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

FEED THE FUTURE INNOVATION LAB FOR MARKETS, RISK & RESILIENCE

2021 Annual Report

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FEED THE FUTURE INNOVATION LAB FOR MARKETS, RISK & RESILIENCE

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CONTENTS

ACRONYMS

ALL-IN	Advancing Local Leadership and Innovation Networks
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

EXECUTIVE SUMMARY

The Feed the Future Innovation Lab for Markets, Risk and Resilience at UC Davis supports large-scale field studies led by development economists and researchers in related fields to test ways to strengthen food security and resilience at all levels, from systems to individual families. Launched in July in 2019 by USAID, the lab builds upon a foundation of field studies and theoretical work to help families and communities build resilience to perennial threats like drought but also against unforeseen shocks like the COVID-19 pandemic.

In 2021 we have made significant progress in completing our research portfolio and contributed essential evidence-based insights to broader activities and discussions seeking to strengthen global food security and resilience among rural families. Like the global development community, we have continued to adapt to the challenges of the COVID-19 pandemic while increasing overall research capacity. In the coming years, our successes will create new opportunities to empower rural families.

In our second year, we have completed our research portfolio with a total of 32 awarded projects across 16 countries. Of these projects, 12 are funded through the Feed the Future Advancing Local Leadership, Innovation and Networks (ALL-IN) initiative we co-manage in partnership with the International Center for Evaluation and Development (ICED). Our portfolio includes projects that evaluate existing development programs as well as projects that test new approaches for strengthening food security and build upon the foundation of resilience measurement established by USAID.

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.

We have expanded our efforts to increase research capacity among African researchers and institutions through our ALL-IN. These efforts include mentorship in research and grant administration as well as a capacity development event in Ghana that supported African researchers in strengthening their proposals for future grant funding.

While systemic threats like the COVID-19 pandemic can compromise hard-won progress against food insecurity and rural poverty, field-tested evidence on how best to create opportunities for rural families provides actionable guidance on how to respond. In our experience, the deep relationships our research teams establish with governments, NGOs and the private sector are creating a ready pathway for scaling what works. In the coming year we anticipate more of these successes across the broad collaborations that make our work possible.

