

# **World Food Programme's Syria Climate Catastrophe Parametric product**

**By**

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## **Abstract**

To support its drought response efforts in Syria, the World Food Programme (WFP) developed a climate risk insurance policy. Insurance payouts fund food assistance operations implemented by WFP across three Areas of Interest (AOIs), protecting approximately 240,000 people from greater food insecurity. The insurance policy covers extreme drought events and aims to mitigate harmful coping mechanisms. This initiative is part of WFP's broader strategy to strengthen disaster preparedness and enable early interventions.

### Overview

Peril/s	Drought (agricultural)
Geography/Region	Three Areas of Interest (AOI) in Syria - Al-Hasakah (AOI 1), Aleppo, Idleb, Central West Syria, (AOI 2) and South Syria Daraa (AOI 3)
Years of coverage	1 year policy incepted 1 January 2025 and ended on 18 April 2025
Exposure covered	Rainfed winter crops (majority barley and wheat) – proxy for vulnerable populations living in a conflict context
Trigger type/s	Pure parametric
Trigger mechanism/s	Normalized Difference Vegetation Index (NDVI) anomaly
Key information	See Annex
Annual Limit	Approx. EUR 8.4 million
Issuer	Howdens (Broker), Hiscox (Insurer)
Cedant	WFP HQ
Parties Involved	Product design and structuring: Swiss Re Satellite data: Planet

## DETAIL

### Motivation

#### What is the motivation behind this product?

The motivation behind the WFP's Syria product originates from the urgent need to protect climate-vulnerable communities in fragile and conflict-prone settings from the impacts of drought and escalating food insecurity. Like WFP's Sahel Climate Catastrophe Layer (SCCL), this initiative reflects WFP's commitment to strengthening community resilience to climate shocks that lead to poor harvests - particularly in fragile contexts where such shocks can worsen already severe humanitarian needs.

#### What is the context for wanting to obtain a parametric insurance product?

WFP's interest in parametric insurance aligns with its broader climate and disaster risk financing (DRF) strategy to enhance disaster preparedness and response through pre-arranged funding. Key reasons for adopting parametric insurance include:

1. **Timely and Predictable Response** – Fast payouts based on predefined triggers (e.g., drought indices) enable quicker, more reliable responses compared to traditional aid, which often faces delays and hinges on reactive funding decisions.
2. **Efficiency and Impact** – Pre-arranged financing eliminates delays from post-disaster evaluation of needs, ensuring immediate resource availability and cost-effective disaster response.
3. **Enhanced Preparedness** – Securing financial protection in advance promotes the development of pre-defined response plans, strengthening WFP's ability to implement early interventions, and mitigating the worst effects of climate extremes.

#### What was the role and perception of basis risk?

Parametric insurance inherently carries basis risk, meaning discrepancies can arise between the index used to measure the severity of the drought, in this case NDVI, and actual drought conditions on the ground. In some cases, a region may experience drought, but NDVI fails to capture it or vice versa where NDVI observes the conditions for a drought but one is not experienced by communities.

For more information on WFP's motivation for utilising pre-arranged financing please see the previously published case study on the IDF website - [World Food Programme's Sahel Climate Catastrophe Layer \(SCCL\)](#).

## Description of the Coverage

### How was the risk profile determined and evaluated?

The risk profile was developed using historical NDVI values since 2003, averaging the NDVI amounts over the trigger period (14 February 2025 - 18 April 2025.) and then calculating the 75<sup>th</sup> percentile.

The various return periods (RP) used to determine payout amounts are calculated based on the deviation from the 75<sup>th</sup> percentile. We asked for specific RPs to be calculated to enable the increasing scale of payouts in a gradual manner based on severity of event, see example from Area of Interest (AOI) 1 below.

