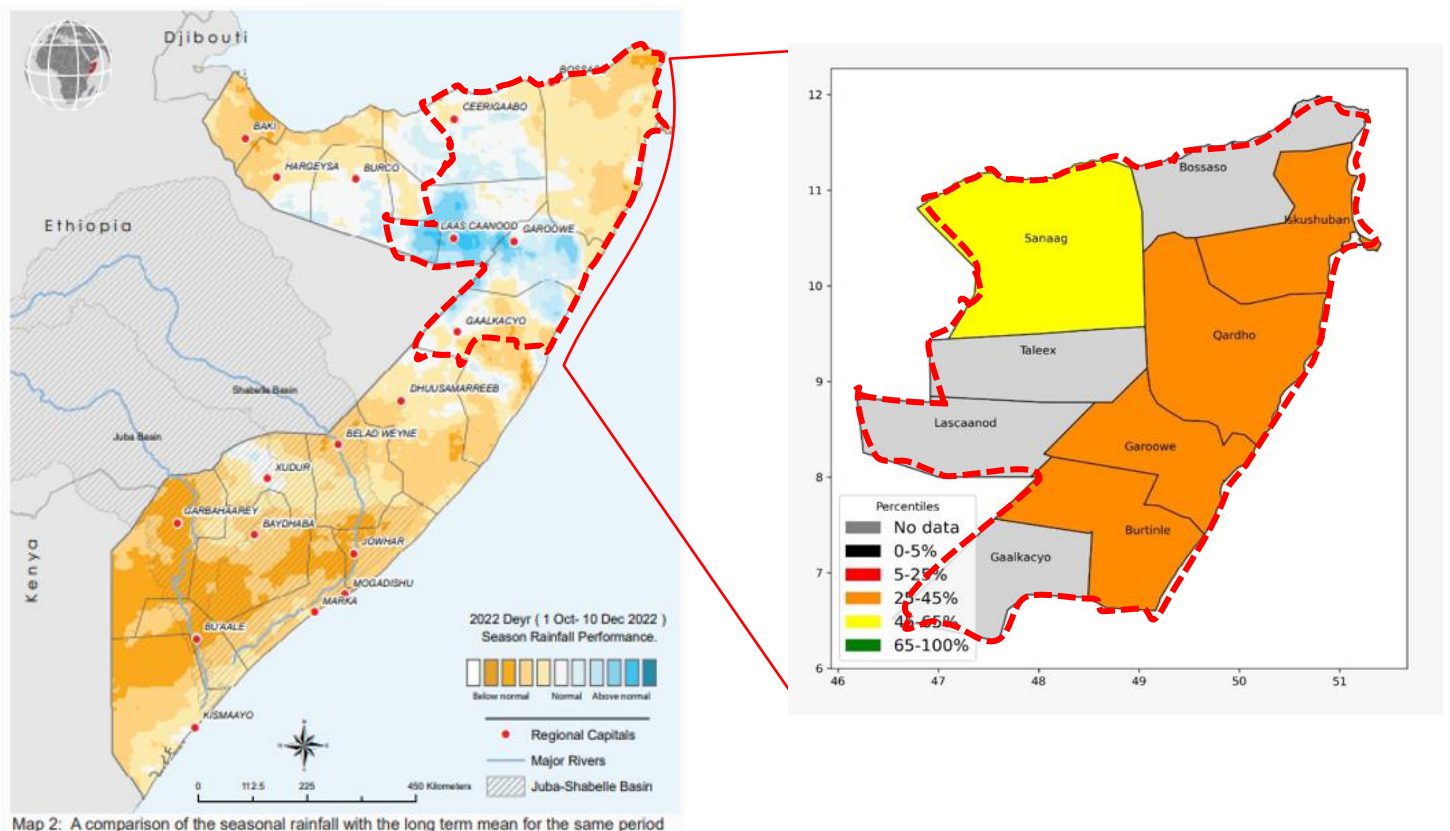
Figure 2: NDVI Data by UAIs in for the October to December season



While reports show that there was significant drought in Somalia, the NDVI data and the graph above shows that the drought was not significant enough to trigger a payout in the covered areas.

A combination of the rainfall map that shows a comparison of the seasonal rainfall with the long term mean for the October to December 2022 season; and the NDVI maps for the regions that we distributed the product in the season corroborates that the payout for the areas covered is zero.

Figure 3: Maps showing the UAIs covered in the Puntland region and the cumulative NDVI percentiles.



Further below, the figure shows how the drought has settled in Somalia as at end of December 2022. A separate graphic is attached to this report showing the progression of the drought from October 2022 to December 2022.

