



# Using Machine Learning to Forecast and Understand Forced Displacement

European Migration Network

**DRC** DANISH  
REFUGEE  
COUNCIL

# How we got started

## IBM Partnership and Funding

- DRC has for several years sought to better develop our competencies around evidence, data and IM to become an even stronger advocate on behalf of the displaced and to deliver even better results.
- In 2018 we entered into a pro-bono partnership with IBM to explore the use of predictive analytics
- Received a 3-year grant from the Danish Ministry of Foreign Affairs to help us scale-up capacities

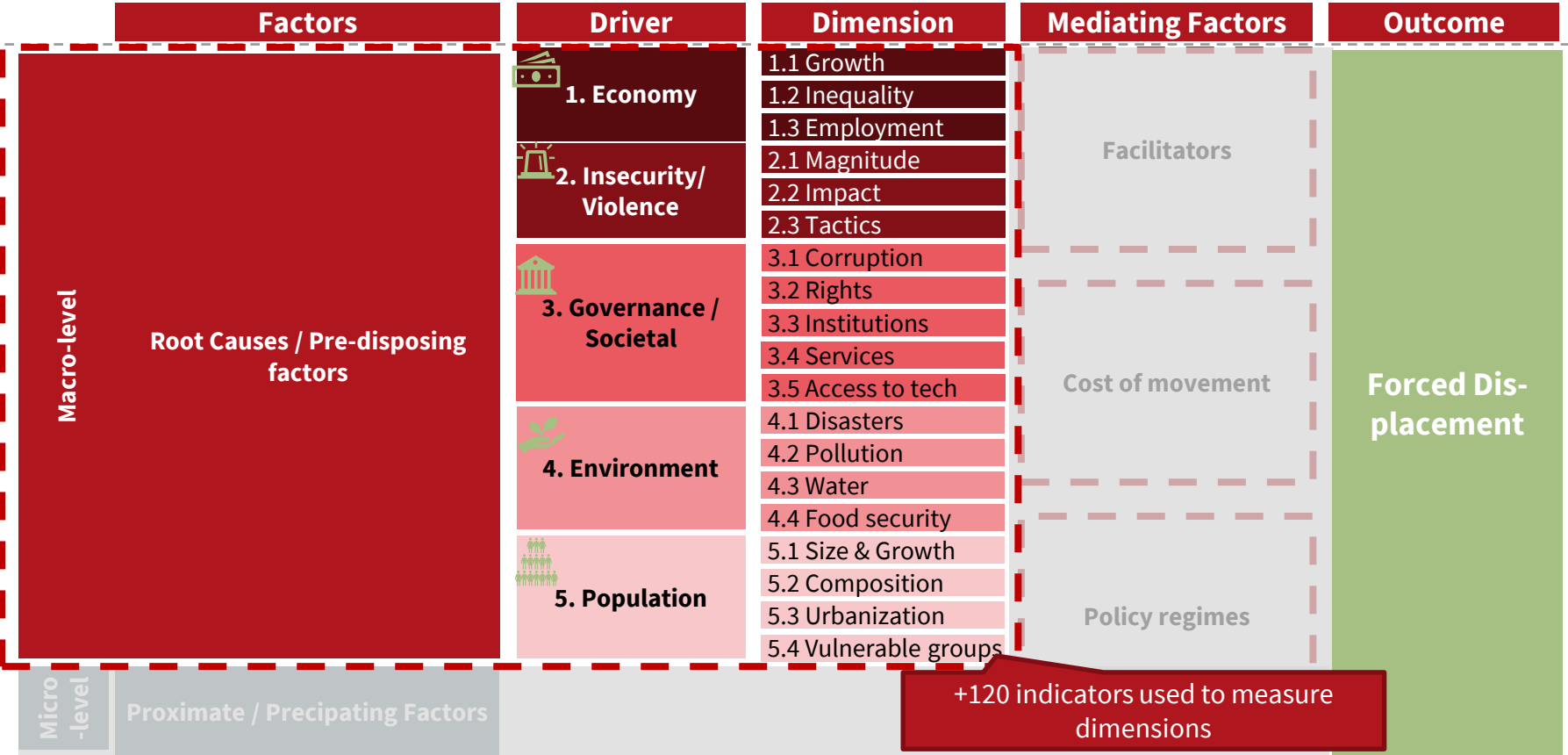
## Predictive Analysis Objectives

- Ambition to enhance DRC's ability to manage and analyze increasing amounts of (big) data and gain experience with new, statistical approaches such as machine learning
- Objective is to develop tools that can enhance our understanding of the focus areas of our work, and provide us and the wider humanitarian sector provide with **accurate forecasts and scenarios for strategic planning, operational response and programming in support of better prevention, early action and protection to displacement affected populations**