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

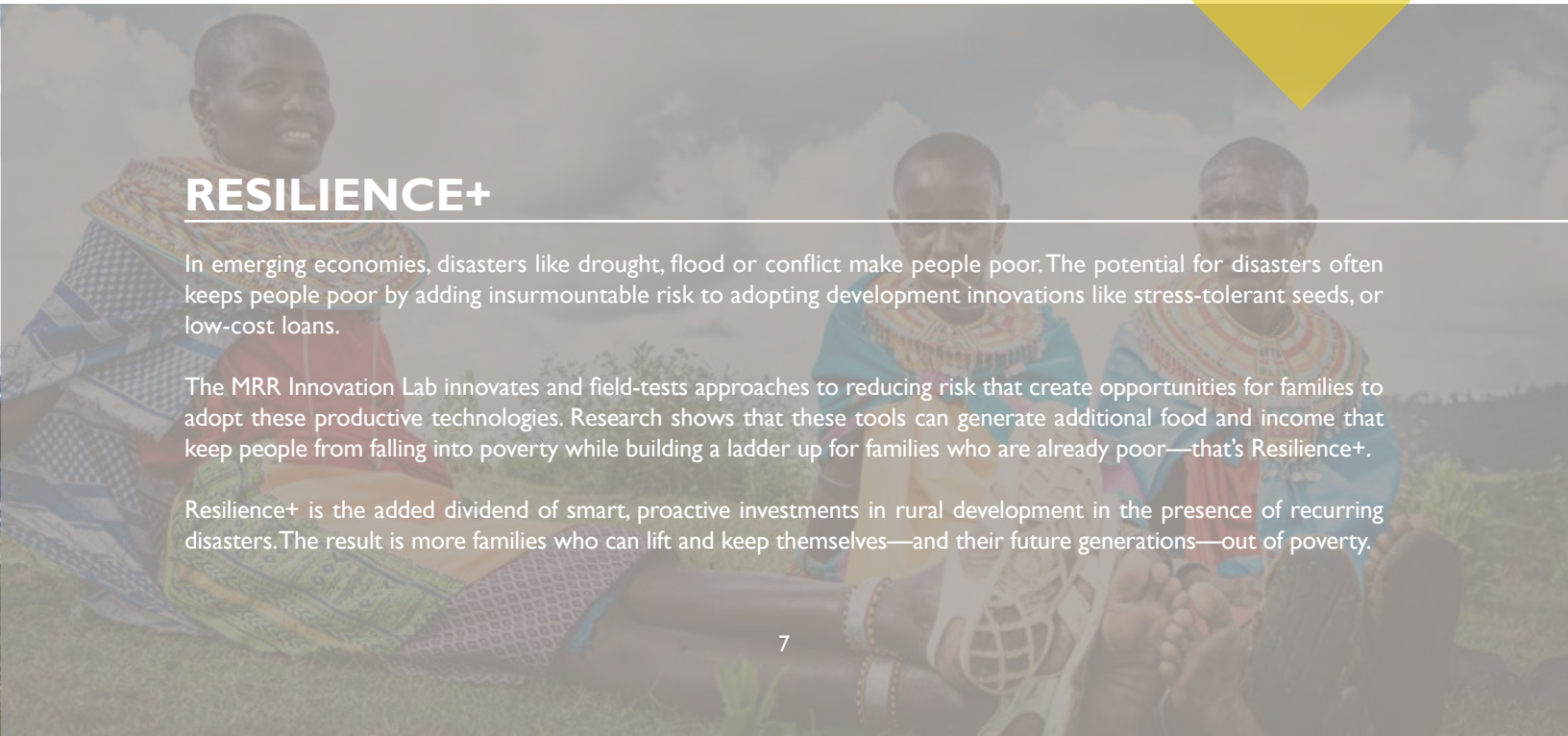
We are testing ways to build virtuous circles of upward mobility and resilience. While this approach promotes a cycle of resilience for families who are already poor, providing a ladder up for vulnerable families who are not poor extends resources and efforts to build more resilient societies overall.

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).

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.

Research finance officer Stefanne Haro-Maendly administers contracts and grants, including all MRR Innovation Lab subcontracts. She is responsible for all fiscal and administrative services, including budget analysis and financial reporting. Haro-Maendly has a B.S. in health education from San Francisco State 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.

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.

ALL IN KEY STAFF

ALL IN co-director David Sarfo Ameyaw is the founder, president and CEO of the International Center for Evaluation and Development (ICED). Ameyaw has over 25 years of experience in leadership and practical experience in monitoring, evaluation, research and learning. He has head senior posts at the Alliance for a Green Revolution in Africa (AGRA) and the Millennium Challenge Corporation (MCC). He is a board member of the Agriculture Technology Adoption Initiative (ATAI). Ameyaw holds a D.Min. in missions and community development and a Masters in Divinity from Andrews University.

Finance and administration manager Blessing Mhosva manages ALL IN contracts and grants. She is a qualified Association of Charted Certified Accountants, UK (ACCA) accountant and holds a bachelor's degree in accounting.

Communications coordinator Stephine Ogutu leads communications efforts in Africa for ALL IN research projects. He leads all ICED communications efforts in Kenya and Ghana. Ogutu is a Communications for Development (C4D) specialist and has worked with USAID, USDA and many other local and international development organizations across Sub-Saharan Africa. He holds a B.A. in criminology and information technology from Maseno University and is currently pursuing an M.A. in communications.

