FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR MARKETS, RISK & RESILIENCE

2022 Annual Report

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UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE INNOVATION LAB FOR MARKETS, RISK & RESILIENCE

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CONTENTS

ACRONYMS

ALL-IN	Advancing Local Leadership and Innovation Networks
ARN	ALL-IN Research Network
BREAD	The Bureau for Research and Economic Analysis of Development
CIMMYT	International Maize and Wheat Improvement Center
CLA	Collaborating, Learning and Adapting
I4	Index Insurance Innovation Initiative
ICED	International Centre for Evaluation and Development
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IZA	Institute of Labor Economics
MEL	Monitoring, Evaluation and Learning
MSI	Minority-serving Institutions
NBER	National Bureau of Economic Research
RCT	Randomized Controlled Trial

EXECUTIVE SUMMARY

The most vulnerable rural communities face a compounding of new and ongoing crises. These include continuing difficulties created by the COVID-19 pandemic and new crises such as war in Ukraine, conflict and extreme drought in East Africa and flooding across Pakistan and Nigeria. At the center of each of these crises is food. The World Food Programme reports that the number of people experiencing acute food insecurity has increased from 135 million just two years ago to 345 million today.[1]

The Feed the Future Innovation Lab for Markets, Risk & Resilience at UC Davis was established to generate field-tested evidence on how to meet many of these challenges. Through our network of principal investigators at research institutions across the globe, we conduct research on how to strengthen food security and resilience at all levels, from systems to individual households and families.

In 2022 we made considerable progress on our 29 awarded projects across 12 countries. These projects include impact evaluations of active development programs as well as research that tests new approaches for strengthening food security and resilience. These include a new project that builds a technical definition and measure of resilience in the context of poverty traps and the true complexities facing rural households. These also include two seed grants that have been awarded full funding, one in Ethiopia and one in Ghana, both of which are testing innovations in agricultural index insurance. We reported results from two projects providing insights on how livelihood-building programs for women can generate resilience to hardships that include drought and the COVID-19 pandemic.

We have expanded our collaborations across the development community while ensuring that the evidence we generate reaches stakeholders who can readily incorporate it into their work. Through publications and participation in high-level partnerships we have provided critical thought leadership in the areas of risk management, technology adoption, market development and resilience.

This year we significantly expanded our efforts to strengthen development research capacity at African research institutions. Our principal investigators funded through our Feed the Future ALL-IN collaboration led workshops and trainings for colleagues, research assistants, research partners and government stakeholders. We also launched the ALL-IN Research Network (ARN), a new collaborative initiative that has become an active hub for currently 135 African development researchers who take part in mentoring, training and peer working groups.

The many food-related challenges this past year require broad collective efforts like those shown through increased investments through Feed the Future and many others in recognition of how these many crises impact people's lives today and well into the future. High-quality, rigorous research plays a valuable role in putting a more financially stable, food-secure future within reach for all.

[1] World Food Programme. 2022. "A Global Food Crisis."

To generate and transfer innovations that bolster resilience and enable rural individuals, households, communities and markets to sustain a process of inclusive agricultural growth.

MRR APPROACH TO FOOD SECURITY AND RESILIENCE

In spite of the tremendous progress in reducing the total number of extremely poor people over the past 30 years, extreme poverty has in fact concentrated in Sub-Saharan Africa and in South Asia. Extreme poverty continues to be a challenge in rural areas typified by low agricultural productivity, exposure high and increasing climate risks and vulnerability to instability and conflict.

The Feed the Future Innovation Lab for Markets, Risk and Resilience at UC Davis leads an innovative research program at the intersection of these critical challenges. The MRR Innovation Lab focuses squarely on constraints to agricultural transformation, poverty reduction and food security that are posed by risk and shocks.

The MRR Innovation Lab research strategy is driven by three priorities:

1. **Enabling Resilient Escapes from Poverty**: Shifting poverty dynamics for families and communities by amplifying synergies between programs that enhancing material assets, psychological well-being and manage risk.

2. **Financial and Agronomic Innovations for Inclusive Growth and Resilience**: Innovating the next generation of index insurance to make it a more effective and to open the door to a broader set of financial and agronomic instruments that promote resilience.

3. **Resilient Systems for Broadly-based Agricultural Growth**: Exploring ways to build and enhance systems that are both competitive and inclusive for women and youth.

MODEL OF INNOVATION

CYCLE OF RESILIENCE

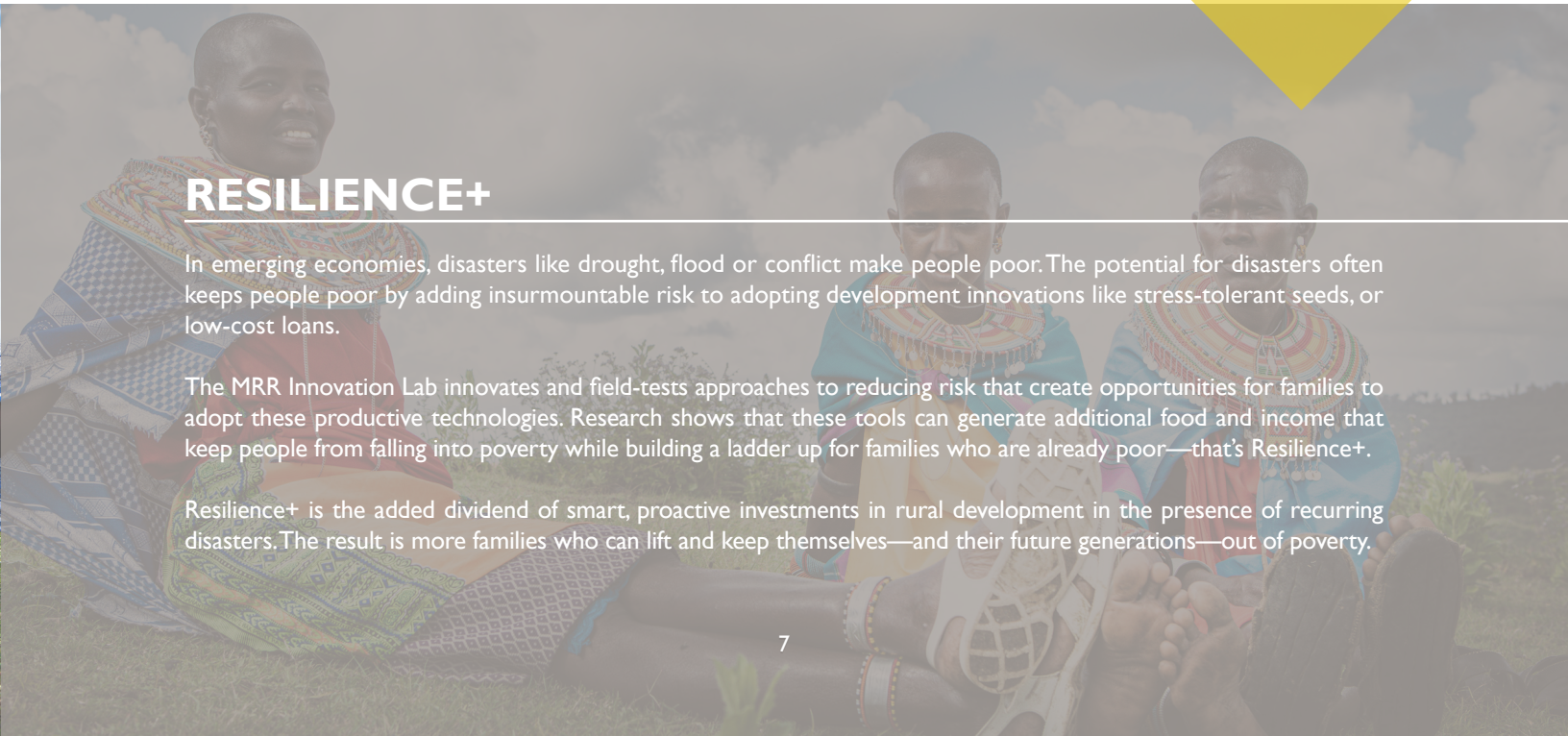
We are testing ways to build virtuous circles of upward mobility and resilience. While this approach promotes a cycle of resilience for families who are already poor, providing a ladder up for vulnerable families who are not poor extends resources and efforts to build more resilient societies overall.

INCLUSIVE SYSTEMS

We are testing ways to make market systems both competitive and inclusive. Stronger markets can stabilize public finance while integrating rural communities, helping families to become and remain resilient to environmental and other shocks.

MANAGED RISK

We are developing and improving tools to manage risk so families coping with a shock can continue in their progress toward greater prosperity. We are at the forefront of a new generation of agricultural index insurance, microfinance and other tools that manage risk and build resilience.



RESILIENCE+

In emerging economies, disasters like drought, flood or conflict make people poor. The potential for disasters often keeps people poor by adding insurmountable risk to adopting development innovations like stress-tolerant seeds, or low-cost loans.

The MRR Innovation Lab innovates and field-tests approaches to reducing risk that create opportunities for families to adopt these productive technologies. Research shows that these tools can generate additional food and income that keep people from falling into poverty while building a ladder up for families who are already poor—that's Resilience+.

Resilience+ is the added dividend of smart, proactive investments in rural development in the presence of recurring disasters. The result is more families who can lift and keep themselves—and their future generations—out of poverty.

MANAGEMENT TEAM

Director Michael R. Carter is a distinguished professor of agricultural and resource economics at UC Davis. He directs the Index Insurance Innovation Initiative (I4) and the USAID-supported initiative Quality Index Insurance Certification (QUIIC). Carter is a fellow of NBER, BREAD and the American Agricultural Economics Association, and is an honorary professor of economics at the University of Cape Town. He is co-editor of *The Economics of Poverty Traps* (U. of Chicago, 2018). He holds a Ph.D. in Economics from the University of Wisconsin-Madison.

Associate director Tara Chiu manages day-to-day operations, including monitoring research and HICD activities. She represents the MRR Innovation Lab to stakeholders and is the primary contact for USAID missions integrating research findings into policy and programs. She leads the lab's Monitoring, Evaluation, and Learning (MEL) plan and manages CLA activities. She holds a B.A. in political science from American University and a Master of Public Policy from Duke University.

Policy engagement coordinator Sophie Javers guides a proactive engagement strategy for each research project awarded prior to the start of activities and provides researchers support as needed throughout the duration of the award. She holds a B.A. in history from Princeton and a M.A. in international policy studies from Stanford.

Financial analyst Christine Mungo administers MRR Innovation Lab contracts and grants and provides financial analysis for all research and outreach activities. This includes managing outgoing subcontracts, modifying existing subcontracts and working with UC Davis offices on oversight. Mungo holds a B.S. in business administration with a concentration in accounting from San Francisco State University.

Strategic communications manager Alex Russell develops and implements the lab's communications plans and manages web and print communications with a focus on actionable resources and recommendations. He implements the lab's Knowledge Management Plan using a variety of media. Russell received his B.A. in literature from UC Santa Cruz and his M.A. in English from UC Davis.

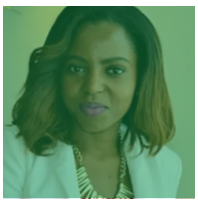
FEED THE FUTURE ALL-IN KEY STAFF

Feed the Future ALL-IN co-director David Sarfo Ameyaw is the founder, president and CEO of the International Center for Evaluation and Development (ICED). Ameyaw has held senior posts at the Alliance for a Green Revolution in Africa (AGRA) and the Millennium Challenge Corporation (MCC). Ameyaw holds a D.Min. in missions and community development and a Masters in divinity from Andrews University.

Monitoring and evaluation specialist Sarah Ameso supports Feed the Future ALL-IN research. She has extensive experience in M&E in both Emergency and Development context in a number of countries that include; Uganda, South Sudan, Malawi and Kenya among others. She holds a Bachelor's degree in development studies from Uganda Christian University and a MBA from Kenyatta University.

Director of communications and policy engagement Seth Kugblenu leads communications efforts in Africa for Feed the Future ALL-IN research projects as well as all communications efforts for the International Center for Evaluation and Development (ICED). A former columnist with the *Daily Graphic*, he is an alumnus of the Ghana Institute of Journalism and has a Bachelor's degree in management and sociology and an MBA in marketing from the University of Ghana.

Chief finance and operations officer Blessing Mhosva manages Feed the Future ALL-IN contracts and grants. She is trained on USAID grant award management and has experience of working across several African countries which include Kenya, Ghana, Mozambique, and Zimbabwe. She is a qualified Association of Charted Certified Accountants, UK (ACCA) accountant and holds a bachelor's degree in accounting.



Program management officer Annesofie Misiani manages the ALL-IN Research Network. She contributes program support, research, operations management as well as planning and coordination of annual conferences, and stakeholder engagement. Misiani has a Bachelor's degree in community development with a focus on gender development and project management from Daystar University.

ADVISORY BOARD

Ana Maria Ibáñez is a professor at the School of Economics in Universidad de los Andes (Colombia) currently on leave working as Economics Principal Advisor at the Interamerican Development Bank. Her research focuses on the microeconomic analysis of internal armed conflict, and the dynamics of land concentration and informality of property rights. Ibáñez received her Ph.D. in agricultural and resource economics from the University of Maryland at College Park.

Karen Macours is an professor at the Paris School of Economics and researcher at INRA. She is an affiliate of CEPR and of JPAL Europe. Her current research focuses on conditional cash transfer programs, early childhood development, rural poverty and agriculture. She received her Ph.D. in agricultural and resource economics from the UC Berkeley.

Craig McIntosh is a professor of economics at the School of Global Policy and Strategy at UC San Diego where he is also and co-director of the Policy Design and Evaluation Lab. His main research interest is the design of institutions that promote the provision of financial services to micro-entrepreneurs, and he has conducted field evaluations of innovative anti-poverty policies in Mexico, Guatemala, Malawi, Rwanda, Uganda and Tanzania. He earned his Ph.D. in agricultural and resource economics from UC Berkeley.

Jami Montgomery serves as Division Chief for the Resilient Communities and Systems Division of the Center for Resilience within the Bureau for Resilience and Food Security at the U.S. Agency for International Development (USAID). She integrates resilience into USAID's implementation of the Feed the Future initiative and provides technical support to field missions on strengthening the resilience of vulnerable communities in areas subject to recurrent crisis. Montgomery holds master's degrees in marine studies from the University of Delaware and in environmental engineering and science from Johns Hopkins University.