Table 1: Return period payouts for negative deviations from 75<sup>th</sup> percentile in AOI 1

Deviation from reference in %	Payout as % of limit	Return Period
0.00%	0%	<5.00
36.97%	30%	5.00
49.54%	50%	16.00
56.13%	70%	33.00
61.92%	100%	100.00

### Describe the trigger mechanism and how it was evaluated?

The trigger mechanism makes use of remotely sensed NDVI data that is provided by Planet. NDVI measures the health and density of vegetation to identify when drought events have occurred and is particularly suitable for a conflict-affected setting given its remote nature, requiring no ground level data collection. 7-day rolling average NDVI data will be provided by Planet using optical satellites at a 7-day frequency, with the output representing the value for the following week (i.e. data provided in advance).

A payout is triggered if the average NDVI value for the season (taken at the end of growing period) deviates significantly from the reference value for each of the three Areas of Interest (AOI) shown in Figure 1. The areas of interest cover Al-Hasakah (AOI 1), Aleppo, Idleb, Central West Syria (merged together to form AOI 2 based on climatic similarities), and South Syria Daraa (AOI 3).

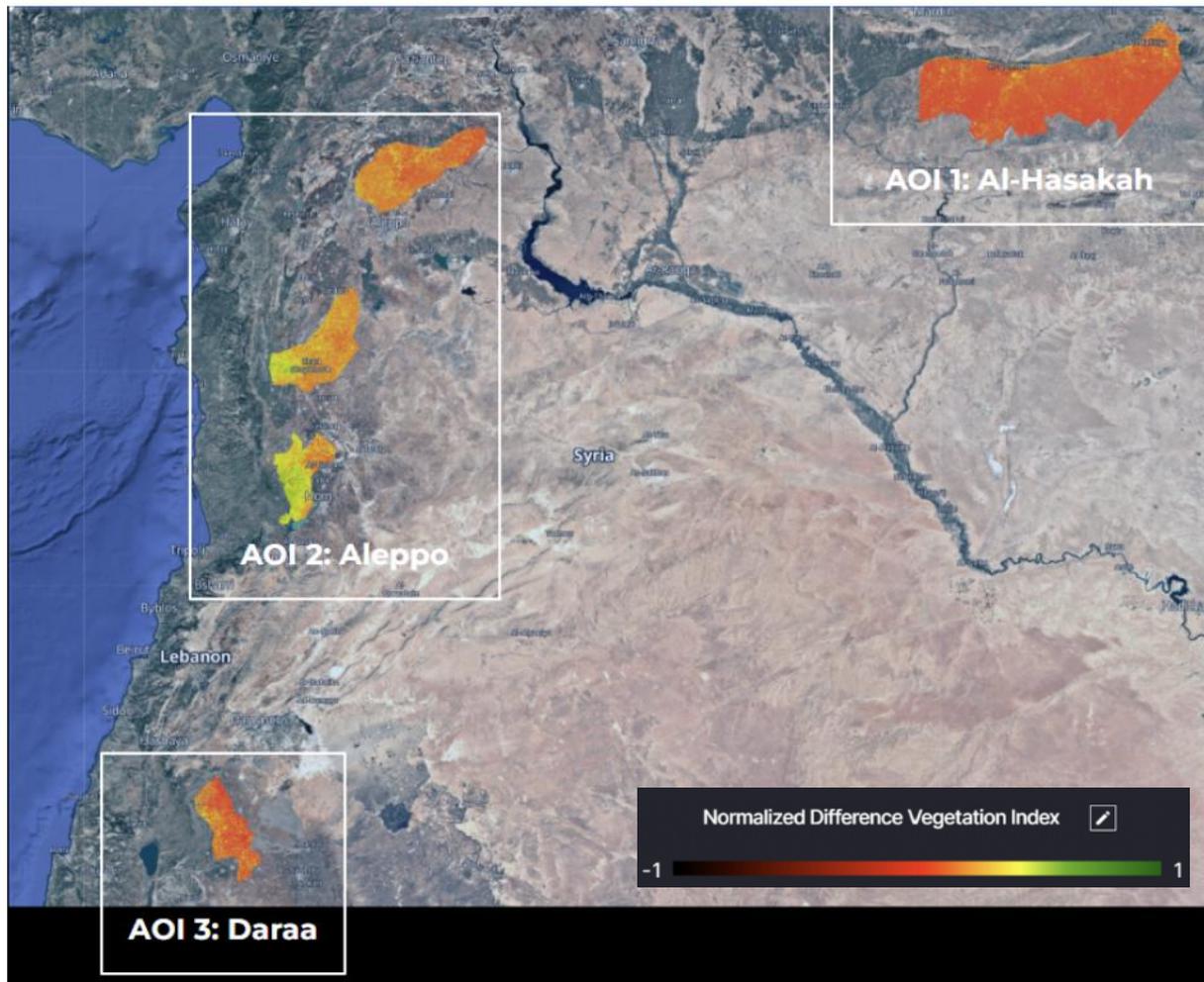


