InsuResilience GlobalPartnership

case study 02 // 2021

Better Weather Protection for Tanzanian Farmers

Global Parametrics and One Acre Fund trial a new approach

Global Parametrics, One Acre Fund

Farmers in Tanzania struggle with rising climate risks. One Acre Fund (OAF), a non-profit social enterprise, has partnered with Global Parametrics (GP), a specialist provider of climate risk protection, to offer innovative protection for farmers. They have pioneered the use of GP's new Water Balance Index to protect OAF's network of 70,000 smallholder farmers in Tanzania against drought and excess rainfall. This weather index solution facilitates a rapid financial response at affordable rates to promote resilience among farmers.

Country context

Tanzania is a stable East African state that recently achieved lower-middle income status. However, after a decade of economic growth, it has been hit hard by the Covid-19 pandemic. A World Bank survey of 1,000 small and medium-sized enterprises in 2020 found widespread job losses in the formal sector and income losses for millions of informal workers. A large share of Tanzania's population lives close to the poverty line and even mild shocks can push numerous households into poverty since people often have limited savings to draw on in a crisis. Alongside dealing with the impacts of Covid-19, Tanzania continues to be affected by climate change, along with its eight neighbouring countries. Temperatures are rising, increasing the risk of drought, and intense rainfall events can cause flooding. Nearly 65% of the Tanzanian population is employed in the agricultural sector, which means that the incomes and livelihoods of much of the population are tied to crop yields that are severely impacted by fluctuating rainfall levels. GP aims to counteract this trend by partnering with OAF to provide extreme weather protection for smallholder farmers.

Project description

GP develops innovative financial instruments to provide pre-agreed payments triggered by specific disasters to affected businesses and communities. This kind of parametric solution can help get finance to those who need it quickly after an extreme climate event. GP's Natural Disaster Fund (NDF) is a public-private partnership, using capital from the German Government through the German Ministry for Economic Cooperation and Development (BMZ) and the German Development Bank (KfW), and from the UK Government through the Foreign, Commonwealth and Development Office (FCDO). Global reinsurer Hannover Re provides matching capital for every transaction. The NDF gives clients similar protection to an insurer by collecting fees and making payouts when extreme weather or climate disasters occur. In light of the rising climate risk in Tanzania, GP has partnered with OAF, a non-profit social enterprise delivering finance and training to smallholder farmers in East Africa. GP has developed a new Water Balance Index which uses daily rainfall and potential evapotranspiration data to identify emerging drought and excess rainfall levels. The data is at an approximately 31 km resolution gathered from the weather model ERA5 developed by the European Centre for Medium Range Weather Forecasts (ECMWF). The index enables OAF to offer protection to its network of 70,000 maize farmers in Tanzania backed by the NDF. If the index identifies an extreme drought or rainfall event, it triggers a financial payout directly to OAF. The capital is then used by OAF to write-off loans for impacted farmers in their network or to offer farmers temporary breaks from making repayments on their loans until they can re-establish their income. Furthermore, the insurance provides farmers with protection which enables them to make the investments necessary to develop their businesses.

The risk transfer product is designed to protect against the more extreme events that are more highly correlated across geographies. OAF also maintains modest cash reserves to make payments for more frequent, idiosyncratic events experienced by farmers, even though they may not trigger a payout from the product. The index is designed to match the three stages of plant growth for maize, allowing for payments to be triggered at the beginning, middle and end of the growth cycle. This facilitates increased responsiveness to changing conditions on the ground and reduces basic risk by improving precision.

A Tanzanian maize field impacted by drought.

Harvest box measurements are used to estimate crop yields and verify the parametric model.

Challenges and lessons learned in 2021

A major challenge for provision of parametric weather protection to smallholder farmers in low and middle-income countries is the lack of reliable data on weather and crop yields. This makes it hard to develop a product that matches the precise financial needs of the farmers. OAF's farmers were therefore grouped in regional zones with similar agricultural and environmental features. Protection was then designed to address more extreme climate events affecting farmers across the whole region. A small cash fund was established to provide support for smaller-scale, frequent events that might affect a small number of farmers. Initial results from the first pilot year of the new Water Balance Index suggest strong alignment between the index and the farmers' experience on the ground. Additional data will provide a more detailed comparison and help validate the index. Over time, greater use of parametric weather protection has the potential to reduce overall costs. OAF already supports over one million smallholder farmers across East Africa and reduced costs will ultimately help it to expand further.

> "These products serve two main goals for our farmers: a) providing a basic safety net in a low-yield season and b) de-risking agricultural investment made by farmers through OAF. Providing micro-insurance to this many farmers means that we are always looking for scalable solutions that reflect what farmers experience in the field with as much accuracy as possible."
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> **OAF Project Officer Johannes Borchert**

Weather index solution for farmers

Hazards covered
Drought, Flood

Product/Solution
Early Warning, Corporate/Institutional Risk Transfer, Microinsurance Business

Objective of the project
The project uses a new index to identify drought and excess rainfall, automatically triggering finance to support smallholder farmers in Tanzania.

Impact and envisaged number of beneficiaries
One Acre Fund has a network of 70,000 maize farmers in Tanzania with access to financial support during drought or excess rainfall aimed at building their resilience to a changing climate.

Involved organizations/parties in the project
One Acre Fund, Global Parametrics (investee of the InsuResilience Investment Fund), Natural Disaster Fund

Anticipation	Relief	Recovery	Reconstruction
☐	■	■	☐

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