



USAID
FROM THE AMERICAN PEOPLE



CLIMATE INTEGRATION CASE STUDY

ASSETS AND MARKET ACCESS INNOVATION LAB

CLIMATE AND AGRICULTURE & FOOD SECURITY

Climate variability and change is one of many challenges that USAID development projects are addressing. This case study series explores how USAID activities in various sectors and regions address this challenge.

Development Challenge

Despite significant progress in the development of more productive agricultural technologies and practices, average smallholder farm yields are below what is technologically possible. This is contributing to the chronic undernourishment of an estimated 800 million people worldwide. Barriers to greater adoption of more productive technologies include farmers' limited assets and access to finance, undeveloped markets, and a lack of infrastructure in poor, rural areas. These barriers are compounded by risks associated with weather and climate variations. In response to these risks, farmers tend to rely on traditional but sometimes less effective risk-management strategies. For example, in response to a "shock" such as drought, farmers may sell their assets to maintain their food consumption or to pay back loans. In anticipation of future shocks, risk-averse farmers may underinvest in their farms, often at the expense of future yields and incomes. These strategies reduce the effectiveness of other interventions to improve agricultural production, farmer livelihoods and national economic growth.



AMA Innovation Lab

The Assets and Market Access Innovation Lab (AMA Innovation Lab) (2012-2018) is one of a number of innovation labs across the United States that conduct long-term applied research to address development challenges. Research activities are conducted in collaboration with host-country researchers and institutions, and are structured to have a

benefit to U.S. institutions or U.S. agriculture more broadly. Managed by the University of California, Davis, with funding from USAID's Bureau for Food Security, the AMA Innovation Lab leads research to help smallholder farmers in developing countries manage production risks, adopt improved agricultural technologies and practices, and contribute to their country's economic growth. Current research includes 22 research grants in Feed the Future priority countries in Central America, Africa and Asia.

How the AMA Innovation Lab Addresses Climate Change

The AMA Innovation Lab recognizes that climate risks may pose challenges that are not addressed by other risk management research. For example, research by the AMA Innovation Lab is considering how climatic changes may lead to changes in the optimal portfolio of risk-reducing measures. The Lab's research also recognizes that research focused on "average" years may miss important differences in years with droughts or other extreme weather events. As climate change continues, traditional coping mechanisms are likely to become less adequate, requiring new methods and approaches to manage climate risks. Examples of AMA Innovation Lab research includes¹:

AMA Innovation Lab Research Themes:

- Index Insurance and Risk Management
- Encouraging Adoption of Improved Technology
- Combining Risk Management & Agricultural Technology
- Improving Market Access For Inclusive Growth
- Natural Resource Management
- Social Safety Nets & Productive Asset Transfers

- Development of insured loans, where payouts go to lenders and are used to repay loans to farmers, helping reduce the significant risk faced by insurers when a large-scale event, such as widespread and prolonged drought, affects an entire portfolio of loans in a region.
- Analysis of relationships between climate change and rangeland biomass dynamics to support development of weather-indexed insurance for livestock.
- Development of insurance contracts that enable insured pastoralists to protect livestock from mortality when a drought occurs (asset protection contract) as an alternative to existing approaches based on livestock deaths (asset replacement contract).
- Analysis of weather factors that influence the choice of risk-reducing measures. For example, it may be more cost-effective to manage moderate drought stress using drought-tolerant seeds rather than more expensive insurance, wherein insurance payments increase as stress becomes more severe.
- Use of remote sensing to improve measurements of crop growth and yield predictions to develop a better index for index-based crop insurance.
- Research on climate-smart agriculture, including field tests and demonstration plots.
- Field tests of the effectiveness of alternative risk-reducing measures in locations with recent extreme events such as droughts.
- Providing access to weather and climate data to support climate risk management tools and strategies.



¹ See <https://basis.ucdavis.edu>