## Specific Models

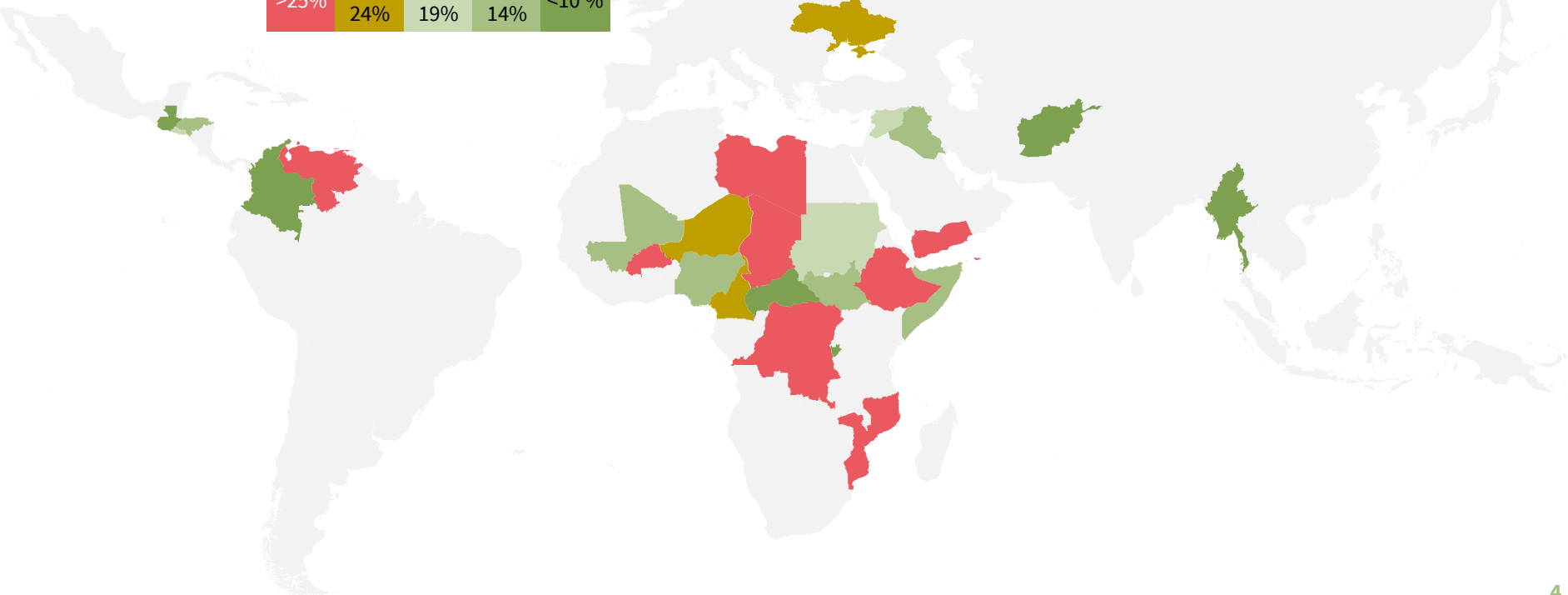
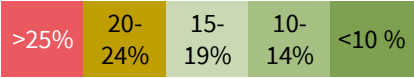