Robert Darko Osei is an associate professor in the Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, Legon, and the vice dean for the School of Graduate Studies at the University of Ghana. His main areas of research include evaluative poverty and rural research, macro and micro implications of fiscal policies, aid effectiveness and other economic development policy concerns. Osei received his PhD from the University of Nottingham in the United Kingdom.

TECHNICAL LEADERSHIP AND RESEARCH STRATEGY

The MRR Lab allocates the bulk of its core research funding through competitive grants with a small amount set aside to commission research in response to specific and sometimes unexpected opportunities that emerge from the scientific research community. This approach encourages the greatest innovation from the best researchers.

Our research is funded through six potential mechanisms to maximize innovation and quality projects while also further building scalable results and research capacity worldwide. These include full-scale field trials funded up to $750,000 to low-cost grants support proof-of-concept research that may be expanded with full funding if successful.

Our research funding model has attracted creative and innovative research from collaborations between top researchers in economics, agriculture and related fields. To ensure a competitive process, we marketed calls for proposals broadly across the research community through multiple communications channels including our website, email newsletters, social media, listservs, research partner networks and direct contacts with academic departments at universities around the world.

Each proposal is reviewed by two external reviewers for technical merit, capacity building plan, and potential for policy integration and adoption. The MRR Innovation Lab Advisory Board, comprising leaders in development research and policy, has selected winning proposals. In order to avoid conflicts of interest, no external reviewer or Board members reviewed any proposal coming from their own institution. The USAID mission in each project's host country has the opportunity to comment before research begins.

TECHNICAL COMMITTEE

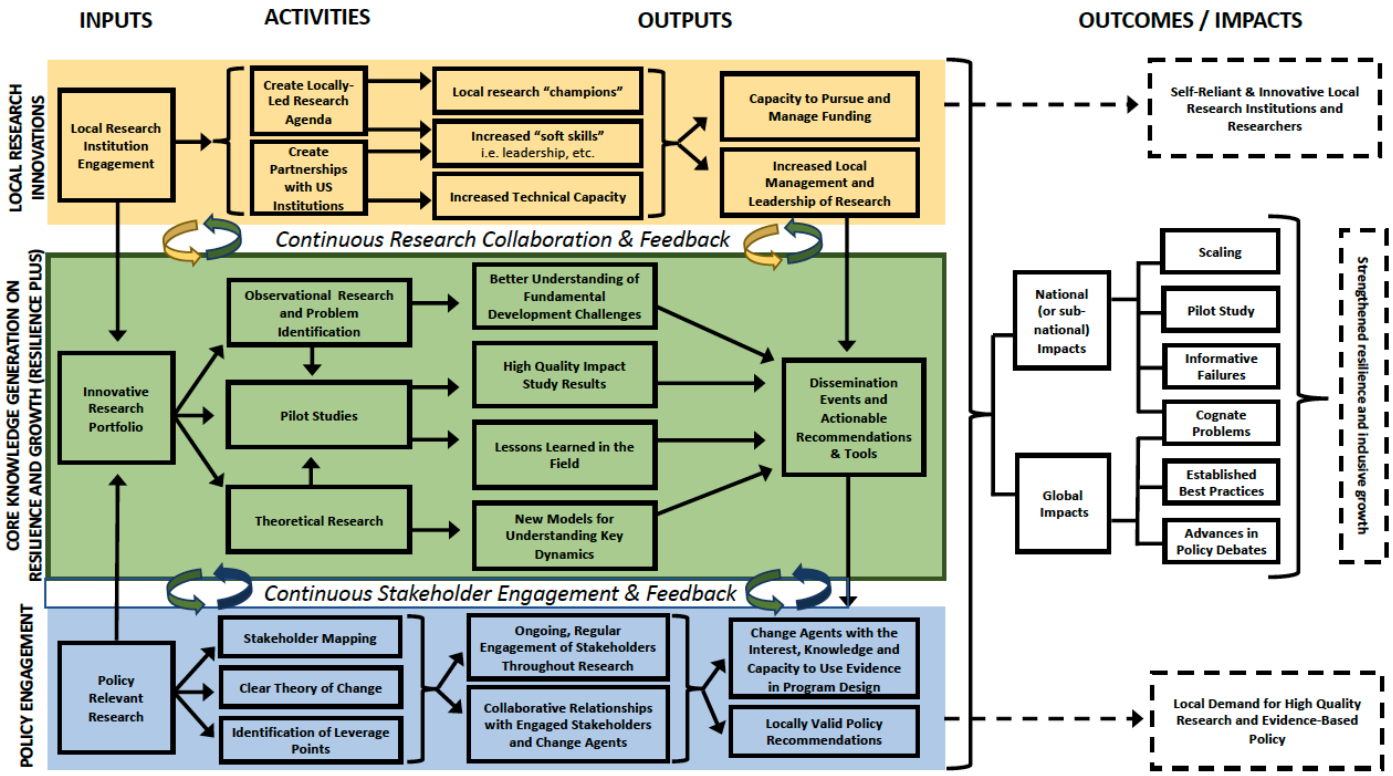
The Technical Committee is composed of all principal investigators on MRR Innovation Lab projects. They meet annually for peer review and feedback on projects across the life cycle of an activity, including research design, preliminary results, ongoing challenges and potential solutions. These meetings will also facilitate the exchange of knowledge and lessons learned on cross-cutting issues that include gender, youth and capacity development.

THEORY OF CHANGE

Our core activities for knowledge generation encompasses our portfolio of innovative research with high potential for development impacts. This high-quality observational research will identify and deepen our understanding of deeply entrenched development challenges. Though we focus on applied research, we also conduct theoretical research that creates models for understanding key dynamics of poverty and food insecurity that enables us to refine our search for solutions.

To facilitate development impacts, we curate and synthesize evidence and ensure that it is translated into accessible and actionable formats, such as reports, as policy briefs, and a well-organized and accessible website. We also design and deliver workshops and events that directly build the capacity of partners and stakeholders to apply our research results to policy and program design and to disseminate results broadly.

The MRR Innovation Lab also builds the capacity of host-country researchers and institutions to independently pursue and manage funding for future research. In this way, supporting the Local Research Innovations activities in parallel to our core knowledge generation activities.



PROGRAM ACTIVITIES, HIGHLIGHTS AND KEY ACCOMPLISHMENTS

Reported Research Results from Kenya and Nepal

Midline results from northern Kenya that showed women who completed the livelihood-building program we are evaluating had significantly greater business assets, household cash income and savings than women in communities where no programming took place. Final results from Nepal finding that women who took part in a livestock transfer and training program were more resilient to the impacts of the COVID-19 pandemic.

New Research Projects

The MRR Innovation Lab launched three new projects in 2022. One, led from Hamilton University, leverages data from Mozambique and advanced econometric modeling to define and measure rural resilience in the context of poverty traps. The two additional projects expand prior seed grants, one in Ethiopia led by the University of Arizona and the other in Ghana led by UC Davis, test new agricultural index insurance innovations.

Launched the ALL-IN Research Network

The ALL-IN Research Network (ARN) is a new collaborative initiative with ICED that has become an active hub for currently 135 African development researchers who take part in mentoring, training and peer working groups. ARN creates opportunities for African economics researchers to learn by doing in collaboration with mentors and peers from the ARN management institutions and their research networks.

Increased Stakeholder Engagement

The MRR Innovation Lab has participated in a number of events and activities that engaged stakeholders with our research. An event in Washington, D.C. with research partner The BOMA Project shared midline results with USAID staff and other key stakeholders. Feed the Future ALL-IN research teams led events in Nigeria and Uganda to share their baseline research results. MRR director Michael Carter led a session at this year's International Conference on Inclusive Insurance, a conference hosted by the Munich Re Foundation, the Microinsurance Network and the Insurance Association of Jamaica. MRR Innovation Lab associate director Tara Chiu was appointed co-chair of the InsuResilience Global Partnership Impact Working Group. To the newly formed BIFAD Climate Change Sub-committee, we contributed a document of five evidence-based recommendations for achieving the new USAID Climate Change Strategy.

New Content Sharing MRR Evidence and Insights

The MRR Innovation Lab continues to build its portfolio of policy-relevant publications, commentaries and coverage that shares research evidence relevant to development policy. *MRR Evidence Insight* briefs covered policy-relevant topics such as an indexed loan that produced the benefits of index insurance, the private-sector benefits of investing in insurance for small-scale farmers and an innovative blend of indexed financial tools. We published commentaries in *The Conversation*, *Farming First*, the FARM-D blog and *Agrilinks*. Our research has received coverage from *VoxDev,* the *Kenya Star*, Georgia State University, UC Davis and others.

INNOVATION TRANSFER AND SCALING PARTNERSHIPS

Steps Taken

Achieving development impact does not happen naturally for most researchers—it is made not born. As demonstrated in our Theory of Change, our approach incorporates our core knowledge generation activities within two parallel processes that organically build the relationships and information needed to have development impact. Engaging private sector actors is a focal point for our strategy, as they offer the conduit to scale successful lessons across geographies and value chains. Persistence and patience are required.

We are engaging in translational activities in a variety of media as technologies are made ready to scale. For example, in addition to a variety of global evidence summits, we have convened national in-country technical workshops in partnership with relevant government agencies. These workshops drew together USAID mission, the public sector, and private sector partners, as appropriate.

We plan to hold approximately five such events over the life of the award. We have dedicated resources to ensure that knowledge generated and lessons learned are appropriately adapted and shared in a way that is meaningful to each respective audience. By perceiving and pursuing the potential pathways to development impact on both the micro and macro scale we can achieve impacts.

Partnerships Made

Every research activity is required to integrate partnerships that maximize the probability of scaling of technologies after the conclusion of research activities. Additional details are available in the research summaries for each project. We are also engaged in macro-level dissemination through engagement with USAID, USAID missions, and global partnerships.

Technologies for Scaling

Given the current stage of the implementation scale, as projects are only just being initiated, we are focused on positioning technologies on pathways for successful scaling, and look forward to seeing these innovations develop. One model for successful scaling is our new project in Mozambique in partnership with NCBA CLUSA, Hollard Insurance and Phoenix Seeds. This research is an extension of a project supported by the Feed the Future Innovation Lab for Assets and Market Access that NCBA CLUSA expanded with the same insurance and seed company partners that collaborated with the AMA Innovation Lab research team.

ENVIRONMENTAL MANAGEMENT AND MITIGATION PLAN

As a reflection of the nature of MRR activities, the Lab has been given a categorical exclusion in alignment with 22 CFR Agency Environmental Procedures Section 216.2(c)(2). Full text of these exclusions is available at https://www.usaid.gov/our_work/environment/compliance/22cfr216#216.2.

OPEN DATA MANAGEMENT PLAN

The Knowledge Management Plan is a key part of our theory of change. We are implementing a detailed strategic communications strategy, which will be revised as our portfolio of projects produce findings and scaling opportunities. This communications strategy operates across a robust website, growing social media accounts and active outreach through research and institutional partner communications platforms.

We work with our principal investigators to translate the results of their research, knowledge and innovations into accessible and actionable resources for USAID and stakeholders across the broader development community. These resources include reports, the *MRR Evidence Insight* policy brief series, news and feature stories and other accessible formats.

The Data Management Plan is being implemented with the guidance of existing resources, such as the Open Data Policy Compliance Guide. The MRR Innovation Lab is committed to compliance with ADS 579 through the responsible sharing of data. Principal investigators have plans and budgets for data sharing. We are actively submitting documents to the USAID Development Experience Clearinghouse, as appropriate.

In consultation with our AOR, we are ensuring that our research datasets that are the basis for academic publications will be released as early as the date of publication, but no later than 12 months from the data of acceptance for publication. As appropriate and in compliance with USAID policies, the datasets will be responsibly curated and submitted to the Development Data Library (DDL) or other accepted platforms.

ISSUES

Over the past year, there have been a number of issues primarily related to in-country and field work. A sharp increase in travel costs has led to travel cost overages as subaward field work recommences. These cost increases have required several principal investigators to revise their budgets to ensure they stay within budget for the life of the project.

Conflict in Ethiopia as stifled the ability of research teams to travel freely there, though this has had limited direct impacts on project implementation or timelines. Communications disruptions, particularly to internet access, continue to be a challenge as U.S.-based researchers collaborate remotely with in-country partners. Security concerns in the Gambella region have delayed research led by the University of Gondar. The research team is testing the research tools in a different region but still plans conduct the actual pilot study in Gambella.

University strikes in Nigeria have stymied capacity strengthening. efforts While research activities have continued for our three Feed the Future ALL-IN awards there, capacity strengthening activities for university staff have been delayed. Capacity strengthening continues with the research teams.

FUTURE DIRECTIONS

Award Management

Though research has been able to resume after slowdowns related to the COVID-19 pandemic, our engagement and policy outreach will continue to be limited to launch events and early (baseline) dissemination with stakeholders. Focusing on knowledge developed across time and multiple projects, our engagement strategy around knowledge-sharing events, and working groups/partnership participation continues robustly.

Outreach and Engagement

Across the next year, outreach opportunities that we will participate in are estimated to range from 6-12 events. In addition to leveraging engagement opportunities hosted by other organizations, we will produce targeted events that highlight topics that we see as of particular importance to emphasize in the coming year, including a knowledge campaign on the topic of behavioral economics. In 2023, we will lead a book launch and dissemination event upon the publication by University of Chicago Press of a book on Index-based Livestock Insurance, to which MRR director Michael Carter and several principal investigators contributed chapters.

ALL-IN Research Network Support

In the next year, we will also focus on supporting the recently launched ALL-IN Research Network (ARN). We have already been drawing Feed the Future ALL-IN principal investigators into new policy realms and supported them in submitting session proposals for conferences and events. We will move forward more aggressively in the next year to extend engagement opportunities to all ARN members.