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

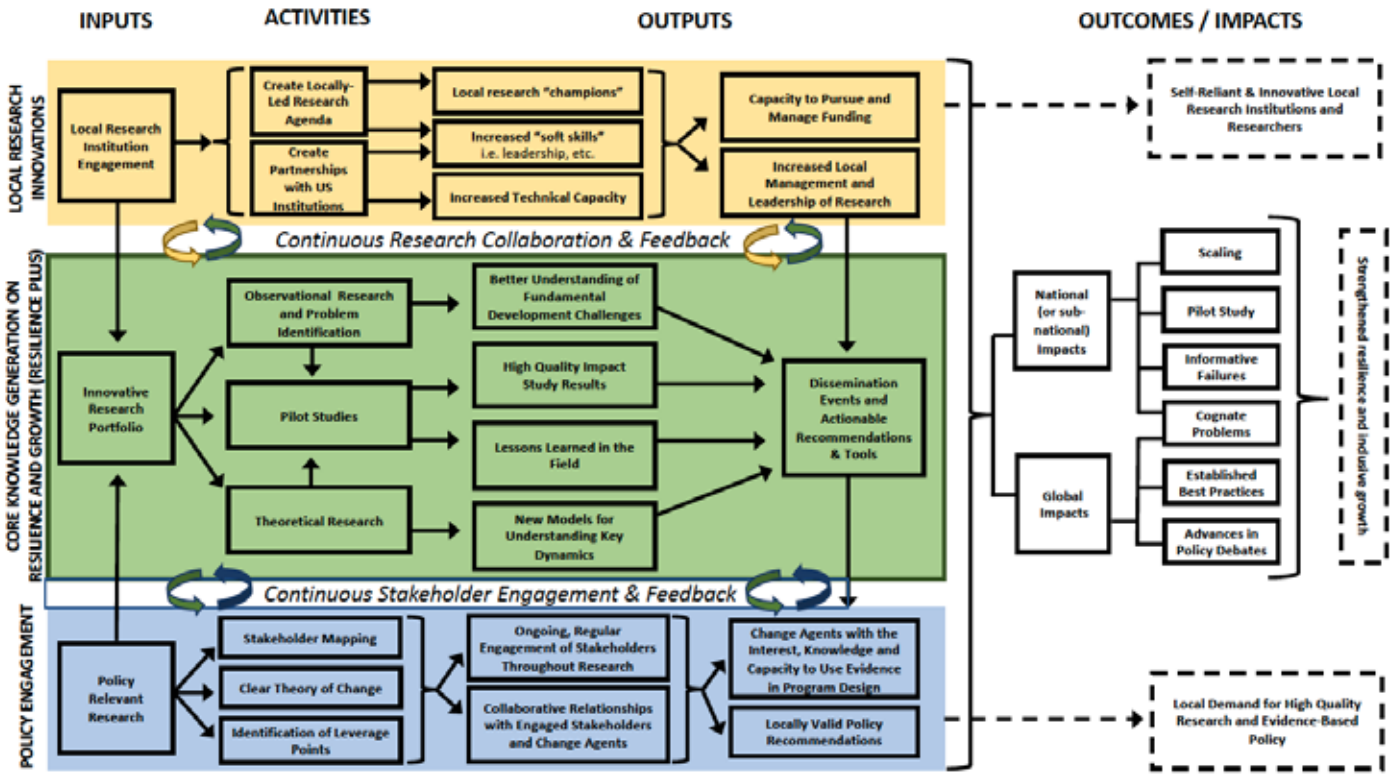
The Technical Committee is composed of all principal investigators on MRR Innovation Lab projects. They meet annually for peer review and feedback on projects across the life cycle of an activity, including research design, preliminary results, ongoing challenges and potential solutions. These meetings 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

Finalized Research Portfolio

In 2021 we finalized our research portfolio to include 26 projects launched in 12 countries with an additional three projects awaiting final approvals. Of these projects, 12 are funded through Feed the Future ALL-IN and are managed in partnership with the Kenya-based International Centre for Evaluation and Development (ICED).

Capacity building in Ghana

On September 22, 2021, the MRR Innovation Lab and ICED hosted a workshop at Valley View University in Accra Ghana for African researchers seeking to strengthen their proposals for future grant funding. Presentations at this workshop covered every facet of securing and managing large-scale research grant funding from USAID and other international donors.

