

## CASE STUDY

# Mitigating the Impact of Drought on Food Security in Malawi

## OVERVIEW

Malawi is heavily exposed to the risk of drought and food shortage. The World Bank's intermediation on index-based weather derivatives allowed Malawi to transfer weather-related risk to market counterparts. The 2008-2009 transaction marked the first time that the Bank offered a financial risk management tool to a low-income country.



## Background

Malawi—a landlocked country situated in Southern Africa—is highly vulnerable to drought. Thirty-eight percent of the country's GDP is dependent on agriculture, but rainfall is erratic. When a severe drought brought widespread hunger to the region in 2005, millions of farmers in Malawi needed food aid. The Government spent US\$200 million responding to the crisis. Donors also contributed a similar amount.

## Financing Objectives

The World Bank and other development partners have been supporting Malawi's efforts to strengthen food security through agricultural technology, investments in irrigation, and the development of grain markets. Malawi expressed interest in finding ways to mitigate the impact of drought on the economy and the federal budget. The country needed to access funds quickly in the event of a

severe and catastrophic drought, thus reducing dependence on humanitarian appeals. The Bank responded by helping the government transfer a portion of the risk of severe drought to the international financial market using weather derivatives. If a severe and catastrophic drought takes place, Malawi will receive funds from the weather derivatives within days.

## Financial Solution

The weather derivative contract purchased by the government of Malawi was structured as an option on a rainfall index. The index links rainfall and maize production, so that if precipitation falls below a certain level, the index will reflect the projected loss in maize production. If maize production in Malawi, as estimated by the rainfall index, falls significantly below the historical average, Malawi will receive a payout.

The Bank acted as an intermediary between Malawi and reinsurance companies or investment banks for the transaction. Malawi was required to pay

a premium up-front, which was financed by the UK Department of International Development (DFID).

## Outcome

The index-based weather derivatives allowed Malawi to access the financial markets and transfer weather-related risk to market counterparts. The 2008-09 transaction was the first time that the World Bank offered a financial risk management tool to a low-income country. The Government of Malawi has since renewed the contract twice (2009-10 and 2010-11).

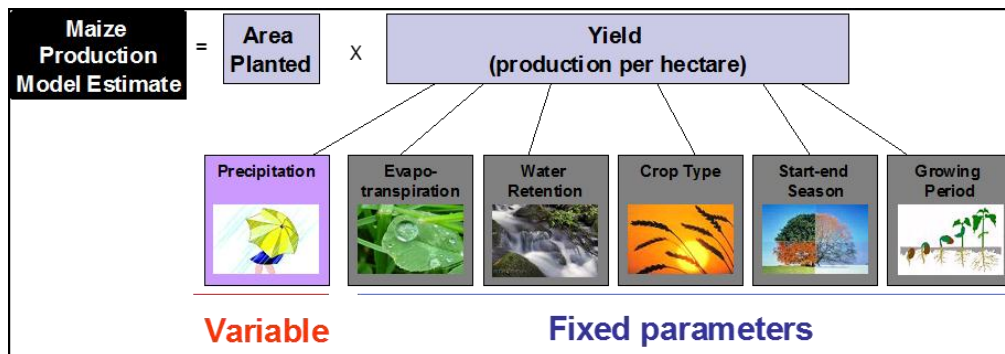
It is important to note that the weather derivative contract provides coverage for a specific percentage of drought risk in Malawi as part of a broader (maize) risk management program. Weather derivatives can help countries plan and implement proactive responses to natural disasters. These transactions can be customized according to each country's specific needs based on the type of weather hazard, desired level of protection, and the estimated financial loss associated with a severe and catastrophic event. Potential new applications in agriculture and energy sectors are being explored.

The use of the weather market and index-based insurance products in agriculture in developing countries is new and the market is still evolving. The Bank intermediates on behalf of countries that do not have expertise in handling such financial instruments, and also helps build capacity, so that countries are eventually able to continue implementing risk management strategies independently.

## Terms & Conditions

<b>Type of Contract</b>	Put option
<b>Maximum Payout</b>	USD 4.385 million
<b>Term</b>	6 months
<b>Index</b>	Maize production
<b>Strike</b>	10% below historical average maize index which links rainfall and maize production

### How does the Malawi maize index work?



- The Malawi Maize Index is designed as a proxy of maize production
- The level of rainfall is the only variable in the index
- The index is based on model used by government of Malawi since 1992

### How does the transaction work?



- The Government of Malawi will receive a payout from the World Bank if the index hits the pre-determined trigger
- The trigger was selected by Malawi, based on coverage and cost considerations
- The World Bank entered into a mirroring agreement with a market counterpart and effectively transferred the risk onto the entity

### For information:

Miguel Navarro-Martin, Head of Banking Products, [mnavarromartin@worldbank.org](mailto:mnavarromartin@worldbank.org), +1 (202) 458 4722