# Framework cover key displ. drivers



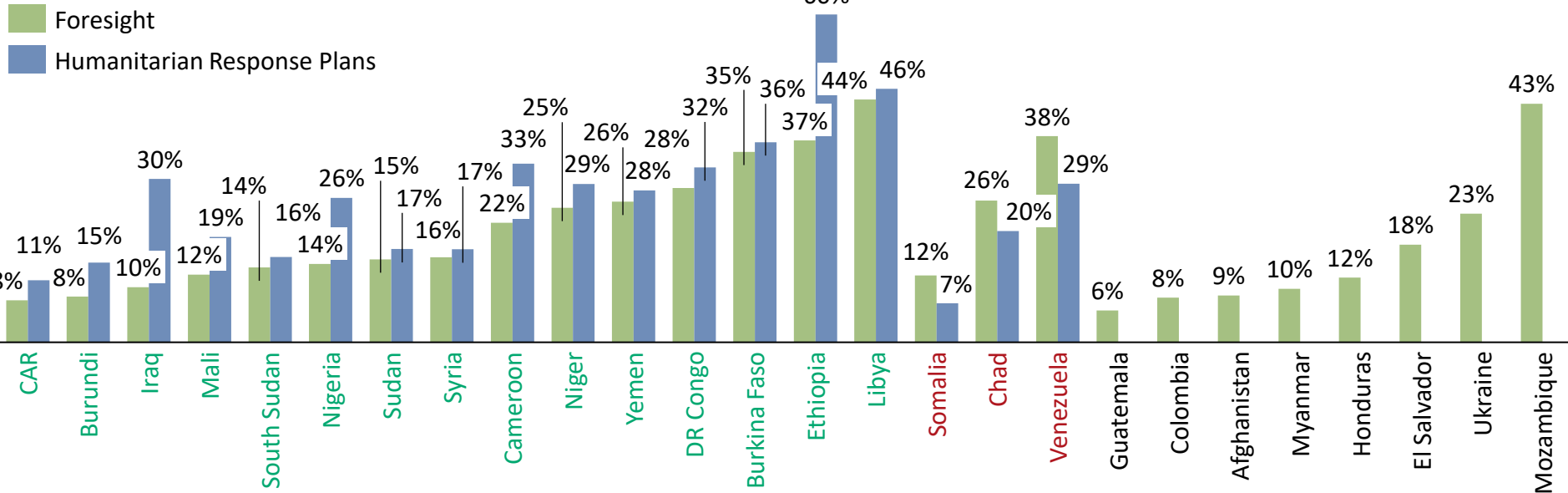
# 26 countries covered – appr. 87% of current global displacement