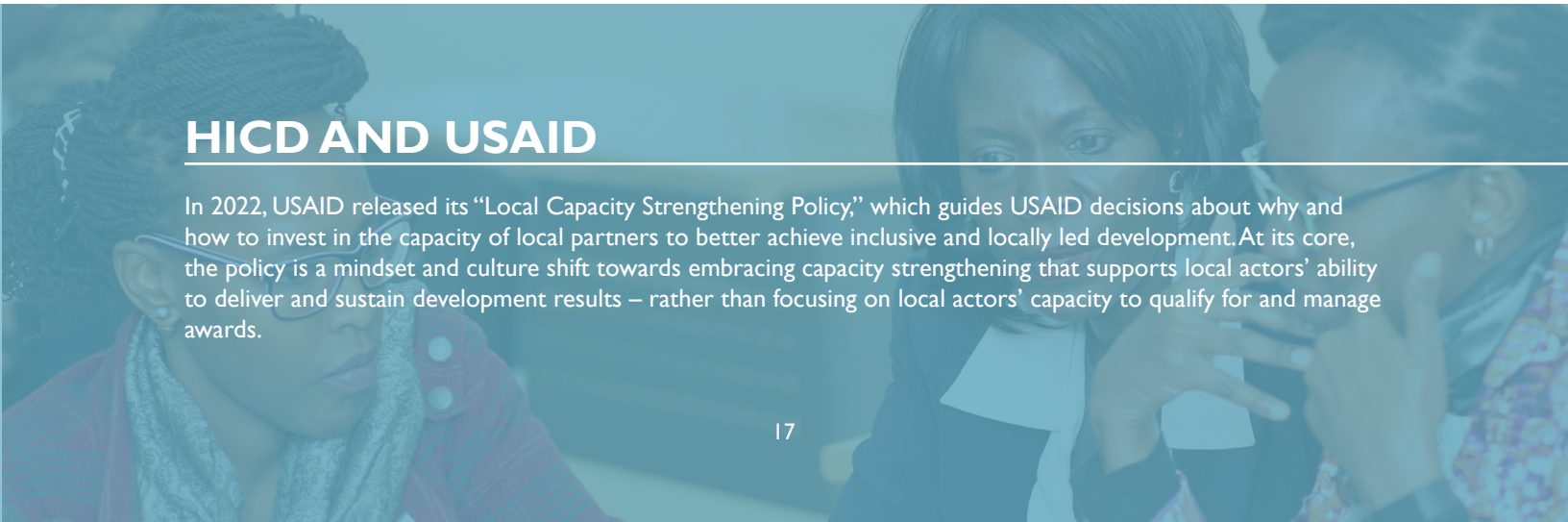
HICD IN ACTION

Our experience with Feed the Future ALL-IN has given us insights into key barriers and opportunities for more equitably engaging researchers in the field of development economics. These insights have guided our sift in HICD efforts from a "capacity development" approach to a "capacity strengthening" approach. This distinction better reflects our reliance on the existing capacities of our host-country partners as well as our broader efforts to support locally demanded, locally led activities.

Feed the Future ALL-IN, a collaboration with the International Center for Evaluation and Development (ICED), continues to progress with support as needed from the management team. Most projects completed their baseline survey activities this year. Project funding has included support for grant-recipients to host capacity strengthening activities for research partners and colleagues within their own institutions. For example, Kenya-based Tegemeo Institute of Agricultural Policy & Development hosted a five-day workshop on impact evaluations for their non-academic partner institutions. In Ethiopia, the University of Gondar held an internal workshop on rigorous research methodology to build the capacity for their department and university.

The ALL-IN Research Network (ARN), launched this year, builds on these and many other capacity strengthening experiences gained through Feed the Future ALL-IN to create new opportunities for African economists to learn by doing in collaboration with mentors and peers from the ARN management institutions and their research networks. Invited ARN members take part in learning events, annual meetings, training programs, peer feedback and grant opportunities. ARN achievements so far include:

- Formed 22 peer working groups for the 135 ARN members to date
- Held an internal launch event for members that introduced ARN and took feedback to refine future plans
- Held a public launch event including stakeholders on locally-led research, including a Permanent Secretary from the Government of Kenya as keynote speaker
- 4 ARN member workshops for collaboration and proposal preparation
- Released a members' newsletter for members sharing opportunities and resources
- Released a public newsletter for stakeholders interested in ARN



HICD AND USAID

In 2022, USAID released its "Local Capacity Strengthening Policy," which guides USAID decisions about why and how to invest in the capacity of local partners to better achieve inclusive and locally led development. At its core, the policy is a mindset and culture shift towards embracing capacity strengthening that supports local actors' ability to deliver and sustain development results – rather than focusing on local actors' capacity to qualify for and manage awards.

SUCCESS STORY

FAMILY INSURANCE FOR KENYA'S ARID RANGELANDS

In northern Kenya, the potential for devastating drought is a constant threat for women pastoralists who rely on the family's livestock for their livelihoods. Family Insurance is a new kind of insurance developed by MRR Innovation Lab researchers that completes the suite of support women in pastoralist communities need to build independent and resilient livelihoods.

Across the broader Horn of Africa, drought can destroy more than half of a household's wealth in just a few months. During severe drought in pastoralist communities in Kenya's northern region, men who control the family's livestock must range their herds farther away in times of drought. When drought is especially severe, men can quickly lose their ability to contribute to family expenses like food or schooling for children.

Insurance is designed for just this circumstance. In the event of hardship, insurance payments can help a family get through until better times. However, existing index-based livestock insurance (IBLI), does not directly address all a family's needs. IBLI releases payments in the event of drought for a household to buy forage and medicines to keep their animals alive.

MRR Innovation Lab director Michael Carter and Andrew Hobbs, a University of San Francisco economist and MRR Innovation Lab collaborator, came up with the idea of "Family Insurance" that focuses on the family's collective welfare. The index itself, those satellite measurements of forage that predict drought, would be the same as for IBLI, but the insurance could be sold in "Family Units" instead of "Livestock Units."

Hobbs first tested the idea of Family Insurance in Samburu in 2019 using SimPastoralist, a tablet-based game he created to simulate ten seasons of buying and selling goats with the additional options to in-sure them against drought. He tested SimPastoralist with married couples, both playing together and individually. Women who played without their husbands bought twice as much Family Insurance.

Takaful Insurance Africa, the team's insurance partner in Samburu, found these results striking. They got to work translating what the team learned from SimPastoralist into a real insurance contract, and in 2021 launched the first sales. Family insurance would cost 1,056 Kenyan Shillings (about $9) for a potential insurance payout of 5,600 Kenyan Shillings (about $50). Payouts arrive directly to women's M-Pesa accounts on their mobile phones.

According to the most recent insurance sales data, the Family Insurance approach led to a 20 percent increase in the number of families who bought insurance. Those who purchased this insurance in-creased the amount insured by 40 percent. These numbers are preliminary and small in terms of sta-tistical significance, but they are promising and provide a strong foundation for further study.

SUCCESS STORY

BUILDING LIVELIHOODS AND RESILIENCE

Livelihood-building programs combine skills training, a transfer and other forms of support to help the most vulnerable households to establish a sustainable, independent livelihood. The MRR Innovation Lab recently reported results from Kenya and Nepal that show livelihood-building programs have clear and significant benefits, including increased income and business assets and even increased resilience during the COVID-19 pandemic.

MRR Innovation Lab director Michael Carter is leading a large-scale field trial in northern Kenya that tests the impacts of pairing a poverty graduation program for women from The BOMA Project and Index-based Livestock Insurance from the International Livestock Research Institute (ILRI). In 2022, the research team reported new results from the project's midline survey taken in 2020 when the first cohort of participants completed the two-year program.

Results showed that the poverty graduation program significantly improved household' finances. Participants had, on average, 324 percent more in business assets, 32 percent more in household cash income and 509 percent more in cash savings than non-participants in communities where no programming took place. However, levels of depression at the start of REAP programming and program saturation within communities both had an impact on potential individual benefits from participating in the program. On average, every $1 invested in this kind of programming delivers about $3 in benefits to participating communities.

In Nepal, MRR Innovation Lab principal investigators Sarah Janzen and Nicholas Magnan partnered with Heifer International in 2020, at the start of the pandemic, to launch a study of how the pandemic affected rural households. The team would also test if having participated in a livestock transfer and training program increased household resilience. This project builds on their prior research with Heifer International in Nepal that includes a large-scale impact evaluation supported by the Feed the Future Innovation Lab for Assets and Market Access.

In 2022, the team reported the project's final results. They found that the government-imposed lockdown created price and income shocks. Rural households relied on credit, asset sales and savings to effectively protect food consumption, with no harmful effects to food security.

Having taken part in the program shifted how women coped with the pandemic. Women who took part in the rural livelihood-building program were more likely to sell livestock to cope with shocks and less likely to take out a loan. They also had lower debt and higher savings at the onset of the pandemic, better equipping them to cope. These results suggest that multifaceted livelihood-building programs improve resilience by increasing assets and encouraging savings, putting people in a stronger financial position from which to weather a shock.

SUCCESS STORY

SUPPORTING DEVELOPMENT RESEARCH IN AFRICA

In June 2022, the ALL-IN Research Network (ARN) launched its efforts to support locally led, locally rel-evant development economics research by African researchers and their institutions. The overall goal of ARN, a collaboration between the MRR Innovation Lab and the International Center for Evaluation and Development (ICED) is to strengthen the African development research community and increase the overall impact of international research investments.

Right now, the vast majority of development research in the global south is led by researchers from the global north. This is particularly true of economics research in Africa. A 2021 study[1] found that only 25 percent of articles on Africa published from 2005-2015 in leading economics journals had at least one African-based author.

The idea for ARN began in 2016 in a dialogue between the MRR Innovation Lab and ICED leadership about how to empower researchers in host countries to drive research agendas to support policy making. What appeared to consistently be missing was opportunity and funding that would leverage the increasing number of researchers who are highly trained, have innovative ideas and the connections in policy making at the local and national levels to really have an impact.

In 2020, the MRR Innovation Lab and ICED established the Feed the Future Advancing Local Leadership, Innovation and Networks (ALL-IN) initiative with $6 million in support from USAID to fund 12 initial research projects led by African researchers. These 12 projects were selected from 124 proposals submitted from over 40 institutions, indicating a tremendous demand for development research funding.

ARN is an expansion of the work begun with Feed the Future ALL-IN. The primary goals of ARN are to strengthen participants' research and proposal-writing skills and to facilitate connections to donors and others in the international development community that fund large-scale research. ARN may make it possible to unlock funding for far more than Feed the Future ALL-IN made available.

ARN launched in June, 2022 and has already begun its activities by convening more than 130 participating researchers across Africa into 22 peer groups who work in similar areas of research. A critical next step is to secure funding partnerships to support the next round of major projects that will follow in the footsteps of Feed the Future ALL-IN by generating international interest in making investments in talented researchers looking for opportunities.

[1] Chelwa, G. 2021. "Does economics have an 'Africa problem'?" Economy and Society.

PROJECT UPDATE

Measuring Resilience in the Presence of Poverty Traps

Location: Global

Lead Principal Investigator: Mo Alloush, Hamilton University

Collaborators: None

Timeline: 2022-2023

Funding: $30,770 (USAID)

Description: The concept of resilience has gained traction among development agencies and policy makers while several recent studies have proposed definitions of and measurement tools for development resilience. While these tools are useful and have pushed the thinking on poverty dynamics forward, they do not capture the complexities of how households move in and out of poverty. This project leverages data from an ongoing field trial in Mozambique and advanced econometric simulations to propose a definition of development resilience and an accompanying measure that is conceptually rigorous, theoretically grounded and is cohesive in the presence of poverty traps. The project also investigates which empirical methods can detect poverty traps in the presence of realistic complexities faced by rural households around the globe.

Achievements: Contracting between UC Davis and Dr. Mo Alloush, Hamilton College, was finalized in July 2022. Project activities have begun and will be reported in the 2023 Annual Report.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Building Resilience Through Social Protection and Nutrition in Bangladesh"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project expands our understanding of rural resilience to reflect the potential for poverty traps and to establish a measure of resilience that accounts for the complexity of challenges facing rural families.

ACTIVITIES

The research team is developing an econometric model and a large data set from a recent randomized controlled trial in Mozambique to build the econometric model and establish an advanced measure of resilience that the team will apply to datasets from around the globe.

OUTCOMES

This project will contribute to practical and theoretical understanding of both poverty traps and resilience. There is significant interest among policy-makers in resilience; strengthening the ability of the poor and vulnerable to effectively weather shocks has become an oft under-defined goal of many organizations working in development.

IMPACTS

Whereas development resilience and poverty traps are central to development economics, the scope of this project has implications anywhere poverty and economic vulnerability exists.

PROJECT UPDATE

Building Resilience Through Social Protection and Nutrition in Bangladesh

Location: Bangladesh

Lead Principal Investigator: John Hoddinott, Cornell University

Collaborators: Bangladesh Agricultural University, International Food Policy Research Institute (IFPRI)

Timeline: 2022-2023

Funding: $299,106 (USAID)

Description: This MRR Innovation Lab project tests multiple measures of resilience with data from a pilot program in Bangladesh for women in rural households with incomes below the poverty line. These results will show whether the program built resilience to shocks that include the COVID-19 pandemic, and will contribute to a simplified approach to measuring resilience in development programming.

Achievements: The project leveraged newly collected data in Bangladesh, and fieldwork associated with this data collection took place in May 2022. During this time, the team successfully interviewed 3,687 out of 4,066 target households. The clean data set was received in September 2022, and the team is in the process of conducting additional cleaning checks and doing aggregate variable construction. A limited number of descriptive results were produced, showing that while the direct health effects of the pandemic were small in this sample, the economic consequences were more severe, with a significant percentage of households either depleting liquid savings and/or borrowing money to buy food.

Capacity Building: Bangladesh Agricultural University has tentatively identified some graduate students to work on the project. The team looks forward to engaging these students in the data analysis process.

Lessons Learned: The team found that sample attrition from the household survey was largely comprised of whole-household out-migration (347 households), with only nine cases of respondents declining to be interviewed. Households were generally willing to participate in follow-up surveys.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project seeks to determine whether development programming focused on livelihoods increases rural resilience. It also seeks to compare existing resilience measures to create a simplified measure that can more easily be used by development programs.

ACTIVITIES

This project builds on a prior impact evaluation to test whether development programming enhanced resilience to shocks such as COVID-19. The team is also examining whether women are more likely to be protected from shocks when they live in a resilient household.

OUTCOMES

The results of this project can help develop shock-responsive social protection programs that promote resilience. The broader aim is to advance knowledge on how to measure resilience so development organizations such as USAID and local and international NGOs can more easily and effectively evaluate which interventions truly build resilience.

IMPACTS

Given that current government interventions include both in-kind (food) and cash transfers, this project's results provide evidence of the relative effectiveness of different approaches in protecting women and households from the impacts of shocks such as COVID-19.