Publications

The MRR Innovation Lab continues to build its portfolio of policy-relevant publications that leverage research evidence to guide development policy. Among these are recent MRR Evidence Insight briefs on how to generate Resilience+ in development programming, how to spark permanent adoption of resilience-building technologies, and a new approach to objectively evaluate the costs and benefits of national disaster risk insurance policies.

ALL-IN Launch

In 2021 we launched our Feed the Future Advancing Local Leadership, Innovation and Networks (ALL-IN) partnership with a complete portfolio of projects. We held our first technical meeting and established the foundation of networks that will mature as these projects progress.

Dissemination Events

In spite of the ongoing challenges presented by the COVID-19 pandemic, we continued to hold online dissemination events that reached a broad range of stakeholders. These included participation in sessions hosted by partners such as Munich RE and the Global Resilience Partnership as well as our own webinars and events to share insights on index insurance for agricultural development and approaches for supporting resilience for rural families.

Participation in High-level Working Groups

The MRR Innovation Lab provides critical thought leadership in the areas of risk management, technology adoption, market development and resilience. We have contributed extensively to publications that apply research evidence to developing solutions to the major challenges facing rural families around the world. Most recently this work included our contribution to the InsuResilience Global Partnership publication *A Strategic Evidence Roadmap for Climate and Disaster Risk Finance and Insurance*.

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 NBCA CLUSA expanded with the 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

COVID-19: COVID-19 has continued to create challenges for implementation of MRR Innovation Lab work, particularly new projects that are waiting to initiate activities. For existing activities, while much work has been able to continue through their deep partnerships with local partners, a reflection of the vitality of these partnerships.

Other research activities, however, are built around interventions and innovations that cannot be implemented with COVID restrictions until safety protocols are altered, for example, work that relies on savings groups or other gatherings of larger groups.

In this regard the implementation of existing activities has varied according to country-specific restrictions and the nature of the innovations under research. We look forward to being able to continue research activities as requirements and restrictions evolve.

FUTURE DIRECTIONS

Meetings and Events

Through COVID-19, the MRR Innovation Lab has been adapting well to the changing circumstances, moving our traditional in-person activities (particularly dissemination and capacity development activities) to remote mediums. However, we're already starting to see some signs and signals of some limited "reopening" of meetings, events and other activities. We will closely track the COVID safety situation and maintain compliance to restrictions and protocols as we begin to re-engage in these ways as the situation allows.

Engaging Our Extended Technical Committee

Now that portfolio is complete, will plan and conduct our first complete technical committee meeting (to date we have convened only a virtual meeting of the ALL-IN cohort). Drawing together all US-led researchers and ALL-IN researchers, this will likely still be remote to enable engagement of host country PIs and Co-PIs for all projects.

Expanding Capacity Development Activities

As our activities are fully selected, we can now turn our attention to the related capacity development activities, particularly those related to ALL-IN. We've already held a capacity development event in Ghana for ALL-IN applicants who were not selected for funding, designed to build their proposal-writing skills and revise their unsuccessful proposals. We look forward to conducting more of these and similar events in the coming year.