Average Margin of Error

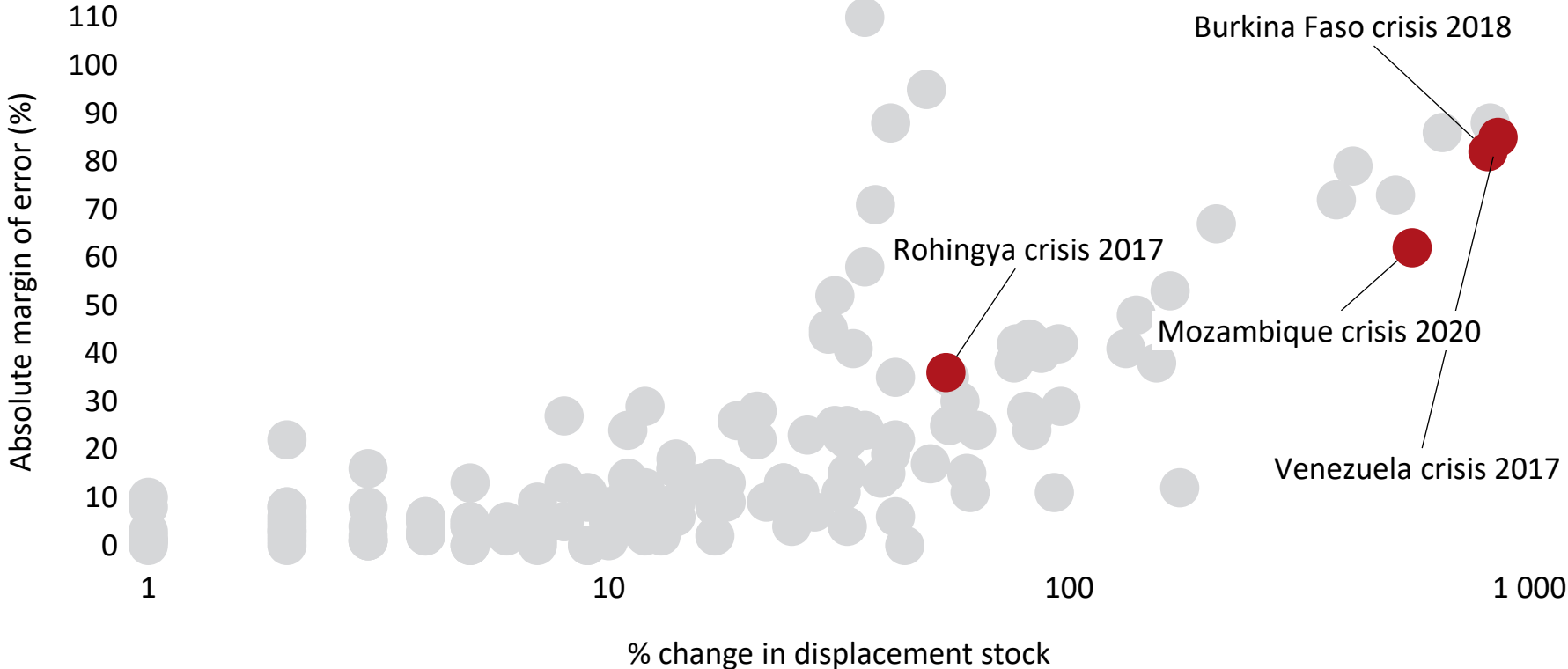


# Foresight predictions generally outperforms HRP planning figures

Average Margin of Error

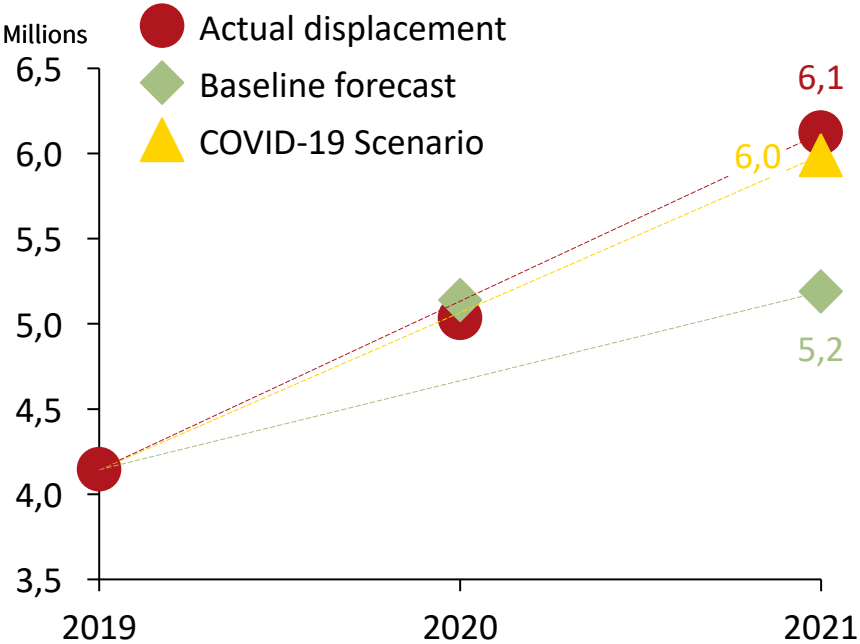


# Higher change in displacement leads to higher forecast inaccuracy

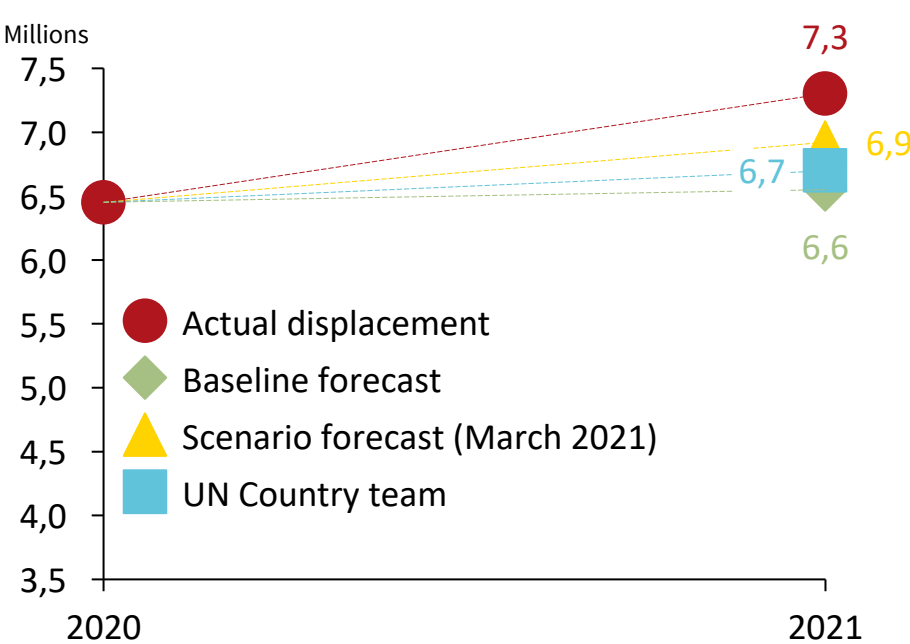


# Scenario-Based Forecast have shown clear value

COVID-19 Displacement Scenario in Sahel



Conflict & Drought displacement scenario Afghanistan





# Use Examples of Models

## Annual Strategic Planning

- Used for annual strategic planning internally in DRC country and regional offices
- Supported OCHA with forecasts for HNO process for the Northern Triangle countries (Guatemala, Honduras and El Salvador)

## Impact of events on displacement

- Analysed COVID-19 impact on displacement drivers and created COVID-19 displacement scenarios forecasts in Sahel for advocacy purposes
- Scenario-based forecasts for Afghanistan, Marib situation in Yemen and post-election violence in CAR as inputs for CERF funding decisions

## Hypothetical displacement scenarios

- Climate change displacement scenarios for Myanmar and Afghanistan
- Scenario-based forecasts of displacement resulting from ISIS reemergence / US troop withdrawal in Syria on behalf of donor