PROJECT UPDATE

Gender, Nutrition-Sensitive Agricultural Programs and Resilience in Bangladesh

Location: Bangladesh

Lead Principal Investigator: John Hoddinott, Cornell University

Collaborators: International Food Policy Research Institute (IFPRI); Data Analysis and Technical Assistance Ltd, Bangladesh

Timeline: 2020-2021

Funding: $405,924 (USAID)

Description: The 2015-2018 Agriculture Nutrition and Gender Linkages (ANGeL) project in Bangladesh improved agricultural production practices, children's diets and relationships in the home. In 2019, a devastating cyclone struck the area, compromising cropland and housing in four of the 16 districts participating in a International Food Policy Research Institute (IFPRI) randomized controlled trial on the program's impacts. The MRR Innovation Lab is supporting the IFPRI research team to re-survey original study participants to measure whether the ANGeL program's improvements sustained after the cyclone. The study will contribute to growing evidence on resilience while building on the initial program results to inform policies to build resilience to weather-related shocks.

Achievements: In March 2022, the project team successfully completed all field work. 2,641 out of a target sample of 2,760 households (95.7%) were interviewed, and 184 community and price surveys were completed. The final version of the cleaned data set was received in late June and since that time, the project team has been working with the data, generating descriptive statistics and aggregate variables such as household size, the value of food consumption, etc.

Capacity Building: Due to various health stresses on the research team, the development of capacity building materials and outreach to stakeholders in Bangladesh did not occur in this reporting period. The project has requested a no-cost extension to ensure study results can effectively be disseminated throughout Bangladesh and the promised capacity building activities take place.

Lessons Learned: A noteworthy finding has been that the effects of Cyclone Fani were less widespread than originally anticipated. Effects of the COVID-19 pandemic were widespread, but these were largely economic rather than directly health-related.

Presentations and Publications: None to report.

Theory of Change: Drafting underway.

Impact Pathways

RESEARCH OBJECTIVES

Test whether agricultural interventions that diversify income and improve nutrition lead to sustained improvements in assets, agricultural diversification, diet diversity and women's empowerment even through significant economics shocks.

ACTIVITIES

Re-survey individuals and households that participated in the Agriculture Nutrition and Gender Linkages (ANGeL) Project.

Particular attention will be paid to districts within the original ANGeL intervention that were affected by the 2019 Cyclone Fani.

OUTCOMES

The survey will generate information in 4 domains:

1. Gender disaggregated information about assets
2. Income diversification based on non-staple crops grown
3. Diet Diversity based on the Food Consumption Score
4. Women's Empowerment based on Pro-WEAI.

IMPACTS

Evidence on the longer-term impacts of the ANGeL intervention as well as a contribution to the design of policies to help families, women and children in particular, to better be able to withstand shocks brought on by climate change.

PROJECT UPDATE

Building Trust in Index Insurance with Picture-based Crop Audits in Ethiopia

Location: Ethiopia

Lead Principal Investigator: Maria Porter, University of Arizona

Collaborators: Bahirdar University, Ethiopian Institute for Agricultural Research (EIAR), Innovations for Poverty Action (IPA), International Food Policy Research Institute (IFPRI), WFP R4 Rural Resilience Initiative

Timeline: 2022-2025

Funding: $749,983 (USAID)

Description: Index-based insurance can protect smallholder farmers against losses, but basis risk and delays in payouts foster mistrust in the product. This project builds on prior MRR seed funding to lower basis risk and premiums of R4 Rural Resilience Initiative products and improve the timing of payouts. This project includes biophysical crop simulations, picture-based insurance (PBI) and mobile banking. This research evaluates the impact of these innovations on insurance demand, productivity, profitability, risk mitigation, consumption smoothing and resilience.

Achievements: With the completion of all planned data collection and analysis with prior seed-funding, the team began implementation of the full award. Through engagement with R4 partners, the team determined that data from one more season is needed for pricing. Therefore, farmers will not be enrolled in the insurance program until June 2023. The project has partnered with CGIAR to explore whether farmers with PBI are more likely to adopt drought-tolerant seeds compared to farmers who receive WBI. All IRB approvals are in place for integrating PBI into R4's existing insurance program, and a baseline survey was designed, which will be implemented in partnership with IPA in October 2022.

Capacity Building: New partnerships between the team and IPA, IFPRI, and CGIAR expand original research. Terrific partnerships with Dr. Solomon Bizuayehu Wassie from Bahirdar University and Dr. Kebebew Assefa from EIAR push the project forward. Field staff were hired and trained by Dr. Wassie in using the AzmeraCam app developed by IFPRI to implement PBI.

Lessons Learned: The team learned about a participatory index design process and what type of information insurance providers need to underwrite and price PBI as a fail-safe trigger in the existing R4 product. The team now plans to expand PBI to include teff.

Presentations and Publications: Conference presentations at the Symposium on Resilience Research for Global Development Challenges and the Economic Science Association – North America Meetings; Seminar presentation at IFPRI.

Theory of Change: Drafting underway.

Impact Pathways

RESEARCH OBJECTIVES

Test a new methodology to enhance the precision of a crop insurance for the R4 Rural Resilience Initiative in Ethiopia. The project will also study factors known to influence demand for insurance: trust, liquidity constraints, quality, premiums, and women's constraints.

ACTIVITIES

1. Collect data to inform the design of a large-scale RCT to assess the impact of integrating image-based crop monitoring into the R4 insurance indices.
2. Study the effects of using ground pictures as a fail-safe trigger in claims settlement.
3. Introducing farmers to insurance games for learning more about the R4 insurance product.

OUTCOMES

This project will generate evidence around reducing basis risk and the improving trust and understanding of index insurance among smallholder farmers. It will also build the capacity of EIAR around monitoring and evaluation.

IMPACTS

Knowledge about premiums farmers may be willing to pay, factors influencing demand, whether an actuarially fair price is plausible and whether insurance subsidies are needed. The project will also expand knowledge on financial access to rural families, the application of digital technologies and the adoption of improved technologies.

PROJECT UPDATE

The Distributional Impacts of Large-Scale Land Transactions in Ethiopia

Location: Ethiopia Benishangul-Gumuz and Gambella Regions

Lead Principal Investigator: Solomon Zena Walelign, University of Gondar

Collaborators: Ethiopian Economics Association; University of California, Berkeley

Timeline: 2021-2024

Funding: $439,233 (USAID)

Description: Large-scale land transactions in developing countries are intended to transform agricultural systems through domestic and foreign investments in commercialization. However, the welfare impacts these transactions have on local communities remains unclear. This ALL-IN project is measuring the impacts of large-scale land transactions in Ethiopia and identifying the communities and households who benefit and those who does not. The results contribute evidence on how these transactions affect rural resilience, economic growth, gender equality and women's empowerment.

Achievements: The project began with a systematic literature review on LSLTs and collection of data from large-scale land investment projects. The team initiated partnerships with Land Matrix and the Ethiopian Ministry of Planning and Development, while preparing a matching fund proposal for the University of Gondar. The community survey instrument and household survey questionnaire were developed and revised. In final preparation for surveying in the Gambella region to begin, LSLT data was prepared, verified, and consolidated.

Capacity Building: The project team created a capacity building training plan based on the results of a systematic needs assessment study. The plan includes a two-pronged approach including a bi-weekly seminar series on impact evaluation and methods, and research training workshops that pair PhD students with mentors to support their research capacity/productivity. An introductory training was also held on the application of SurveyCTO to prepare the project team for primary data collection.

Lessons Learned: There is high demand for Impact evaluation training among the research community and higher institutions of learning with very minimal access to opportunities to get the training.

Presentations and Publications: Six seminars delivered based on the project capacity building plan; Project recognition at the University of Gondar's 30th Research Conference; Participation in the Evidence to Action (E2A) conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This research project is measuring the impacts of large-scale land transactions (LSLTs) in Ethiopia and identifying the communities and households who benefit from these policies and actions, and those who do not.

ACTIVITIES

The researchers are working to identify who benefits from these transfers and who does not, with a focus on the causes of those varying impacts. The study measures those impacts based on the difference in the amount of land earmarked and transferred land across districts in the regions specifically.

OUTCOMES

This project will produce valuable data sets that will help clarify the real benefits and beneficiaries of LSLTs programming. The data will also contribute to a deeper understanding of potential spillover impacts from communities affected by LSLTs and nearby communities.

IMPACTS

This research project will contribute to a limited knowledge base on how large-scale land transactions affect rural resilience, economic growth, gender equality and women's empowerment. Governments will be better informed of the intended and unintended consequences of these actions on their rural populations.

PROJECT UPDATE

Do No Harm: The Welfare Effects of Behavioral Index Insurance Interventions in Ethiopia

Location: Borana region of Ethiopia

Lead Principal Investigator: Glenn Harrison, Georgia State University

Collaborators: Center for the Economic Analysis of Risk (CEAR), Cornell University, Ethiopian Environment and Climate Research Centre (ECRC), International Livestock Research Institute (ILRI), Oromia Insurance Company, Utrecht University

Timeline: 2020-2021

Funding: $355,164 (USAID)

Description: MRR Innovation Lab researchers are testing a "behaviorally smart" intervention with index-based livestock insurance (IBLI) in Ethiopia that maximizes welfare by measuring preferences and beliefs and providing tailored advice on the decision to purchase insurance. This project will provide guidance to policy makers about how to evaluate insurance's contribution to welfare based on households' preferences and beliefs.

Achievements: Two rounds of the midline survey were conducted, with 2,416 pastoralists and 80 VIPs interviewed each round. Pastoralists and VIPs also participated in experiments that later informed the type of tailored advice delivered to them, and zones of Kebeles were randomly assigned to treatment arms. Survey data was matched with the existing panel dataset to enable the longer-term effects of IBLI. Additionally, administrative IBLI sales data from OIC was matched with the survey and experimental data, to allow for an impact analysis. The team secured additional funding from CEAR in the second round of the midline survey to distribute discount coupons offering a 50 percent insurance premium discount. The pre-analysis plan for data analysis using data from the first midline round was written.

Capacity Building: A total of 154 VIPs were trained on the IBLI product and how to sell it, as well as the tailored advice. Fifty enumerators and 10 supervisors were also trained on research practices and data collection. Collaboration among partners was maintained throughout the year, and regular meetings with OIC continued, which enabled better coordination in scheduling and swift responses to policy changes. Various postdoctoral and graduate students took on survey development and data analysis.

Lessons Learned: During the first midline survey, the team changed the order in which they visited study sites to avoid national and regional conflicts. Continuing with a flexible approach to the second midline, the team cleared survey areas one at a time instead of deploying separately, which completed data collection much more efficiently. The project also found raffle tickets to be successful in obtaining VIP's attention, which led to VIPs requesting an increase in the number of beneficiaries.

Presentations and Publications: None to report

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Measure preferences and beliefs to conduct a "behaviorally smart" conditional IBLI intervention in the Borana Zone of Ethiopia that considers the preferences and beliefs that drive whether pastoralist households purchase index insurance.

ACTIVITIES

1. Baseline survey to measure a household's preferences and beliefs
2. Intervention implementation with three groups, control and two treatments tailored on information gathered from the baseline survey

The project will utilize the infrastructure of an existing index-based livestock insurance (IBLI) product

OUTCOMES

Increased understanding around whether tailored behavioral interventions making it possible for them to maximize their welfare by deciding to purchase or not purchase insurance.

IMPACTS

1. Generate large welfare gains for some, but also no significant welfare losses for others.
2. Based on the project results, the quality and impacts of this insurance programming will help ensure that the intervention does not harm those it is trying to protect.

PROJECT UPDATE

Digital Communication to Reinforce Nutrition and Household Resilience in Northern Ghana

Location: Northern Ghana

Lead Principal Investigator: Robert Darko Osei, Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana

Collaborators: Image-AD, Northwestern University, USAID Resiliency in Northern Ghana Project (RING)

Timeline: 2021-2024

Funding: $449,833 (USAID)

Description: Nutrition is critical for children's growth and development in rural areas in Africa where families face the additional risks of climate-related shocks like drought. This Feed the Future ALL-IN project tests whether nutrition-related messages by mobile phone reinforce the impacts of earlier development programming on families' nutrition and resilience. The project also tests whether communication can ensure household resilience and whether those communications had different impacts for women and men. The study also analyzes the costs and benefits of nutrition-related messages to guide the future scaling up of such programs.

Achievements: The team collaborated with partner institutions and established initial buy-in of stakeholders for the proposed study. A baseline data collection template was developed, data was collected, and a report was prepared. To further conceptualize the treatment framework, the team developed Interactive Voice Response (IVR) messages, translated them into the major local languages, and tested them. Voice actors were trained and successfully recorded the messages in 11 local languages. Resilience and WASH indices were also created using baseline survey data.

Capacity Building: To build the capacities of early career researchers, the team has led trainings on rigorous impact evaluation techniques, research design and data analysis using Stata. Five female enumerators were recruited and have gained professional skills in voice acting through ImageAD as translators for the recordings of the health and nutritional messages. The project team participated in the ALL-IN Grant Management Workshop hosted by ICED and the MRR Innovation Lab.

Lessons Learned: The team learned the value of involving all key stakeholders throughout the project design. Seeking ethical clearance at an early stage is also important. The team learned the importance of setting IVR messages in local languages and pre-testing to ensure they are concise enough that beneficiaries do not feel burdened to listen.

Presentations and Publications: Presentation at the Evidence to Action (E2A) conference; baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project tests whether nutrition-related messages by mobile phone reinforce the impacts of earlier development programming on families' nutrition and resilience. It also investigates whether communication can ensure the sustained resilience and if there are gendered differences in outcomes.

ACTIVITIES

The research team is coordinating a direct mobile phone communication campaign using an Interactive Voice Response (IVR) platform. The team will collect data on the cost effectiveness of using mobile phone messaging to speed up positive behavior change.

OUTCOMES

The team will look at impacts on household income, expenditures on water, sanitation and hygiene, spending on food, and dietary diversity as well as children's nutrition-related outcomes. The team is also testing whether communication can sustain resilience in terms of nutritional outcomes during the COVID-19 pandemic.

IMPACTS

The Government of Ghana has led major initiatives to address poverty. This project's results providing evidence on the impacts of direct mobile phone communication in enhancing ongoing and future government initiatives to support nutrition resilience of vulnerable populations.