HICD IN ACTION

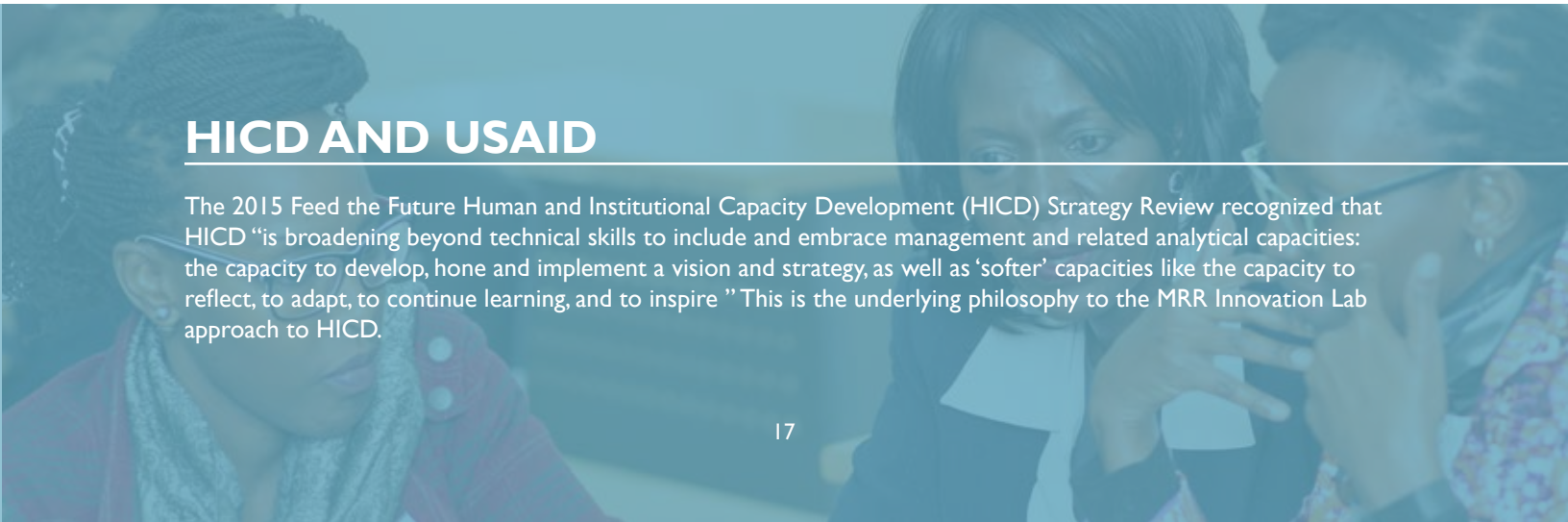
Over the past year, the MRR Innovation Lab team has focused its HICD efforts through its Feed the Future ALL-IN partnership with ICED. The MRR Innovation Lab team contributes to strategy development by offering insight, perspective and advice without dictating approaches. Capacity strengthening activities are designed to address both research capacity among principal investigators and the broader African research community as well as research administration capacity for ICED staff and grant-receiving institutions.

Specific capacity strengthening activities have included in-person trainings, collaborative workshops, remote collaboration and regular zoom calls and field visits. For award administration, financial reporting and USAID compliance, the MRR Innovation Lab team has collaborated extensively through mentorship and coaching. For communications, the MRR Innovation Lab and ICED communications teams have developed two-way collaborations that divide responsibilities for producing materials while building each other's foundation of skills and knowledge.

The MRR Innovation Lab has also contributed to strengthening research capacity. The MRR Technical Committee, composed of researchers funded both through the MRR Innovation Lab and Feed the Future ALL-IN, have met virtually to discuss progress, challenges and potential solutions.

On September 22, 2021, the MRR Innovation Lab and ICED hosted a workshop at Valley View University in Accra Ghana for African researchers seeking to strengthen their proposals for future grant funding. Nearly 50 researchers attended this workshop led by MRR Innovation Lab director Michael Carter and a selection of current ALL-IN principal investigators.

Presentations at this workshop covered every facet of securing and managing large-scale research grant funding from USAID and other international donors. This included presentations on evaluation design, policy relevance and scaling as well as the technical aspects of managing grants such as budgeting and research grant requirements.



HICD AND USAID

The 2015 Feed the Future Human and Institutional Capacity Development (HICD) Strategy Review recognized that HICD "is broadening beyond technical skills to include and embrace management and related analytical capacities: the capacity to develop, hone and implement a vision and strategy, as well as 'softer' capacities like the capacity to reflect, to adapt, to continue learning, and to inspire " This is the underlying philosophy to the MRR Innovation Lab approach to HICD.

SUCCESS STORY

PUTTING RESILIENCE MEASUREMENT TO THE TEST

The MRR Innovation Lab and its predecessor have been a key voice in the shift within USAID in its growing focus on risk and resilience as key to sustaining progress with international development. USAID has recently shifted in focus, restructuring itself organizationally to include the Bureau for Resilience and Food Security. Two MRR Innovation Lab projects build on this momentum to expand on USAID investments in tools to measure resilience among rural families.

