

*Peer Review Framework for Predictive Analytics
in Humanitarian Response*

**MODEL REPORT:
Trigger for OCHA Anticipatory
Action on Drought in Chad**

Trigger developed by the UN OCHA Centre for Humanitarian Data

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OCHA CENTRE FOR HUMANITARIAN DATA



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Model Report:

Trigger for OCHA Anticipatory Action on Drought in Chad

1. Background

This document summarizes the documentation and findings of the peer review of the model used by the UN Central Emergency Response Fund to trigger the [drought anticipatory action framework](#) in Chad. The model is a go-no-go trigger mechanism designed to anticipate humanitarian impacts of seasonal drought in a sub-region of Chad.

The review has been conducted between January and May 2023.

2. Main Findings and Recommendations

You can find all the documentation regarding the model, its application and the review process at the following links:

- The [Model Card](#) describes the version of the model that was endorsed by humanitarian action in November 2022 and was completed in January 2023.
- The [Model Evaluation Matrix](#) was completed in February 2023 by Carlos Osorio-Ramírez, Associate Professor at Universidad Nacional de Colombia.
- The [Implementation Plan](#) was completed in February 2023. It summarizes how the trigger model is used to trigger anticipatory action and the agreed activation protocol.
- The [Ethical Matrix](#) aims to identify all stakeholders and potential issues regarding the intended use of the model. The Ethical Matrix was completed in May 2023 by Anna Lena Huhn, Southern Africa Regional Anticipatory Action Advisor at the United Nations World Food Programme.

A summary of the main findings and recommendations is provided below.

2.1 Technical Review

Intended Use

Overall, the use cases are well-described and adequately explained. The documentation of the limitations of the model could be extended in its description, as is the case of the biomass anomaly and its connection with scenarios like extreme dryness or late onset.

Model Development and Documentation

It is advisable to provide further documentation on the different data sources used by the team to validate the selection of indicators and estimate the performance of the model. Also, some data is not available in a machine readable format and it would be good to explain how the team dealt with this issue.

Model Evaluation

It is unclear what is an acceptable level of accuracy for the model. The team should better articulate how the performance benchmark was established and how the performance metrics were evaluated and presented to the final stakeholders.

Operational Readiness

It would be good to expand the analysis of the missed activations of the models and the potential false alarms that the model could be providing.

2.2 Ethical Review

False Negatives

A false negative occurs when no drought impact is predicted but drought conditions occur. The team could consider additional mitigation strategies such as the use of citizen science or ground observations to complement the forecast-based trigger.

Insufficient Data

Insufficient data refers to the gaps in impact data used to verify the forecast predictions. Insufficient data might limit the precise prediction of forecasted humanitarian impact and expose local populations to adverse humanitarian impact induced by a drought event, requiring a large-scale humanitarian response ex-post. The team should consider the feasibility of adding further vulnerability layers in future iterations of the model.

False Positives

A false positive happens when drought impact is predicted but no drought conditions occur. Anticipatory action follows the 'no regret' principle, but a false alarm can still lead to inadequate resource allocation with a high potential impact on affected communities. The anticipatory action framework could indicate a precise mitigation strategy in a clearer manner.

Lack of Trust and Ownership

Lack of trust and ownership refers to the limited involvement of local and regional authorities in the model design and validation. This may lead to little ownership and trust put into the model and eventually to political blockages in activations. In future framework versions a clear strategy

for the involvement of affected populations and an approach to accountability to affected populations should be identified.

Lack of Transparency

Lack of transparency refers to the algorithms not being made available or not being transparent. The anticipatory action framework should reflect clearer strategies to engage with local leaders to better understand what is happening on the ground and obtain early buy-in. Mitigation strategy for a potential lack of transparency should be expanded in the model card and/or the anticipatory action framework.

Inaction

Inaction refers to the situation in which drought impact is predicted but no action is taken. Inaction in case of trigger activation is unlikely, given the pre-allocated financing attached to it and the UN-validated anticipatory action framework. Inaction might nevertheless be a possibility, if government or local authorities block the roll-out of interventions on the ground or in case of conflict upsurge. The team could consider adding a consensus-based decision-making option around activation or non-activation in the event of specific events or situational context not considered in the model design (e.g., higher levels of vulnerability or increase in armed conflict, etc.)

Feedback

The Centre invites individuals and organizations working in the humanitarian, academic, research and private sector to engage with us on the peer review process. Please send feedback on the Framework to centrehumdata@un.org.