PROJECT UPDATE

The Impact of Irrigation on Improved Productivity and Market Value for Smallholder Farmers in Northern Ghana

Location: Ghana

Lead Principal Investigators: Charles Amoatey, Ghana Institute of Management and Public Administration (GIMPA); Bilal Siddiqi, Center for Effective Global Action (CEGA)

Collaborators: Ghana Irrigation Development Authority (GIDA), Ghana Ministry of Special Development Initiatives

Timeline: 2021-2023

Funding: $379,215 (USAID)

Description: The effect climate change is having on livelihoods and food security is of great concern to many nations. In Ghana, high levels of poverty in the northern parts of the country are due in part to lower rainfall during its single rainy season. This new ALL-IN study measures the socio-economic impact of Ghana's government policy initiative dubbed "One Village, One Dam" (1V1D) implemented in Northern Ghana since 2017. The results provide evidence on the most effective ways to ensure that national-scale investments in dams serving small-scale farming communities yield the greatest benefits for rural families.

Achievements: The project was officially announced after obtaining government officials' buy-in and receiving a list of all active and inactive dams. The team conducted an extensive review of literature and a reconnaissance visit to the study area to develop a detailed project plan, monitoring and evaluation framework and theory of change. The data collection instrument was developed and enumerators were trained through a pilot test of the instrument. Baseline data was collected, and the team presented preliminary findings to academics and policy makers.

Capacity Building: The project collaborates with four key government institutions involved in irrigation interventions in Ghana and has assigned a government representative to encourage active engagement. The team attended regular mentorship meetings with US-based mentors as well as the ALL-IN Grant Management Workshop held in March.

Lessons Learned: Actively engaging stakeholders from the original 1V1D project enhanced that team's appreciation of the evaluation process and opened doors to receive more information. A reconnaissance visit also proved to be highly beneficial, allowing the team to assess the true situation on the ground for meaningful impact and evaluation standards. Policymakers are willing to receive help from researchers once they believe studies are done to improve implementation, not as "fault-finding" mission.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference and with various other academics and policy makers in Ghana.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

- Produce evidence to improve implementation of 1V1D and guide policy on the project.
- Assess the extent to which the implementation of the 1V1D project achieves its intended objectives.
- Examine the latent factors that constrain the success of IVIF projects.

ACTIVITIES

- Test impacts with randomized control trials through comparisons of households that received the benefits associate with a dam, and those that do not.
- Test whether additional training including efficient use of irrigation, farming practices, livestock-rearing, and marketing of produce bolster impacts.

OUTCOMES

This research will identify causal linkages between small village dams and household food security impacts. it will also indicate the effectiveness of adding training to existing government initiatives like the 1D1V program. The relationship between the GIMPA team and the Ghana Ministry of Monitoring and Evaluation will be strengthened, leading to more evidence-informed policy-making.

IMPACTS

With the project's analysis of the efficacy of the 1V1D project, this work will contribute knowledge to improve government-level irrigation policies to better ensure all-year-round food production.

PROJECT UPDATE

Pairing Small-scale Irrigation and Index Insurance to Manage Risk and Expand Access to Credit in Northern Ghana

Location: Northern Ghana

Lead Principal Investigators: John K. M. Kuwornu, University of Energy and Natural Resources; Francis H. Kemeze, African Development Bank

Collaborators: Ghana Irrigation Development Authority (GIDA), Irrigation Company of Upper Region (ICOUR), International Water Management Institute, One Village One Dam Initiative (1V1D), The Ohio State University

Timeline: 2021-2024

Funding: $398,869 (USAID)

Description: Drought is a constant threat across Sub-Saharan Africa. A new government initiative in Ghana is building rain-fed dams to irrigate small-scale farmer communities, but these dams may dry up during a severe drought. An ALL-IN research team is testing an innovative bundle of supplemental irrigation and a complementary index insurance product to expands farmers' overall drought protection. This innovation could unlock investments that leverage the benefits of irrigation and better-managed risk, further improving long-term agricultural growth and resilience in rural communities.

Achievements: The team completed a desk review of irrigation facilities in Ghana and developed items for the scoping mission in January that resulted in a Scoping Study Report based on visits with farmers, communities, and irrigation facilities throughout Northern Ghana. Seventy communities were identified as suitable for the study, and the team developed the baseline survey questionnaire. Enumerators and field supervisors were trained while the data collection tool was pre-tested. The project team collected baseline data for preliminary analysis.

Capacity Building: Collaboration with GIDA and ICOUR has allowed these organizations to build their expertise in technical services in irrigation infrastructure development. Partnership with GIMPA allows the team to share notes and avoid duplication between this project and the other ALL-IN project focused on irrigation for improved productivity and market value in Northern Ghana. The team participated in the ALL-IN Grant Management Workshop in March 2022.

Lessons Learned: A key lesson learned during this period of the project implementation was the importance of actively engaging key stakeholders of the project. The team also found importance in double checking beneficiary data to avoid double registration before data collection. This helps to ascertain actual figures and plan better.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

The research team is testing an innovative bundle of supplemental irrigation and a complementary index insurance product to expands farmers' overall drought protection.

ACTIVITIES

This project will measure the causal impacts of the index insurance and irrigation bundle made possible by the One-Village-One-Dam initiative.

OUTCOMES

The project will answer questions not just on the efficacy of bundling insurance and irrigation, but also on the most cost-effective way to bundle, as well as the commercial viability of such an combined intervention.

IMPACTS

This project will inform the government of Ghana on how to better leverage the benefits of their dam and irrigation program but considering the inclusion of index-based agricultural insurance as a way of boosting farmer risk-mitigation strategies while saving significant government resources.

PROJECT UPDATE

Promoting Resilient Agricultural Growth with Area Revenue Index Insurance in Ghana

Location: Ghana

Lead Principal Investigator: Ashish Shenoy, UC Davis

Collaborators: The Catholic University of America, Chr. Michelsen Institute, Esoko, Rhema Tidings, Ghana Agricultural Insurance Pool (GAIP), University of Alabama, University of Ghana, WorldCover

Timeline: 2022-2024

Funding: $749,941 (USAID)

Description: Agricultural index insurance can provide a critical safety net in developing countries for households at risk of losing their livelihoods to drought, flood and other climate-related shocks. However, existing insurance contracts overlook the risk of shifts in crop revenues. This project in Ghana builds on prior seed grant funding to bundle loans to buy agricultural inputs like improved seeds and fertilizer with a new index insurance contract that covers crop price and revenue risk. The team is measuring the bundle's impacts on farm and non-farm households in terms of agricultural production, food security and wellbeing.

Achievements: The project expanded from a seed grant to built and scale the revenue index insurance product. The project secured the cooperation of the Ghana Agricultural Insurance Pool (GAIP), a national agricultural insurer, to design the various insurance contracts to be offered to participants. A partnership was also established with W-SAFE, a reinsurance company, who will provide reinsurance. With these partners on board, the project team developed a timeline to adhere to while creating an insurance product to be approved by the national regulator.

Capacity Building: Institutional capacity will be developed within both GAIP and W-SAFE as they design the insurance contracts and provide reinsurance, respectively. A partnership was also secured with Rhema Tidings to manage field and survey activities.

Lessons Learned: The team is aware that price insurance is an untested product, so many insurers are hesitant to use unvalidated price data as the basis for an insurance index. Infrastructure for certified, trusted price reporters will be necessary to sustain a market with decentralized price indices over the long term.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Evaluate agricultural insurance based on area revenue in northern Ghana. The research will also test a product that will insure total agricultural revenues for producers as well as broaden the market for agricultural insurance to those who do not have a crop to insure, but whose livelihood is reliant on agriculture.

ACTIVITIES

- Development new insurance products and market them over a mobile phone platform.
- Integrate yield and price indices into product design.
- Run farmer surveys to create a new insurance product.
- Market new products to producers and laborers
- Pilot strategies around marketing and communications to effect product take-up

OUTCOMES

This feasibility study will provide concrete numbers about take-up and demand that will allow researchers to fine turn or reconfigure their insurance products and interventions. Relationships between the researchers and their partners will set the stage for future scaling.

IMPACTS

This feasibility study will inform the researchers and partners so that a successful intervention can be taken quickly to scale with maximum development impacts on mitigating agricultural risk faced by farmers and laborers in Norther Ghana. It will also inform the nascent field of indexed price insurance products.

PROJECT UPDATE

Reducing Poverty Among Women by Strengthening the Shea Value Chain in Northern Ghana

Location: Northern Ghana

Lead Principal Investigator: Fred Dzanku, Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana

Collaborators: Presbyterian Agricultural Services (PAS), META Foundation, Netherlands Development Organisation (SNV), Northwestern University, USAID Ghana

Timeline: 2021-2024

Funding: $450,000 (USAID)

Description: The shea value chain in Ghana is dominated by women, from picking shea nuts to processing them into commodities for a growing global market. Shea presents a powerful opportunity to address poverty and food insecurity but a lack of training and financing keep women from achieving the full profits from their efforts. This ALL-IN project is testing a package of training and financing that will vertically integrate local shea markets in northern Ghana, increasing the sector's overall profitability while empowering women producers to receive the full benefits of their work.

Achievements: In the initial stages of the project, the team identified six specific districts within Northern Ghana for the study and conducted reconnaissance trips in each district. Baseline data was collected at both the community level and the household/individual level, and a draft baseline report was developed after a thorough data analysis. After assigning and validating treatment group members, credit was successfully delivered to 1,593 beneficiaries who accepted and signed the credit contracts.

Capacity Building: The project team has forged partnerships with PAS and META Foundation, providing trainings for them to thoroughly understand treatment protocols. The team has also conducted several monitoring exercises to track partners' progress with project-related fieldwork activities. In March 2022, the project management team participated in the ALL-IN Grant Management Workshop hosted by ICED and the MRR Innovation Lab.

Lessons Learned: The reconnaissance study provided the team with important lessons that will guide the implementation of interventions. The team is learned the value of double checking the validity of partners' expertise and commitment to the project.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project seeks to develop evidence around credit and formal repayment contracts in Northern Ghana, which may increase the sector's profitability and overall shea supply while empowering women to receive the full benefits of their work.

ACTIVITIES

This randomized controlled trial (RCT) will test the impacts of credit with and without formal contracts for women shea producers.

OUTCOMES

This research will show whether providing both credit and formal contracts increases increases producer's incomes as well as the shea kernel supply and sector profits in part because together they guarantee a minimum stable price.

IMPACTS

The information learned from this project has the potential to increase women's social and economic empowerment by improving the coordination of supply and demand and increasing the profitability of the shea sector, a sphere traditionally under the purview of women.

PROJECT UPDATE

Assessing the Impact of Digital Loans for Agriculture in Kenya

Location: Kenya

Lead Principal Investigator: Sarah Janzen, Kansas State University

Collaborators: Acre Africa, Pezesha Africa Limited, University of Florida, University of Georgia

Timeline: 2020

Funding: $35,000 (USAID)

Description: MRR Innovation Lab researchers are testing a sustainable approach to extending digital credit to small-scale farmers and its potential impact on their wellbeing. The team is collaborating with partners in the digital finance and agriculture sectors to design and offer digital agricultural loans backed by weather index insurance and that are large enough to make meaningful investments while providing the flexibility to make payments after harvesting crops. The goal of this project comes in two parts. One is to examine the impact of digital credit on farmer wellbeing and to assess if relaxing credit constraints enables rural small-scale farmers to escape from poverty. The second is to evaluate the impact of digital credit in building the resilience of small-scale farmers, and their ability to manage risks that threaten these escapes.

Achievements: In this reporting period, the project team continued to work toward their goals of establishing partnerships to design a rigorous impact evaluation of a digital credit for agriculture product relevant for smallholder farmers or livestock growers in rural Kenya. This included conversations with DigiFarm, a potential partner. Dalberg, a current project partner, engaged with other potential partners working in the digital finance and/or agricultural supply chains.

Capacity Building: The team partnered with Kim Kariuki, Director of Integrated Projects at Dalberg Research, to identify and engage potential partners.

Lessons Learned: Due to the COVID-19 pandemic, banks and other lending institutions continue to be risk averse in terms of new products and lending in agriculture. This has made it extremely difficult to get the project off the ground.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Explore the feasibility of a financial market innovation with the potential to promote inclusive agricultural development: digital credit backed with index insurance, where digital credit refers to loans applied for and approved through mobile phones.

ACTIVITIES

1. Seek a lender for loan capital.
2. Engage with USAID staff in the USA and in Kenya to assess logistics and cost/funding mechanisms for a DCA mechanism to back the loans.
3. Seek input from the USAID Kenya Mission on geographical targeting.
4. Qualitative research to explore adverse selection and moral hazard in digital credit.

OUTCOMES

1. Established new partnerships.
2. Lay foundation to implement a full complement of impact evaluation activities.
3. Ground-truthed feasibility of larger scale project.

IMPACTS

1. Clarity and initial evidence that additional innovations integrated with digital agricultural loans will increase access to credit and bolster financial inclusion.
2. Understanding of whether the project should continue to next stage of research as a full proposal.

PROJECT UPDATE

Better Borrowing to Promote Access to Water and Improve Dairy Farming in Kenya

Location: Kenya

Lead Principal Investigator: Michael Kremer, University of Chicago; Gautam Rao, Harvard University

Collaborators: Innovations for Poverty Action, Nyala Vision SACCO, Precision Agriculture for Development

Timeline: 2020-2025

Funding: $566,600 (USAID)

Description: Many small-scale farmers lack the financial resources to make initial investments in equipment that can help them shift from subsistence farming to producing higher-value products for national markets. MRR Innovation Lab researchers are partnering with Nyala Vision Savings and Credit Cooperative in Kenya to test financial contracts for rain collecting water tanks, including a layaway savings plan, an asset-collateralized loan and a hybrid option that enables farmers to save towards the loan's deposit.

Achievements: The project team completed the pilot study, which included the conduction of various surveys to better understand water sources, tank ownership, and the market for water tanks. A willingness-to-pay elicitation module for financial contracts was drafted and tested in the field. This required the finalization of data use agreements with Nyala Vision SACCO, which in turn allowed the project to start offering actual financial contracts to farmers for rainwater harvesting tanks.

Capacity Building: The existing partnership with Nyala Vision SACCO remains strong through regularly scheduled meetings between their CEO and staff, and project PIs. An in-person visit allowed the project team to meet with the SACCO board and all bank branch managers to present the project and explain protocols, ensuring all parties are ready for launch. Two new research specialists from the UChicago Development Innovation Lab and field team members were onboarded and trained.