Figure 1: Areas of interest, shapefiles provided by Syria Country Office, WFP

The evaluation process for selecting the most appropriate index involved testing various indices and demonstrating how they each performed against historical data (yield and observation data) for the AOIs. Historical data is available for the past 20 years enabling the effectiveness of the policy to be robustly assessed, see Figure 2. This evaluation clearly confirmed NDVI's reliability, with 9 partial payouts being simulated over the 20 year period, including the 2009 event nearly triggering a complete payout (over 90% of the maximum coverage limit). These 'as-if' impacts align well with available historical yield data provided by the Syria Country Office and satellite vegetation and precipitation indexes giving confidence in the model.

In addition, as NDVI is captured by optical satellites there can be issues with cloud cover obscuring images and so an analysis was done by Planet to assess how often this occurred. Out of 6,400 dates analysed, only 30 (0.5%) were missing data due to cloud cover with not more than 1 consecutive 7-day period missed.

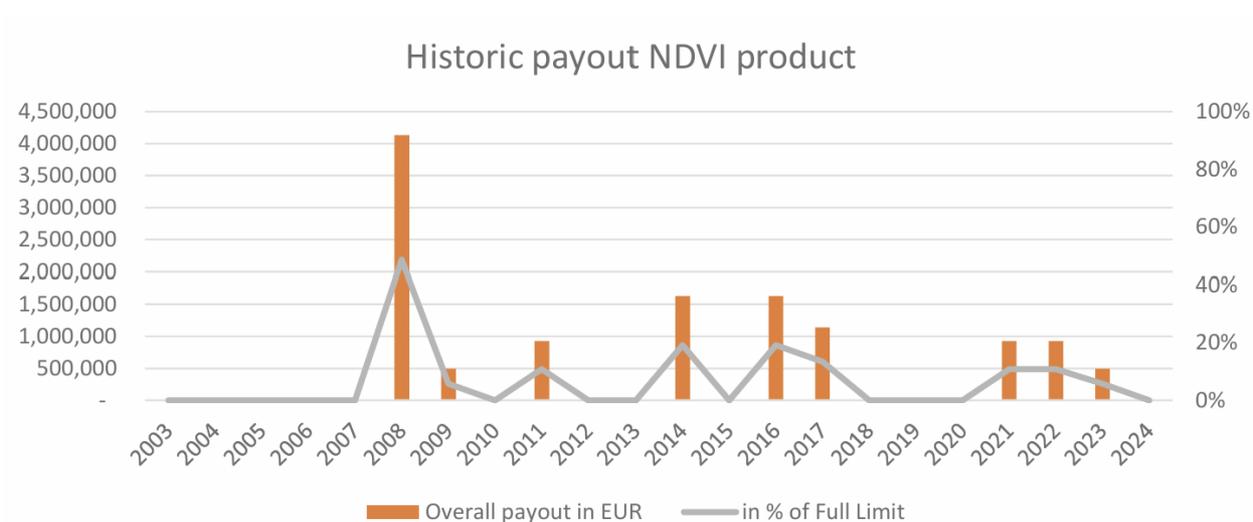


Figure 2: As-if payouts aggregated across all AOIs (this graph was produced by Swiss Re using EUR 9.2m per annum as the aggregate coverage)