## Anticipatory Action Mechanisms

- Use for anticipatory action mechanism to mitigate or prevent drought-induced displacement
- Use for anticipatory action to respond to conflict-induced displacement



# Online Platform to Facilitate Use



## Featured Analyses



### By 2023 displacement will have doubled over a decade, new report predicts

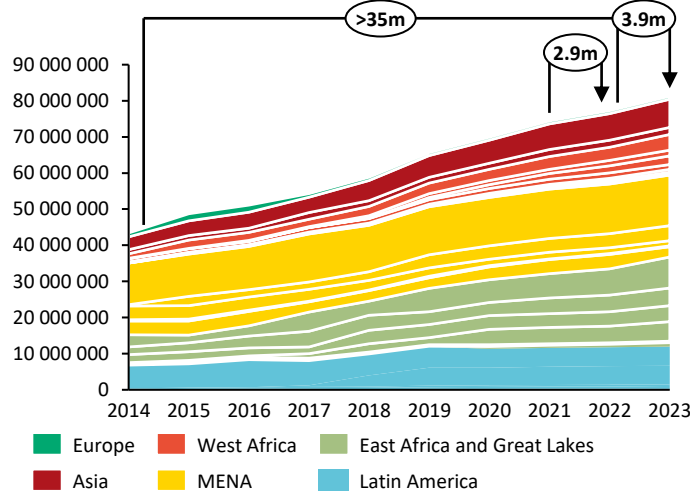
More than 35 million people will have been displaced from their homes from 2014 to 2023 meaning a doubling in a time span of just ten years in the world's most displacement affected countries.

→ [Read more](#)

## Latest Forecasts

### Foresight model

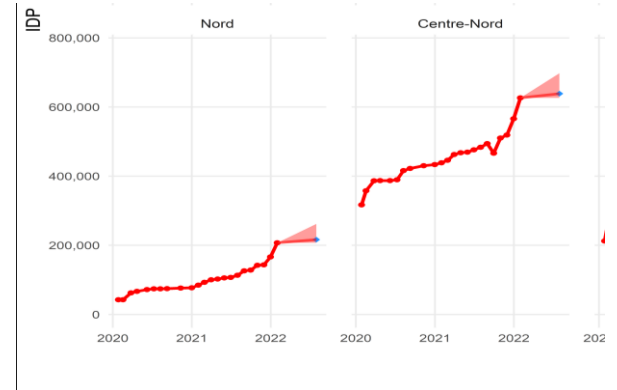
Forecasts released in January suggest that 6.8 million more people will be displaced in the 26 countries covered by the model



→ [Read more](#)

### WACAFI model

April forecast from WACAFI model suggests significant increase in displacement in Burkina Faso by July 2022



→ [Read more](#)

### Drought model

Based on rainfall forecasts, scenario simulation suggest high potential displacement in 6 months

# Key Lessons Learned

**1. Displacement is a complex and highly contextual phenomenon that need a suite of tools**

**2. Anticipatory action based on displacement forecasting should include several inputs including from communities**

**3. The real challenge is not building the models, its acting on them**