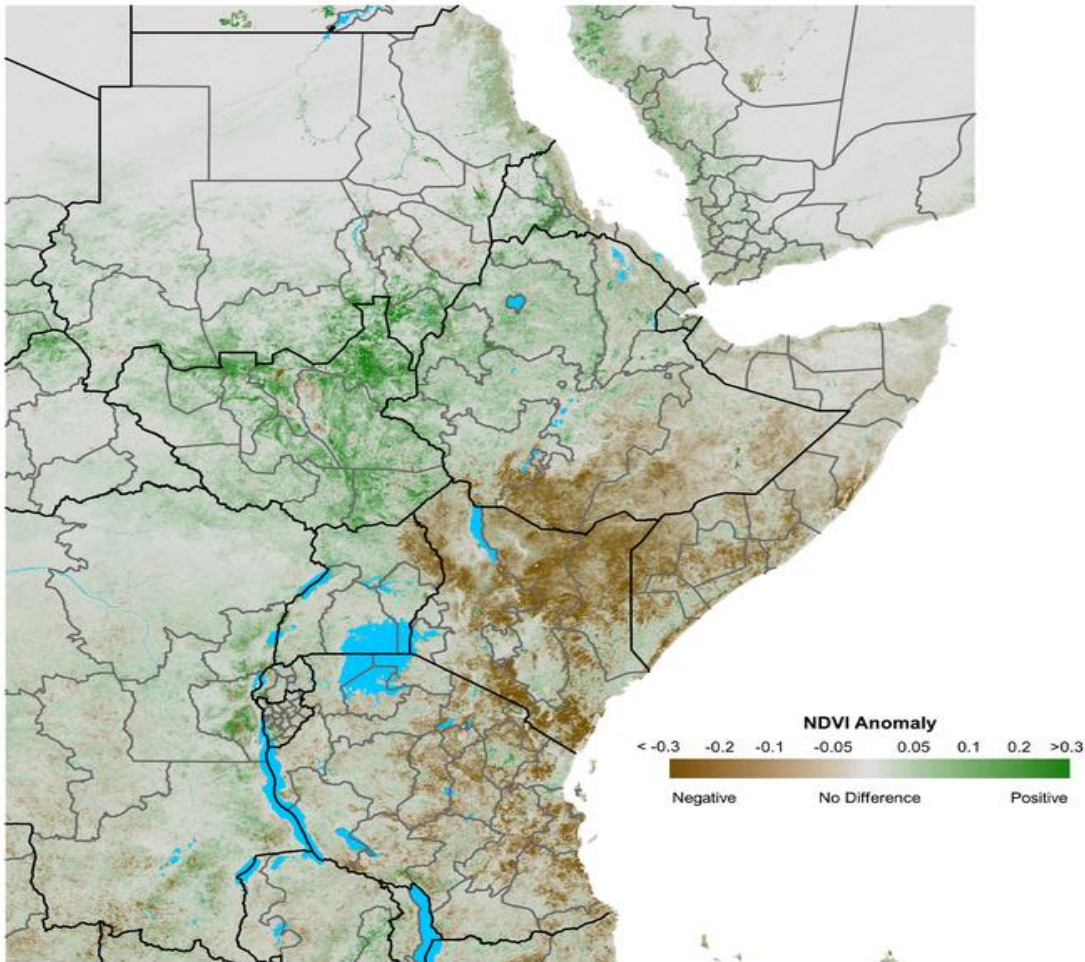
Progression of drought for the 12 weeks in the October 2022 – December 2022 season in East Africa, is consistent with the payout results indicated in this report. The **brown** is the negative index reading (NDVI) showing a lack of vegetation, **grey** index is where there is no difference and **green** is the positive index. In the Puntland area, the index is grey indicating no difference, hence no payout.

By the end of December 2022, the drought had shifted south with the southern part of Somalia more affected than the Northern part.

Figure 4: NDVI Anomaly Map as of 31 December 2022

East Africa NDVI Anomaly

2022 minus Mean (2012 - 2021)
Period 72 / Dec 21 - 31, 2022



Map Produced by USGS/EROS

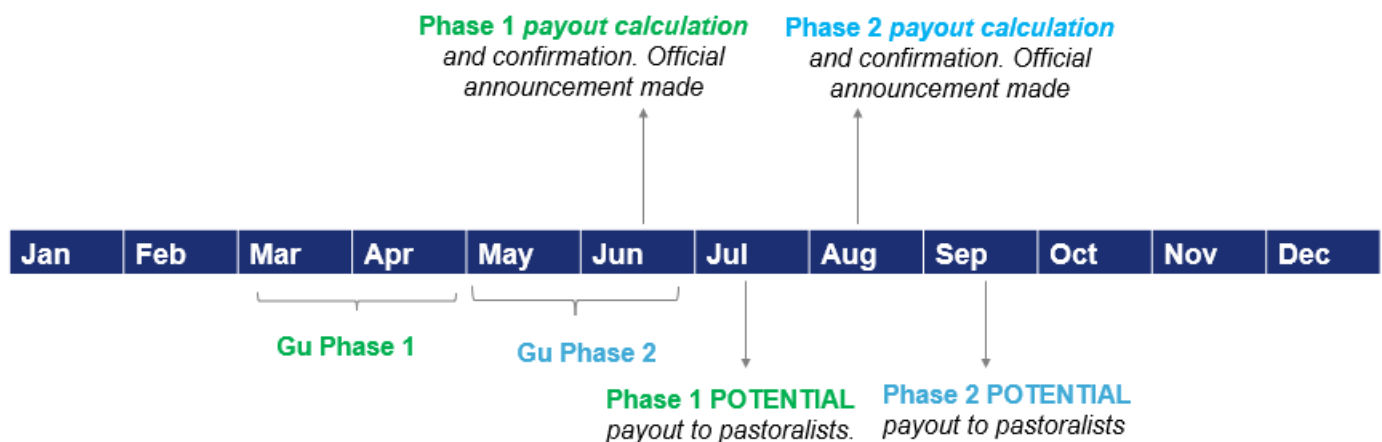
Source: eVIIRS 375m



5. SEASONS OUTCOME

The next long rains, Gu season, has two phases, whereby Phase 1 covers the months of March and April, while Phase 2 covers May and June. If the vegetation levels fall below the index threshold, the season's outcome will be confirmed one month later in each of the phases and potential pay-outs made the following month. This is summarized in the figure below.

Figure 5: Season's payout calculation



ANNEX TO THIS REPORT

1. Term sheet with the index
2. Z-Score verification report from independent calculation agent, Planet
3. Graphic showing the progression of the drought from October 2022 to December 2022 in the Horn of Africa