Table 2: Key information for triggering system and policy

Parameter	Syria
Index	Negative NDVI anomaly (in %)
Premium (EUR €)	€1.15 million
Attachment Point	1-in-5 return period
Exhaustion Point	1 in 100 return period
Aggregate Limit (EUR €)	€8.5 million
Start of main growing period	15 October 2025

<b>End of main growing period</b>	18 <sup>th</sup> April 2025
<b>Reference for anomaly</b>	75th percentile of 20 years NDVI
<b>Data Collection Time</b>	14 <sup>th</sup> February 2025 – 18 <sup>th</sup> April 2025 (63 days)

## Payout

### What is the payout structure for the policy?

The policy features a step-to-linear payout structure. It attaches at the 1-in-5 return period, paying out 30% of the total coverage. The payout then increases in steps—rising again at the 1-in-16 return period—until it transitions to a linear increase at the 1-in-33 return period, with payouts increasing proportionally based on the index’s intensity/severity up to the 100-year return period (see Annex). This structure ensures that the minimum payment is sufficient for WFP Syria CO to implement meaningful response interventions with additional funding available as the number of people that need support increases.

Each AOI has a different sum insured which was determined based on a population-weighted average. This results in AOI 1 and AOI 2 having a similar coverage limit and aligns with WFPs expectations of the number of people needing support in these areas during severe events.

Table 3: Payout profiles of parametric structure

<b>AOI</b>	<b>Population weighting %</b>	<b>Limit (using EUR 8.4m per year)</b>
AOI 1 Al-Hasakah	45%	3,789,616
AOI 2 Aleppo area	36%	3,074,495
AOI 3 Daraa	19%	1,633,815
<b>Total</b>	<b>100%</b>	<b>8,497,926</b>

### Will the Syria policy continue next year?

WFP is considering further scaling this product by adding other AOIs in Syria and also potentially designing products for additional fragile and conflict affected countries not already covered by a development insurer (e.g. Afghanistan). In addition, the Syria CO is looking to obtain more detailed historical yield data for each of the AOIs to improve the evaluation of the project and further refine the weightings of payout sub-limits per AOI to ensure they are most appropriate.

### Has the policy paid out over its duration?

The Syria drought insurance layer triggered a total payout of EUR 6.96 million, following severe drought conditions across all three Areas of Interest (AOIs) during the policy period (14 February–18 April 2025). The trigger was based on an NDVI deficit index, indicating significant vegetation shortfalls compared to long-term averages. AOIs 2 and 3 remained under extreme vegetation stress throughout the season and will receive 100% payouts, while AOI 1, which showed slight mid-to-late season recovery, will receive 50%. Model outputs were validated in consultation with the country office, confirming the season as an extreme drought event—estimated at a 1-in-50-year occurrence—with precipitation up to 64% lower than the previous year and only 30% of the long-term average.

## Annex

### Payout pattern AOI 1

Deviation from reference in %	Payout in % of limit	RP
0.00%	0%	
36.97%	30%	5.00
49.54%	50%	16.00
56.13%	70%	33.00
61.92%	100%	100.00

### Payout pattern AOI 2

Deviation from reference in %	Payout in % of limit	RP
0.00%	0%	
15.61%	30%	5.00
22.32%	50%	16.00
25.10%	70%	33.00
28.80%	100%	100.00

### Payout pattern AOI 3

Deviation from reference in %	Payout in % of limit	RP
0.00%	0%	
14.75%	30%	5.00
21.13%	50%	16.00
23.80%	70%	33.00
27.33%	100%	100.00