Lessons Learned: Piloting results show that demand for the financial contracts offered remains high, which suggests that recruitment of the target sample size of experimental participants should be successful. However, piloting activities also found that demand for rainwater harvesting tanks is currently lower than usual due to the global financial crisis and a recent drought. The team is exploring launching the project in areas less affected by drought, as rains are expected to increase in other areas soon.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project tests innovations in asset-collateralized loans for dairy farmers to invest in equipment to improve their productivity.

ACTIVITIES

This project is partnering with Nyala Vision Savings and Credit Cooperative (SACCO) in Kenya to test financial contracts for rain collecting water tanks, including a layaway savings plan, an asset-collateralized loan and a hybrid option that enables farmers to save towards the loan's deposit.

OUTCOMES

The team is evaluating how the water tanks affect a range of business and welfare outcomes. In addition to changes in milk sales and farming practices, the team is measuring changes in health, time use and responsibilities within the household, gender and household dynamics, as well as whether community water usage differs between those who own tanks and those who do not.

IMPACTS

With better contract design and a sustainable business model, the potential to scale asset-collateralized loans is dramatic. Dairy farming, as the largest agricultural sector in Kenya, comprises about four percent of GDP and includes approximately 1.5 million farmers. As of 2017 there were 174 licensed SACCOs with a total of over 3 million active members.

PROJECT UPDATE

Impact of Agro-Weather and Market Information on Productivity and Resilience in Farming Communities in Kenya

Location: Kenya

Lead Principal Investigator: Mercy Kamau, Tegemeo Institute of Agricultural Policy and Development

Collaborators: Kenya Climate Smart Agriculture Project National and County Coordinating Units (KCSAP NPCU & CPCUs), Kenya Agricultural and Livestock Research Organisation (KALRO), Kenya Meteorological Department (MED), Virginia Tech

Timeline: 2020-2023

Funding: $449,255 (USAID)

Description: Timely and accurate information can empower small-scale farmers and pastoralists to take steps to adapt to climate change and secure resilient livelihoods. The Government of Kenya has launched a project that includes agro-weather and market advisories in an effort to promote the adoption of climate-smart approaches to enhancing productivity and building resilience. An ALL-IN research team has launched a comprehensive study to provide the first evidence from a national program on the impact these advisories have on farmers' decision making, including for women and poor families.

Achievements: The team monitored the KALRO roll-out of agro-weather advisories, processed data and prepared a monitoring survey report. The study was designed and a matching analysis was conducted to identify a control group. The team collaborated with MED on weather data and conducted a preliminary analysis to assess the relevance and suitability of climate-smart agricultural technologies, innovations, and management practices (TIMPs). A monitoring survey on access to weather/agro-advisories and a willingness-to-pay survey was conducted. The team initiated preparations for an endline survey.

Capacity Building: In April 2022, researchers from Tegemeo Institute and Virginia Tech University held a five-day 'Impact Evaluation Training Workshop' aimed at enhancing the impact evaluation (IE) capabilities of Kenyan researchers, academia, and public officers. The team also held two panel discussions where experienced IE practitioners shared their experiences and examples of how to undertake effective IEs. Four project staff members attended the ALL-IN Grant Management Workshop.

Lessons Learned: There is a need for constant coordination with all partners involved in the project to be as effective and efficient as possible. A lack of coordination could cause delays in the implementation process.

Presentations and Publications: Results from the monitoring survey shared at ALL-IN project convening conference; Willingness-to-pay paper presented during the Evidence to Action (E2A) conference; Presentation for USAID-KEA Mission on the goals and objectives of the project.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project evaluates the Kenya Climate Smart Agricultural Project (KCSAP), a five- year government of Kenya project that plans to increase the accessibility of agro-weather advisories and market information to smallholder farmers.

ACTIVITIES

The team will use survey and satellite data to measure smallholder exposure to climate risks as well as the potential of this intervention in reducing farmer vulnerability to these risks. The project's randomized controlled trial will test the impacts of farmers receiving agro-weather advisories and training delivered in different forms and via multiple dissemination channels.

OUTCOMES

The study will yield extensive data on how farmers use weather and market information, as well as which channels and methods are most effective in communicating with rural communities. The project will also yield relationships between researchers and policy makers that could bridge the gap between evidence and policy making.

IMPACTS

This research will ensure the Government of Kenya can improve its public program providing agro-weather advisories and market information small-scale farmers. It will also show the program's impact at scale. The study's approach and findings are applicable to other countries in the region that are faced with risks emanating from climate change.

PROJECT UPDATE
A Randomized Evaluation of an Integrated Graduation and Contingent Social Protection Program in Kenya

Location: Kenya

Lead Principal Investigator: Michael Carter, UC Davis

Collaborators: The BOMA Project, International Livestock Research Institute (ILRI)

Timeline: 2017-2022

Funding: $1,430,340 (USAID)

Description: MRR Innovation Lab researchers are conducting a randomized controlled trial (RCT) in northern Kenya to evaluate synergies between social development and social protection programs in Kenya. This project will investigate the impacts, alone and in combination, of The BOMA Project's Poverty Graduation Program and Index-based Livestock Insurance (IBLI). The 2020 COVID-19 pandemic and Kenya's response to it have created new challenges for the women taking part in this research. In July, 2020, the research team launched a phone survey to study the impacts of the COVID-19 pandemic on the project's participants. The survey is collecting information on measures of material and psychological wellbeing as well as questions about how the pandemic has affected their individual businesses as well as their access to broader markets.

Achievements: The team released midline results of the project that showed significant positive impacts of The BOMA Project programming on participaints' financial wellbeing. The impacts of insurance are still pending data analysis.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Dissemination event: "Strengthening Resilience to Extreme Poverty in Africa's Drylands," April, 2022; Publication: "Clearing Pathways to Prosperity with a Livelihood Building Program in Kenya," *MRR Evidence Insight*.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Study the impacts of pairing a comprehensive livelihood-building program for women in pastoralist communities with index-based livestock insurance to enhance overall resilience.

ACTIVITIES

The team is conducting a randomized controlled trial (RCT) to evaluate synergies between social development and social protection programs in Kenya. This project will investigate the impacts, alone and in combination, of The BOMA Project's Poverty Graduation Program and Index-based Livestock Insurance (IBLI). In 2020, the team added a survey to estimate COVID-19 impacts.

OUTCOMES

This project will provide critical information on implementing a pro-graduation social protection strategy.

IMPACTS

This research should be able to answer numerous important and generalizable questions around the design and implementation of integrated, efficient social protection programs to the benefit of policy-makers and development agencies around the world working to design such schemes.

PROJECT UPDATE

Soil Testing for Soil Acidity Management on Smallholder Farms in Kenya

Location: Kenya

Lead Principal Investigator: John Olwande, Tegemeo Institute of Agricultural Policy and Development

Collaborators: County Departments of Agriculture, Michigan State University

Timeline: 2021-2024

Funding: $400,804 (USAID)

Description: High soil acidity is a significant cause of low and stagnant agricultural productivity in Kenya, particularly for maize, which is the country's main staple crop. Few small-scale farmers test their soils to make soil management decisions. This ALL-IN project is testing practical ways to encourage farmers to test their soils and to apply appropriate soil amendments. It includes an estimate of farmers' willingness to pay for soil testing. The results provide guidance on promoting effective soil management for sustainable agricultural productivity growth in Kenya and across Sub-Saharan Africa.

Achievements: The project team held an inception workshop in one county of the study and identified sub-counties, wards, and villages. The team developed a list of sample households and digitized a questionnaire. Enumerators and field supervisors were hired, and application for IRB approval was submitted. The baseline survey was conducted. Data from the survey was cleaned and is currently being analyzed.

Capacity Building: In March 2022, the project management team participated in the ALL-IN Grant Management Workshop hosted by ICED and the MRR Innovation Lab. Then, in April 2022, the project partnered with the 'Impact of agro-weather and market information on productivity and resilience in farming communities in Kenya' ALL-IN project, to put on a workshop covering all the basics of impact evaluation. The project PI was also able to participate in the Evidence to Action Conference in Uganda in September 2022. Throughout the year, research assistants were trained on questionnaire coding in SurveyCTO, and 25 enumerators were trained in interview skills for the baseline survey.

Lessons Learned: The project team learned that flexibility during implementation is important for catering to unforeseen circumstances. For example, the timing of fieldwork activities had to be adjusted due to the tumultuous campaign and election period in Kenya.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference; Participation in the Evidence to Action (E2A) conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This research project is testing practical ways to encourage farmers to test their soils and to apply appropriate soil amendments.

ACTIVITIES

The project tests interventions that include soil testing conducted on farmers' largest or most important maize plot at no cost to farmers and they are provided results and written soil acidity management recommendations.

OUTCOMES

The data collected and the evidence generated will inform the practical ways farmers can be encouraged to update their knowledge about the condition of their soils and encourage them to apply appropriate soil management practices. The data will also provide an estimate of farmers' willingness to pay for soil testing.

IMPACTS

Proper soil management is key to overcoming stagnant agricultural productivity. The results of this project will provide guidance on promoting effective soil management for sustainable agricultural productivity growth in Kenya and across Sub-Saharan Africa.

PROJECT UPDATE

Empowering Local Decision Making to Improve Land Management in Malawi

Location: Malawi

Lead Principal Investigator: Andrew Reid Bell, Boston University

Collaborators: Duke University, Government of Malawi, Lilongwe University of Agriculture and Natural Resources, UC Santa Barbara, World Bank

Timeline: 2020-2022

Funding: $749,568 (USAID)

Description: Farmers working together as communities can transform landscapes. In Malawi, where erosion and sedimentation put pressure on Shire River Basin hydroelectric plants, sustainable land management practices could keep productive soils in place, increasing productivity and resilience while lowering the cost of producing power. MRR Innovation Lab researchers are putting small-scale farmers in the lead in designing the most productive community incentive structures for adopting conservation agriculture and other sustainable practices.

Achievements: The team undertook a re-design of the planned project, in response to difficulties coordinating and scheduling treatment activities jointly with the Government of Malawi's MWASIP project. An early career researcher, Dr. Tabitha Nindi, was recruited to oversee field activities. A framed field experiment was then piloted to clarify key dimensions of uncertainty in group incentives, informing project redesign. Most other ground activity was paused as the team re-budgeted Malawi field budgets and awaited approval.

Capacity Building: Co-PI, Sam Katengeza, is on the organizing team for the Agriculture, Nutrition, and Health Academy 2023, to be held in Lilongwe. He is building in space for the project team to present their methods and accomplishments at the academy. Additionally, 12 graduate students from LUANAR were trained on framed field experiment implementation in January 2022.

Lessons Learned: The project team learned that tablet-based, internet-reliant games work reliably in rural Malawi, so they plan to integrate this into future work. Working in tandem with other projects has proven to be challenging, so the team is continuing with a more cautious design that informs other projects but does not coordinate as tightly with their field activities.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project test whether paying farming communities in groups, such as through payments for ecosystem services (PES) programs implemented at a village scale, has the potential to significantly lower the transaction costs of payments programs.

ACTIVITIES

The team is conducting a framed field experiment (FFE) that first measures how individual farmers value different sustainable land management practices. The second part of the FFE is an experimental game that provides a forum to test many combinations of payment levels, distribution processes and adoption targets for promoting cooperation.

OUTCOMES

The project puts small-scale farmer groups in the lead on choosing community incentive structures for adopting SLM practices. The team is examining how farmers making use of their local information, knowledge and social capital might expand the scale and coverage of PES programs.

IMPACTS

This project contributes to the rollout of the large-scale RPL to be implemented by the Government of Malawi in part to transform how farmers manage the landscape in the Shire River Basin to preserve long-term hydropower potential.

PROJECT UPDATE

Digital Innovations to Improve Market Access for Horticultural Produce in Malawi

Location: Malawi

Lead Principal Investigator: Robertson Khataza, Lilongwe University of Agriculture and Natural Resources

Collaborators: Indian School of Business; University of California, Santa Cruz; World Bank

Timeline: 2021-2023

Funding: $350,858 (USAID)

Description: Horticulture is a major source of income and nutrition for many households in Malawi. However, horticultural markets are fragmented and uncoordinated, and many small-scale farmers also have limited know-how to produce high-quality crops. This ALL-IN project addresses these challenges with information and communications technology (ICT) interventions that create a virtual marketplace to connect horticultural sellers to buyers and a platform that provides agricultural extension services to farmers remotely. These innovations could resolve key barriers restraining small-scale horticultural producers, particularly women, from accessing markets and sustaining resilient livelihoods.

Achievements: The team prioritized horticultural crops and identified research sites. A database of farmers and traders to be interviewed during the baseline survey was established. The team conducted the baseline survey, analyzed data, completed a written report and disseminated results. A technical workshop was held to develop advisory content for farmers to be sent through a mobile app.

Capacity Building: The team conducted an activity for 68 early career scientists and trained them in research design, technical writing and survey ethics. Additionally, a content development workshop for the mobile app was conducted alongside a briefing on project scope for 20 stakeholders in March. The project's system developer attended an ICT boot camp where he interacted with industry peers.

Lessons Learned: The project team learned and practiced flexibility in implementation this reporting season. For example, high inflation and devaluation of the Malawi Kwacha have resulted in frequent price hiking of various goods and commodities. This required the team to implement some field activities concurrently to capitalize on existing resources.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project seeks to address the often fragmented and uncoordinated nature of horticultural markets with information and communications technology (ICT) interventions that create a virtual marketplace to connect sellers to buyers and a platform that provides agricultural extension services.

ACTIVITIES

The randomzied controlled trial tests (ICT) interventions to coordinate local horticulture markets. A virtual marketplace in the form of a cell phone-based app will connect buyers and sellers. An interactive voice response (IVR)-based agricultural extension hotline provides advisory services to improve the quality of produce.

OUTCOMES

The study collects extensive data for both farmers and vendors, including agricultural yields, revenues and profits, use of mobile money, rates of spoilage and other measures that indicate better-integrated markets. The results will shed light on the barriers of the horticulture market, such as transaction costs and spoilage, and inventory management issues.

IMPACTS

These innovations could resolve key barriers restraining small-scale horticultural producers, particularly women, from accessing markets and sustaining resilient livelihoods.