USAID has invested significantly in resilience measurement. One resulting concept describes resilience as a capacity to ensure that shocks and stressors do not have long-lasting negative consequences. Another concept characterizes resilience as reflecting underlying absorptive, adaptive and transformative capacities.

This second concept is comprehensive, and variables within these three capacities provide a means to quantitatively measure resilience. However, implementing this approach in development programming can be a challenge in terms of its technical demands, identifying causal relationships between the programming and resilience indicators, and limited application to household-level impacts.

With data from a nutrition-sensitive pilot intervention in Bangladesh, John Hoddinott, H.E. Babcock Professor of Food and Nutrition Economics and Policy at Cornell University, is comparing several resilience measures by how well they predict how households withstood the COVID-19 pandemic. The team is also exploring the extent to which household-level resilience measures capture gendered resilience, as well as to what extent a social protection intervention developed resilience to the impacts of the COVID-19 pandemic.

In March, 2019, Dean Yang, a professor of economics at the University of Michigan, was conducting a randomized controlled trial (RCT) in Mozambique when Cyclone Idai struck. With support from the Feed the Future Innovation Lab for Assets and Market Access, Yang was measuring the impacts of a comprehensive community health and development program.

With support from the MRR Innovation Lab, Yang is expanding this work 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.

SUCCESS STORY

TARGETING A RAPID RESPONSE TO PANDEMIC IN NEPAL

The COVID-19 pandemic created an urgent need for guidance on how to reach rural families who were most at risk of losing their livelihoods. In Nepal, a MRR Innovation Lab research team partnered with Heifer International to conduct a rapid assessment of which households require emergency assistance. The team is also building on prior research to evaluates whether livelihood building programs have made households more resilient during the pandemic.

MRR Innovation Lab principal investigator Sarah Janzen is building on a six-year research partnership with Heifer International that includes two large-scale studies in Nepal. The first is a rigorous impact evaluation of a Heifer International rural livelihoods program approach in Nepal that was supported by the Feed the Future Innovation Lab for Assets and Market Access. The second is an evaluation of a novel digital technology to improve goat-selling cooperative performance supported by the Feed the Future Innovation Lab for Livestock Systems.

At the start of the pandemic, Heifer International reached out to Janzen in order to better inform their response. Unlike typical disaster relief efforts, Heifer International was keen to layer these efforts on top of existing social and market infrastructure. Janzen leveraged the resources and networks built through these two projects to design and conduct a rapid assessment of how rural households in Nepal were affected. They quickly mobilized phone interviews with 75 households drawn from both large-scale studies.

The team learned that the pandemic left households' food consumption mostly unaffected. There were no reports of households selling assets at a loss, though markets were inaccessible. The cooperatives organized as part of the prior impact evaluation also seemed to provide support to individual households. The team reported these results to Heifer International in order to adjust their program targeting and pandemic responses as needed.

Janzen and her team are also using their findings to establish appropriate protocols and survey questions for a new project supported by the MRR Innovation Lab to evaluate whether households who participated in the Heifer International livelihood building program were more able to cope during the COVID-19 pandemic. The team is also measuring whether the program offered a resilient escape from poverty five years after the program ended.

Based on the results of the rapid assessment, and building on their experience evaluating resilience to an earthquake in Nepal in 2015, the team has created a 30-minute phone survey that their local collaborators at Interdisciplinary Analysts (IDA) administered by phone to 1,300 respondents. The existing partnership with IDA from prior research made it easy to implement and ensure high quality standards with a phone-based survey.

SUCCESS STORY

BUILDING ON SUCCESS IN MALAWI AND MOZAMBIQUE

The most successful research projects are those that develop the deep local partnerships needed to quickly scale successes. MRR Innovation Lab projects are building on prior research supported by the Feed the Future Innovation Lab for Assets and Market Access to test expansion of Payments for Ecosystem Services (PES) in Malawi and a bundle of stress-tolerant maize seeds and index insurance for a seed-replacement guarantee.

