



## **Forecasting and coping with maize yield anomalies through cash transfers in Kenya**

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Following the post-2015 development agenda, risk-informed multi-hazard forecasting and early warnings such as the Famine Early Warning System, has been formally recognized as an instrument to achieve global disaster risk reduction by the Sendai Framework in its seventh target. Humanitarian assistance triggered by timely information on emerging risks can reduce the impacts of natural hazards playing a substantial role on social and economic development.

However, despite great advancements in disaster forecasting and warning technology the vast majority of forecast information does not routinely trigger early action nor disaster risk financing mechanisms for drought risk reduction such as cash transfer. Overcoming the challenges to act based on forecast greatly relies on understanding the economic concerns over 'acting in vain' responses, and the development of new risk-informed processes.

Therefore, the goal of this investigation is to assess whether there is climatic and financial evidences to support forecast-based early action in Kenya in response to predictions of crop yield failures. We develop a probabilistic forecast model for multiple time-scales that unravel relationships between climate variability and anomalies in maize yield, and evaluates the cost-effectiveness of cash transfer to respond to early warnings of crop yield failures.

We use Fast-and-Frugal Trees to predict seasonal maize yield anomalies within each month of the maize growing season (from March to August) applying two types of indicators of climate variability namely, Net precipitation and the El Niño Southern Oscillation; and one of vegetation coverage namely, Normalized difference vegetation index. Initial results suggest that cash payments in a timely manner before situations deteriorate can be more cost-effective than initiating ad hoc emergency cash transfer responses.