PROJECT UPDATE

Resilience in the Aftermath of Disaster in Mozambique

Location: Mozambique

Lead Principal Investigator: Dean Yang, University of Michigan

Collaborators: Hamilton College, Mozambique Ministry of Health, UC Davis

Timeline: 2020-2023

Funding: $426,920 (USAID)

Description: 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.

Achievements: None to report.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

To understand whether a PEPFAR-funded program for vulnerable orphans and their caregivers can increase resilience to weather-related shocks.

ACTIVITIES

This study builds on a completed randomized evaluation of a PEPFAR-funded program to learn how communities recover from a disaster. 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 shock.

OUTCOMES

This project aims not only to provide evidence on whether development programming 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.

IMPACTS

Evidence on resilience from Mozambique can create new opportunities to develop programming that promotes resilience that is critical region-wide.

PROJECT UPDATE

Subsidizing Learning About Resilience-building Agricultural Technologies in Mozambique

Location: Mozambique

Lead Principal Investigator: Jonathan Malacarne, University of Maine

Collaborators: Centro de Estudos de Políticas e Programas Agroalimentares (CEPPAG), Universidade Eduardo Mondlane; Hollard Insurance; NCBA CLUSA; Phoenix Seeds; UC Davis

Timeline: 2022-2025

Funding: $750,000 (USAID)

Description: This MRR Innovation Lab project in Mozambique is testing short-term subsidy and training programs for rural households to learn about stress-tolerant maize bundled with index insurance for a seed-replacement guarantee. The project contributes evidence on how to spark lasting adoption for resilience-building technologies.

Achievements: Seven agro-input dealers were recruited and trained by Hollard Insurance to act as insurance agents and sell the DTM-II bundled product. The research team identified a set of 80 communities across five districts that produce maize that are subject to drought risk, and will have access to the bundled DTM-II product. Two interventions to subsidize learning opportunities about the DTM-II bundle were randomly assigned across the 80 communities, along with a control group. A baseline survey is being conducted in all communities and educational treatments are being conducted in 40 communities.

Capacity Building: Universities in Mozambique and the U.S. have collaborated with NCBA CLUSA to support private sector actors including Hollard Insurance and agro-input dealers in Manica. Researchers from CEPPAG developed programming and surveying skills as well as experience in the design and implementation of randomized experiments. A team of four supervisors and 15 enumerators were trained to conduct the baseline survey and educational meetings. These meetings provided training to over 1,000 total participants on the benefits of drought-tolerant maize seeds and satellite-based index insurance.

Lessons Learned: The team found the agricultural input marketing space to be fertile ground for innovation. Agro-input dealers are open to and actively seeking innovative ways to connect with clients, including smallholder farmers in remote communities. They also learned that efforts to build agro-input markets – both from the supply side and demand side – can be negatively impacted by large agro-input subsidy programs, particularly if those programs are not firmly integrated into existing agro-input supply chains.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project in Mozambique is testing short-term subsidy and training programs for rural households to learn about stress-tolerant maize bundled with index insurance for a seed-replacement guarantee.

ACTIVITIES

Bundling off a previous research project that tested the bundling of drought tolerant seed with index-based crop insurance, the team will test focused approaches to sparking lasting adoption of these resilience-building technologies and to add evidence of the bundle's impacts.

OUTCOMES

The project will collect data and though surveys and intervention implementation that will inform scaling partners NCBA CLUSA, Phoenix Seeds, and Hollard Insurance on how to more efficiently scale by encouraging lasting uptake.

IMPACTS

This project is being scaled by private sector partners due to the established collaborations in Mozambique between private-sector and NGO partners with support from USAID. This scaling and further knowledge on learning and uptake could change the risk-management landscape for smallholder farmers in Mozambique.

PROJECT UPDATE

Resilience in the Midst of Pandemic in Nepal

Location: Nepal districts: Tanahun, Palpa, Rautahat, Sarlahi, Mahotari

Lead Principal Investigators: Sarah Janzen, Kansas State University;Nicholas Magnan, University of Georgia

Collaborators: Heifer International, Interdisciplinary Associates (IDA), Feed the Future Livestock Systems Innovation Lab

Timeline: 2020

Funding: $35,000 (USAID)

Description: The COVID-19 pandemic has interrupted daily life in every corner of the world. The rural poor are especially vulnerable, whether through direct impacts on health or disruptions to the market systems families rely on for their livelihoods. Livelihood programs may help rural families to become more resilient to unanticipated shocks like COVID-19. In Nepal, an MRR Innovation Lab research team is expanding its partnership with Heifer International to explore how rural families are coping, whether its programming increases resilience, and the challenges and opportunities for improving household resilience in the midst of a global crisis.

Achievements: The team reported final results from the study in a MRR Evidence Insight and is at work drafting a paper for submission to peer-reviewed academic journals.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Ekstrom, K., Janzen, S., Magnan, N. 2022. "From Rural Livelihood-Building to Increased Resilience in Nepal." *MRR Evidence Insight*. Feed the Future Innovation Lab for Markets, Risk & Resilience.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

In Nepal, this project is expanding its partnership with Heifer International to explore how rural families are coping, whether its programming increases resilience, and the challenges and opportunities for improving household resilience in the midst of a global crisis.

ACTIVITIES

The team is conducting a rapid assessment examining the ways in which rural households have been affected by the COVID-19 pandemic and then a phone survey that will extend the evaluation of Heifer International programming and its impact on resilience.

OUTCOMES

This project provides a deeper understanding of how families in Nepal are coping with hardship related to the COVID-19 pandemic and identified opportunities for improving household resilience. Increased understanding of the impact of Heifer International's programming on resilience in the midst of the COVID-19 pandemic in Nepal.

IMPACTS

Findings from this project will help inform disaster response efforts in Nepal and elsewhere. This project may also lead to new financial or market innovations to be implemented by Heifer International which could lead to new research opportunities to evaluate their effectiveness and impact of future development programs.

PROJECT UPDATE

Adapting to Climate Risk with Mutual Weather-Index Crop Insurance in Nigeria

Location: Sudano-Sahelian Zone of Nigeria

Lead Principal Investigator: Peter P. Njiforti, Ahmadu Bello University

Collaborators: International Food Policy Research Institute (IFPRI), Nigeria Agricultural Insurance Corporation (NAIC), Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), Nigerian Meteorological Agency (NiMet)

Timeline: 2021-2024

Funding: $199,055.72 (USAID)

Description: While northern Nigeria is a critical agricultural region, rural families there face high risks related to climate change. Agricultural index insurance products tailored for the region's predominantly Muslim farmers may promote resilience to weather shocks like drought or flood. A Feed the Future ALL-IN research team is developing and testing a Sharia-compliant takaful mutual insurance contract that triggers payments in the event that there is a weather anomaly. The results of this project could unlock the financing needed to drive the development of inclusive agricultural value chains in the region.

Achievements: The team visited, profiled and selected 20 rural villages in Kano, Jigawa and Katsina. An inception/methodology workshop was held, and a draft research methodology was started in March 2022. Field supervisors and extension agents were identified across states and instrumentation of study villages took place. Activities include data acquisition, processing, analysis, and potential model development. A draft literature review was concluded in June 2022, followed by randomization for the trial in July.

Capacity Building: The inception and methodology workshop mentioned above was hosted by Busara and provided valuable insight on how to design and conduct randomized control trials. Team members also attended the ALL-IN Grants Management Workshop. Additional trainings included a workshop on writing a two-page Research Proposal Summary and a one-day virtual training on RCTs that was conducted by the ABU-Busara Lab personnel.

Lessons Learned: The team learned the importance of reconnaissance visits. Assessing the true situation on the ground cannot be replaced by literature reviews or interviews with government officials. The team also found importance in ensuring all members and partners are updated about the security situation in the target area and remain flexible as implementation may happen as planned due to security issues.

Presentations and Publications: Initial lessons learned and research methodologies shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

The research team is developing and testing a Sharia-compliant takaful mutual insurance contract in Northern Nigeria and a picture-based insurance audit can increase rural families' resilience to extreme weather events in the Sudano-Sahelian zones of Nigeria.

ACTIVITIES

This project tests two variations of insurance intervention. In the first, farmers receive standard weather index insurance that triggers payments for losses. The second provides a Sharia-compliant takaful index-based insurance product is complemented with training on the benefits of insurance as well as the concept of takaful insurance. Farmers also upload photographs to ensure insurance accuracy.

OUTCOMES

The study estimates how a mutual weather index insurance scheme that is compliant with the Islamic principle of Takaful affects the demand and use of weather index-based insurance. The study is also evaluating the impact of uptake and use of mutual (takaful) weather index insurance on farmers' investments in enhancing productivity and yields.

IMPACTS

This project will provide evidence on the most effective kinds insurance-based financing needed to drive the development of inclusive agricultural value chains in the region. Additionally, multiple Nigerian government agencies are actively involved in the project, narrowing the gap between research and policy-making.

PROJECT UPDATE

Digital Literacy, Output Market Access, and Demand for Rural e-commerce in Nigeria

Location: Nigeria

Lead Principal Investigator: Khadijat B. Amolegbe, University of Ilorin

Collaborators: Agriple, National Information Technology Development Agency (NITDA), Tufts University

Timeline: 2020-2023

Funding: $434,046(USAID)

Description: Linking smallholder farmers and markets in Sub-Saharan Africa is key to unlocking full agricultural potential in the region given its bulging population, poverty, urbanization and food security challenges. Farmers face poor road networks, price fluctuation and a lack of market information, all of which makes digital innovation a critical alternative way to link farmers to markets. In Nigeria, a Feed the Future ALL-IN research team is providing digital literacy training so farmers can use their mobile phones to access e-commerce to sell their harvest.

Achievements: Enumerators were trained and collected pilot survey data. A survey instrument for the baseline survey was created and translated. A community identification and household listing exercise were conducted, and the baseline household survey data collection was completed. The team launched a call for intervention facilitators and interviewed shortlisted applicants. Both a training manual for these facilitators and a digital literacy training manual for farmers were developed.

Capacity Building: The project PIs took part in two courses at Tufts University by their mentor – Econometric Impact Evaluation for Development and Development Economics. They also strengthened their skills in policy communication and randomization methodologies through additional workshops. Research assistants were trained through a World Bank impact evaluation course and organized an online training for 12 enumerators that covered use of SurveyCTO for data collection. The full team attended the ALL-IN Grant Management Workshop.

Lessons Learned: The project team learned the importance of grant management and clear communication, especially when it comes to discussing budgetary items. Many activities linked to the research project need to be monitored in an efficient and well-organized way to not be lost in the flow of information. Although data collection is on schedule, the team is planning for any delays that may occur.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project is investigating if digital literacy training for farmers can improve their access to e-commerce to more effectively sell their harvests.

ACTIVITIES

Test the impacts of digital skills training and access to a digital literacy directory. The digital skills training covers basic skills in the local language of the farming community. The digital directory contains details of certified online marketing platforms, digital marketing experts and website developers. The study includes a willingness-to-pay (WTP) analysis for the e-commerce platform.

OUTCOMES

The research will inform policy makers on how to enhance training programs to increase farmer participation in ICT solutions that overcome market inefficiencies.

IMPACTS

If evidence points to efficacy, the digital platform and digital literacy curriculum created for this project are scalable and adaptable to ensure rapid growth and inclusivity. The evidence generated by this project will also inform the private sector and spur investment to expand e-commerce solutions.

PROJECT UPDATE

Linking Financial and Agricultural Innovations for Women Farmers' Resilience in Nigeria

Location: Southern Guinea Savannah Zone of Nigeria

Lead Principal Investigator: Opeyemi Eyitayo Ayinde, University of Ilorin

Collaborators: Arise Microfinance Bank Lagos, Federal University of Technology Akure, International Institute of Tropical Agriculture (IITA), National Agricultural Insurance Corporation (NAIC), and The Ohio State University

Timeline: 2021-2024

Funding: $ 430,434 (USAID)

Description: Agriculture in Sub-Saharan Africa is dominated by smallholder farmers who have limited ways to cope with catastrophic droughts and other weather-related shocks. These challenges are particularly severe for women farmers in Nigeria and other developing countries where cultural norms and commercial practices limit their access to financial and insurance markets that could help them to manage that risk. This Feed the Future ALL-IN project is testing interlinked credit, index insurance and cultivation of stress-tolerant maize varieties to strengthen women's productivity, income and resilience.

Achievements: A robust survey instrument for the baseline survey was developed, validated, and used in baseline data collection from 6,000 farmers in 120 villages. Breeders started production and packaging of the improved maize seed variety for the experiment, and the project team trained 3,000 farmers on best practices for use of improved seeds and financial inclusion. Field trials were established, farmers planted their maize fields, and NAIC officials are currently inspecting experiment farms. The team is also conducting monitoring visits to assess the growth process of improved varieties and attend to farmers' questions. The team is proud of advances made on their website and social media accounts.

Capacity Building: The University of Ilorin held a monitoring workshop for 10 attendees in June. Postdoctoral fellows have been reviewing literature and writing abstracts and reports from baseline data, resulting in the winning of travel grants and participation in the Evidence to Action Conference. The full team attended the ALL-IN Grant Management Workshop.

Lessons Learned: The team learned it is important to have in-depth discussions with all partners to ensure they understand the concept of the project. This is essential for winning their buy-in and support for the success of the project.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference; Abstracts and reports written by postdoctoral fellows.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

This project is testing interlinked credit, index insurance, and the cultivation of stress-tolerant maize varieties to strengthen women's productivity, income and resilience in the face of climate change.

ACTIVITIES

Implement a randomized controlled trial measure the impacts of training, financiaing, insurance and stress-tolerant maize seeds.

OUTCOMES

This project will provide evidence on policy to increase agricultural productivity among small-scale maize farmers as well as data on on farmers' socioeconomic characteristics and attitudes towards financial services, insurance and stress-tolerant maize, as well as differences in men's and women's willingness to adopt these offered tools.

IMPACTS

This project may help women increase their access to financial and insurance markets that could help them to manage the household risks they face. Explaining both men's and women's perceptions of agricultural risk offered by this project will aid policy-makers in identifying priorities to support risk mitigating programs and interventions.

