



MRR INNOVATION LAB PROJECT IN BRIEF

RESILIENCE IN THE AFTERMATH OF DISASTER IN MOZAMBIQUE

Lead Principal Investigator
Dean Yang, University of Michigan

Project Partners
Hamilton College, Mozambique Ministry of Health, UC Davis

Development Innovation
Social protection evaluation and resilience measurement

Commodity
Multiple

Targeted Population
Orphans and vulnerable children and their caretakers

Country/Location
Eastern Mozambique

Timeline
2020-2023

Funding
\$426,920 (USAID)

In March, 2019, Cyclone Idai struck Mozambique during a randomized controlled trial (RCT) measuring the impacts of a comprehensive community health and development program. The MRR Innovation Lab is expanding this RCT to learn how communities recover from a disaster like Idai and whether the program made communities more resilient. The project also extends USAID research on resilience measurement by field-testing a measure comparing lost wellbeing to an estimation of the level of wellbeing families would have had in the absence of the cyclone.

The Challenge

Cyclone Idai became the most destructive cyclone ever recorded in Africa when it made landfall in Mozambique. The storm caused widespread destruction, displacing 127,500 and affecting 1.85 million. Beyond the initial short-term impact, there is a substantial threat of medium-term food insecurity due to the loss of the 2019 mid-year harvest, and continued risk of waterborne diseases such as cholera.¹

Idai struck Mozambique during a randomized controlled trial (RCT) to measure the impacts of the USAID-funded Força à Comunidade e Crianças (FCC, “Strengthening Communities and Children”) program, which aims to provide support, protection and care for orphans and vulnerable children (OVC) and their caregivers. FCC is a program of the President’s Emergency Plan for AIDS Relief (PEPFAR), which mandates part of its funding be devoted to programs benefiting children orphaned or made vulnerable by HIV/AIDS.

Through in-home visits, FCC promotes understanding of HIV/AIDS, care for infants and children, nutrition, women’s and children’s rights, savings and other topics. FCC also links families to services, most prominently HIV testing and antiretroviral therapy, and facilitates village savings and loan associations (VSLAs) and stronger social networks in the community.

RESEARCH INNOVATION

Evidence on the impact of the FCC program will provide new knowledge on resilience, poverty and food security in post-disaster contexts. In particular, this study investigates changes in economic preferences and psychological factors that may mediate the impact of a disaster like Cyclone Idai. Recent studies suggest that risk preferences are not stable, and respond to economic shocks and psychological states.¹ Negative shocks can change preferences and possibly amplify the effects of disaster exposure.

Prior studies have found that negative shocks increase risk aversion and discount rates.² Increases in risk aversion could make households less willing to make investments in their income-generating activities. Increases in discount rates or present bias may also inhibit investment and technology adoption. Furthermore, negative shocks may make decisionmakers more prone to engage in motivated belief biases. This may lead to deterioration of health decision making, for example by making individuals less likely to undertake STI testing or treatment.

¹ Cho, I., et al. 2018. “Are Risk Attitudes Fixed Factors or Fleeting Feelings?” *Journal of Labor Research*.

² Cameron, L. et al. 2015. “Risk-Taking Behavior in the Wake of Natural Disasters,” *Journal of Human Resources*.



Idai affected a subset of the 76 communities across three provinces included in the evaluation. Prior to the cyclone, the research team conducted a baseline survey of 4,700 households. A follow-up survey administered from May to November 2019, just after the disaster, sheds light on the disaster's immediate impacts. Through further study, this tragedy provides a unique opportunity to understand how community-level development programs like FCC might enhance resilience and to field test an expanded measure of resilience.

Research Design

The MRR Innovation Lab is conducting two additional follow-up surveys one and two years after Cyclone Idai with families who participated in FCC. This work will shed light on three important and related questions about the dynamics of poverty and resilience.

First, how resilient are communities in the face of a major natural disaster? The immediate post-disaster survey documented substantial losses in wellbeing in terms of income, assets, health and other factors. In the long term, these losses could cause families to fall into poverty traps. The two additional surveys will uncover the dynamics of these poverty traps as well as whether and how families recover.

Second, how can we best define and measure resilience? USAID defines resilience as “the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.” This research builds explicitly on this definition to establish and field-test a measure of resilience.

The research team is building this measure of resilience by comparing families' lost wellbeing and an estimation of the level of wellbeing they would have had in the absence of Idai. This is possible because of the three provinces included

in this RCT, only a subset of communities were affected by the cyclone. In Sofala, all communities experienced at least Category 1 hurricane-force winds but in Manica only seven out of 28 communities did. No Zambezia communities experienced hurricane-force winds.

Third, to what extent does a health and development program like FCC improve resilience in the wake of a major disaster like Cyclone Idai? Combating HIV/AIDS is the central focus of FCC, but the multifaceted approach may have broader development impacts. The research team will establish objectively whether and why FCC communities recover faster compared to communities that did not receive the programming.

Development Impact

This project aims not only to provide evidence on whether the FCC program helps improve post-disaster resilience, but also to shed light on the particular mechanisms—whether improved health, access to savings and credit or enhanced social network connections—that build resilience. Evidence on resilience from Mozambique can create new opportunities to develop programming that promotes resilience that is critical region-wide.

In 2015, Sub-Saharan Africa accounted for more than half of the world's extremely poor while accounting for only 16.3 percent of world population.² The region is unusually vulnerable to natural hazards and other negative shocks caused by high rainfall variability and susceptibility to drought. The region is also vulnerable to humanitarian crises due to conflict, political, and economic causes.³ All of these factors together amplifies the need to build resilience.

¹ ACAPS. 2019. “Briefing Note: Mozambique - Tropical Cyclone Idai Update II.”

² World Bank. 2018. “Piecing Together the Poverty Puzzle: Poverty and Shared Prosperity 2018.”

³ United Nations. 2018. “Global Humanitarian Overview 2018.”



Development Opportunity: Mozambique

- 12.3** : Population in millions (2018)
- 38.2%** : Poverty rate at \$1.90/day, 2011 PPP (2016)
- 10.2** : Rural population in millions (2018)
- 66%** : Total employment in agriculture (2019)
- 36.8%** : Prevalence of undernourishment (2017)
- 37.9%** : Prevalence of stunting for children under 5 years (2015)

Source: World Bank

Mozambique has among the best records of sustained economic growth in Africa, averaging 7 percent per year over the last decade. However, poverty and undernutrition rates remain high in a country that is acutely vulnerable to drought, flooding and tropical storms.

Poverty and food insecurity are the main underlying causes in Mozambique of chronic undernutrition. Food availability is limited by low yields and inadequate access to markets for many citizens.

Mozambique is the second-largest formal exporter of food in the southern Africa region and could progress toward a trade surplus if regulation and agricultural practices improve. Its strategic location and trade corridors make the country a key player in regional and global food security.

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FEED THE FUTURE INNOVATION LAB FOR MARKETS, RISK & RESILIENCE 
basis.ucdavis.edu

2133 Social Sciences & Humanities
University of California, Davis
1 Shields Avenue | Davis, CA 95616
(530) 752-7252 | basis@ucdavis.edu

www.feedthefuture.gov

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