PROJECT UPDATE

The Value of Linking Farmers to Maize Value Chains in Rwanda

Location: Rwanda districts: Rwamagana, Kayonza, Ngoma, Gatsibo, Nyagatare, Huye, Gisagara, Rutsiro, Nyamasheke, Ngororero, Nyabihu, Gicumbi, Rulindo, Burera, Bakenke, Musanze, Bugesera, Kirehe, Kamonyi, Muhanga, Nyamagabe, Nyanza, Nyaruguru, Ruhango, Gasabo, Kicukiro

Lead Principal Investigator: Jonathan Robinson, UC Santa Cruz

Collaborators: ATAI, Indian School of Business, Innovations for Poverty Action, Kumwe Harvest, MINAGRI, Williams College, World Food Programme

Timeline: 2020-2023

Funding: $410,000 (USAID)

Description: MRR Innovation Lab researchers are connecting maize farmer cooperatives in Rwanda with Kumwe Harvest, a logistics and maize processing startup in Rwanda, to provide a stable market for newly harvested maize while increasing the quantity accepted for purchase. This study will examine how access to Kumwe Harvest affects farmers' investments into productivity enhancing inputs, specifically fertilizer, as well as agricultural output, total yields and sales. The project will also measure how farmers procure grains and other items after selling their entire harvest to Kumwe.

Achievements: WFP and IPA conducted due diligence visits to treatment and control group cooperatives, recommending and successfully enrolling 49 treatment cooperatives in FtMA. Contract negotiations and agreements were established, and treatment cooperatives have been selling to buyers in the FtMA ecosystem. The team collected and digitized a list of 14,400 cooperative members and, in collaboration with IPA, conducted an endline survey at the cooperative level.

Capacity Building: The partnership with WFP has been very fruitful to date, and a detailed training plan for WFP staff on impact evaluation should be finalized by December 2022. The Rwanda Agriculture Board (RAB) remains a main partner supporting research implementation by facilitating the acquisition of local research permits and executing data collection activities. Various stakeholder meetings have been held to spread awareness of the project's research activities.

Lessons Learned: Through the screening process for treatment and control cooperatives, the team learned that proper communication with implementing partners is key to the success of the intervention. It is also important to follow up closely on cooperative contracting to ensure successful linkages between cooperatives and processors/buyers. The team learned that depending on the size of harvest, some cooperatives who are not recommended to FtMA at the beginning of the season could still have the chance to sell to FtMA buyers.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Test whether connecting farmers to a post-harvest processing start-up (Kumwe) will alter farmers investment in productivity-enhancing inputs, and ability to contribute to the greater maize market system.

ACTIVITIES

1. Conduct two rounds of the experiment, spread over two seasons.
2. Connect treatment farmers to Kwame services. Kumwe will work with cooperatives to enter into pre-harvest buyer contracts.
3. Collect data from Kumwe and conduct in-person surveys with farmer cooperative representatives and randomly selected farmers.

OUTCOMES

1. Input purchases, as measured from the SNS database.
2. Surveys of cooperatives and of randomly selected farmers that include factor inputs, agricultural output, total yields and sales.
3. Measure of food consumption to show how farmers in treated cooperatives procure grains and other items after selling their entire harvest to Kumwe.

IMPACTS

This research will show how staple food value chains and efficient market systems can boost the productivity and resiliency of smallholder farmers. The research has the potential to be directly taken up by the Rwandan Agricultural Board's work on market systems.

PROJECT UPDATE

Irrigation, Property Rights and Land Markets for Resilient Growth in Rwanda and Senegal

Location: Senegal: Senegal River Valley; Rwanda: Muyanza Locality, Ruolindo District

Lead Principal Investigator: Elisabeth Sadoulet, UC Berkeley

Collaborators: European Union, IGC, Rwandan Agricultural Board (RAB), Rwanda Ministry of Agriculture, Université Gaston Berger, World Bank

Timeline: 2020-2022

Funding: $749,897 (USAID)

Description: This MRR Innovation Lab project in Rwanda and Senegal explores how stronger property rights and better functioning land and labor markets can maximize the potential of large-scale irrigation to generate agricultural growth and rural resilience. In Senegal, the team is combining satellite images with irrigation roll-out dates and census data to measure impacts on agricultural productivity and diversification. In Rwanda, the team is conducting an experiment that seeks to alleviate land and labor market constraints that prevent full irrigation potential.

Achievements: In Senegal, the team secured a data sharing agreement with SAED, received irrigation, land use, and GIS data required for analysis, and merged these datasets together. Spatial data analysis from satellite imagery has also started. In Rwanda, the primary follow-up survey was completed in December 2021. This data was incorporated into the team's data analysis, leading to large gains in precision and temporal coverage of farmer incomes and agricultural practices.

Capacity Building: In Senegal, the project team has collaborated closely with SAED to obtain and better understand project data. PhD student, Joel Ferguson, has trained undergraduate students at the University of California – Berkeley in spatial data analysis using satellite imagery. In Rwanda, collaboration continued with the World Bank and Rwandan Ministry of Agriculture through weekly update meetings. PhD student, Daniel Agness, and three early-career research assistants from the World Bank have been developing analytical skills to assist with data analysis.

Lessons Learned: In Senegal, the project team learned that direct and repeated contact with SAED and clear, concise requests are necessary to obtain the desired data. In Rwanda, the project has been able to document novel facts about the nature of land and labor transactions using their detailed social network and transaction data. However, the large size and complicated structure of the data has made analysis take longer than anticipated.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Using both natural experiments and randomized controlled trials, this research project intends to explore how suboptimal use of irrigation capacity is associated with the weakness of property rights and the poor performance of land markets in bringing land and labor together.

ACTIVITIES

In Senegal, the team will collect and analyze data from large irrigation projects along the Senegal River.

In Rwanda, the team is rolling out an experiment to facilitate land market transactions that could alleviate land and labor market constraints and accommodate rigidity in access to family labor.

OUTCOMES

- Evidence on opportunities and constraints of irrigation systems in both Rwanda and Senegal.
- Extensive original data sets in both countries.
- Capacity development from researchers working with government agencies on monitoring and impact evaluation theory and practice.

IMPACTS

In Senegal, the MCC has invested in the Senegal Fleuve Valley and will benefit from the new evidence. In Rwanda, the Rwandan Agricultural Board is also actively engaged and interested in adopting policies that will inform the government's agricultural strategies.

PROJECT UPDATE

Assessing Seed System Resilience with Structured Genotyping in Uganda

Location: Uganda

Lead Principal Investigator: Travis Lybbert, UC Davis

Collaborators: CGIAR Standing Panel on Impact Assessment (SPIA), Diversity Arrays, International Center for Tropical Agriculture (CIAT), International Food Policy Research Institute (IFPRI), Uganda Department of Crop Inspection and Certification (DCIC), Uganda Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Uganda National Agricultural Research Organization (NARO)

Timeline: 2020-2022

Funding: $250,005 (USAID)

Description: This MRR Innovation Lab team is conducting a comprehensive study of Uganda's maize and bean seed value chains to identify sources of failures in seed quality. The study is built upon genotyping, which establishes plant material's true variety and origins with a sample of its DNA. The team is comparing the DNA fingerprints of seeds on individual farms and is following the genetics upstream by sampling seeds at key links in the supply chain all the way to breeders. This approach makes it possible to identify leaks responsible for low productivity, poor disease resistance and low nutritional values.

Achievements: The project achieved three main deliverables in this reporting period. The development of the research protocol for beans was completed by April 2022 with the help of DCIC and NARO. Next, sampling of seed companies, out-growers, and farmer groups was conducted per the confirmed sampling frame for beans. This round of bean seed sampling was conducted across the production, aggregation, and distribution stages. Accompanying data was collected by enumerators through face-to-face interviews with seed producers, agro-dealers, and farmer groups. Data is currently validated, analyzed, and cleaned.

Capacity Building: A total of four enumerators were trained for five days at the CIAT office in Kawanda in December 2021. The enumerators learned how to use instruments for seed sampling and how to collect seed samples, including proper labeling. Five seed inspectors from the Directorate of Crop Inspection Services (DCIC) participated in the training and questionnaire review.

Lessons Learned: The team found most farmers (even in farmer groups) to be far away from each other, where during planning they had anticipated farmers to be close to each other. This increased travel time from one farmer to the next and thus affected duration of the survey. In some cases, the farmers were away from home all the days that enumerators were in their area. Therefore, their stores or homes could not be assessed for samples.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Provide the first comprehensive, nationally-representative and rigorous evidence of the genetic integrity of the maize seed system in Uganda.

ACTIVITIES

- Sample planting material at key points along the maize seed value chain.
- High-density genotyping assays of the planting material at each designated point in the value chain to identify the main sources of genetic impurities.
- Conduct a similar but smaller scale pilot study of the bean seed system.

OUTCOMES

This project will uncover links between maize breeders, seed companies and farmers that are responsible for low seed quality.

The focused bean seed pilot will be the basis for a future extension to a nationally-representative assessment on par with the maize seed system study.

IMPACTS

- Policy-relevant insights for future innovations and a rigorous baseline for evaluating on-farm impacts.
- Resilient seed systems that deliver high quality planting material that has not been compromised by inferior production, storage or outright fraud.

PROJECT UPDATE

Strengthening the Resilience and Empowerment of Women Smallholder Farmers in Uganda

Location: Uganda

Lead Principal Investigator: Florence Kyoheirwe Muhanguzi, Makerere University

Collaborators: Uganda Insurers Association; Uganda Ministry of Agriculture, Animal Industry and Fisheries, University of Florida

Timeline: 2021-2024

Funding: $450,000 (USAID)

Description: Rural women in developing countries tend to be poorer than men, produce less from farming and are much more vulnerable to an increasing risk of climate change. In Uganda, new ALL-IN research is testing a comprehensive approach to supporting women to improve their on-farm productivity, increase their resilience to shocks and enhance their overall empowerment. This research builds evidence on what mix of interventions create the most opportunity for women to escape poverty and secure resilience to improve the well-being of their families and communities.

Achievements: The team fully developed and translated instruments to answer all research objectives. A literature review and preliminary visits to study sites were conducted. Twenty-eight research assistants, mostly graduate students, were recruited and trained in the fields of gender, agriculture and social sciences. The national stakeholder engagement meeting and project launch took place, allowing baseline data collection (using the pro-WEAI quantitative survey) to begin. Qualitative and quantitative analysis of the baseline data was conducted, and baseline survey findings were disseminated.

Capacity Building: The team attended two trainings provided by a pro-WEAI expert and statistician at Makerere University as well as an online training organized by IFPRI. Gender responsive research, best practices of data collection, gender analysis tools, and theoretical foundations of pro-WEAI were covered in training sessions for the 28 research assistants. A more intensive training in ATLAS.ti was provided to 35 participants, strengthening their qualitative data analysis skills.

Lessons Learned: The team found that pre-testing data collection tools to reduce errors of inclusion and omission will increase the relevance of the data. Various other learnings came about through budgetary constraints and the process of re-budgeting to include important costs relating to monitoring, evaluation, and learning.

Presentations and Publications: Baseline data findings shared at ALL-IN project convening conference.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

The objective is to builds evidence on what mix of interventions create the most opportunity for women to escape poverty and secure resilience to improve the well-being of their families and communities.

ACTIVITIES

This project employs a mixed methods approach that draws on expertise from economics, agriculture, social anthropology and gender studies. The team is specifically using the pro-WEAI tool to quantitatively measure women's empowerment of the target populations while testing a suite of interventions.

OUTCOMES

The qualitative and quantitative data collected for this project will provide valuable evidence on rural women's vulnerabilities to agricultural shocks. The research team has prioritized stakeholder engagement from the outset of the project and the relationships between researchers and government policy makers will be deeply-rooted.

IMPACTS

This research will inform policies to more effectively address women's vulnerability to agricultural shocks through interventions that will increase their agricultural productivity, help diversify their incomes and improve the wellbeing of their families.

PROJECT UPDATE

Smoothing Seasonal Hunger through Planning in Zambia

Location: Eastern Province, Zambia

Lead Principal Investigator: Supreet Kaur, UC Berkeley

Collaborators: Center for Effective Global Action (CEGA), Innovations for Poverty Action (IPA), UC Santa Barbara, University of Zambia, Zambia Ministries of Agriculture and National Development Planning

Timeline: 2020-2021

Funding: $256,716 (USAID)

Description: This project expands an ongoing randomized controlled trial in Zambia that tests a low-cost planning intervention that encourages families to save more of their harvest for the lean season. MRR Innovation Lab funding adds two rounds of data collection to measure whether the benefits of the intervention sustain through the end of the hungry season. The data will also make it possible to measure gender-differentiated effects on how families allocate their resources in the household as well as how they make decisions leading up to the subsequent harvest.

Achievements: The team conducted field interviews with AG staff and farmers to inform adjustments to their interventions. Local authorities granted permission to initiate field work in January 2022; however, a surge in COVID-19 cases put fieldwork on hold. The team launched another round of partnership scoring. Team members presented research findings at various conferences and launched a small pilot study to test the budgeting intervention with a sample of low-income U.S. residents who experience monthly cycles of scarcity.

Capacity Building: Several conversations were held with three new stakeholder organizations to share the results of the RCT and discuss avenues for collaboration. AG received a brief report from the project team outlining their farmer profiles and a proposed small-scale iteration of the planning intervention. A research presentation and scoping interviews took place in Burundi to understand how the intervention might be adapted. IPA Zambia hired a new Field Coordinator who received training from the project's Research Coordinator.

Lessons Learned: Information provided through interviews with AG farming households will inform new iterations of the planning interventions. The team intends to incorporate the participation of women heads-of-household into the intervention. Building in time for intensive relationship management is key with government partners.

Presentations and Publications: Keynote address at the Australia and New Zealand Labor Economics Conference; Ten presentations at various conferences; Two seminar presentations on study design and findings.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Expand existing field work to investigate whether farmers affected by seasonality can be encouraged to save more of what they have using a light-touch low-cost planning intervention implemented in rural Zambia.

ACTIVITIES

Guide families in the treatment group to think through how to allocate their post-harvest maize for upcoming expenses. They are given maize bag labels to visually represent their plan. The team is conducting rolling surveys to evaluate the project's impacts on consumption, farm investments, yields, profitability and labor supply.

OUTCOMES

The additional round of data collection will contribute to the potential of this labeling intervention and future plans for scaling up to village-level interventions. Evidence of impacts and training materials will be provided to the relevant Zambian government ministries and local NGOs.

IMPACTS

Families will manage the risk of running out of food too soon before the next harvest, making them more able to manage shocks without compromising their health and well-being. A better understanding of behavioral constraints to seasonal saving will complement government policies to aid farmers in need.

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