From 2014-2017, Andrew Bell, an assistant professor of environmental studies at New York University led a project in Malawi to evaluate how financial incentives affect how small-scale farmers decide to adopt the three individual practices that make up conservation agriculture. He found that adoption by neighbors was more important than any other factor, which could have implications for the overall cost of encouraging conservation agriculture across a region.

With support from the MRR Innovation Lab, Bell is building on these findings by expanding an existing field trial led by the Lilongwe University of Agriculture and Natural Resources (LUANAR) to further test PES as a means of encouraging farmers to adopt SLM practices. The LUANAR field trial is part of the comprehensive $125 million Malawi Resilient Productive Landscapes Project (RPL) funded by the World Bank and implemented by the Government of Malawi.

From 2015-2018, a research team led from UC Davis designed and tested a bundle of stress-tolerant maize varieties developed by CIMMYT and agricultural index insurance that provided a seed-replacement guarantee. In that study, the stress-tolerant maize proved resilient to moderate mid-season drought. The in-kind seed replacements helped farmers who experienced severe drought to immediately recover and even increase their yields in the following season.

In recent years, the initial project's private sector partners in Mozambique scaled up the bundle in partnership with NCBA CLUSA with support from USAID. The continued scaling of this bundled intervention provides an opportunity to test focused approaches to sparking lasting adoption of these resilience-building technologies and to add evidence of the bundle's impacts.

Jonathan Malacarne, an assistant professor of economics at the University of Maine, is partnering with NCBA CLUSA and their partners Hollard Insurance and Phoenix Seeds to test short-term subsidy and training programs for rural households to learn about stress-tolerant maize bundled with index insurance for a seed-replacement guarantee.

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: This research project was funded in 2021.

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

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: The ongoing Covid-19 pandemic prevented any work being undertaken on this project. In March 2020, we had to pull our data collection teams out of the field and we have not (yet) been able to send them back out. Prohibitions on in-person gatherings at various times has also meant that we have not been able to undertake any of the capacity building activities that we had envisaged. In early September 2021, it became clear that the latest wave of Covid (the delta variant) had crested and new case numbers have begun to fall rapidly. Meaningful numbers of Bangladeshis are now vaccinated, including core members of our field team. We have now received in-country clearance to resume data collection in early 2022. Preliminary planning for this has now commenced and we are looking forward to providing a much more detailed list of achievements in 2022..

Capacity Building: None to report.

Lessons Learned: None to report

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, Michigan State University

Collaborators: International Food Policy Research Institute, R4 Rural Resilience Initiative

Timeline: 2020

Funding: $39,995 (USAID)

Description: In this feasibility study, MRR Innovation Lab researchers have partnered with R4 Ethiopia and IFPRI to test if smartphone pictures can be used to implement fail-safe insurance audits. Comparing contracts with and without this type of audit, the team is measuring factors known to influence demand for insurance: trust, fairness, understanding, liquidity constraints, quality, premiums and women's constraints to benefit from index insurance. About half of participants are women, providing estimates of gender-based differences in demand and/or preferences. The team is exploring the possibility of recruiting married couples in order to examine intra-household differences in decision-making.

Achievements: While COVID-19 has hindered field research, the team has strengthened their partnerships with IFPRI, R4, and the Debre Zeit Agricultural Research Center of the Ethiopian Institute for Agricultural Research. They have also met bi-monthly basis to discuss developments in R4's weather index insurance program. The team is now part of R4's index design team. In addition, IFPRI is currently collecting an additional round of images for Picture-Based Insurance in 24 villages in Amhara and Tigray, with crop cutting experiments and picture-based image assessments starting any time from now; this was possible without creating face-to-face contact.

Capacity Building: Through meetings with the R4 Rural Resilience Initiative, the team has been in conversation with NGO (REST and ORDA) implementing R4's insurance program as well as Daniel Osgood from Columbia University's International Research Institute for Climate and Society (IRI). Osgood's team has been developing the weather indices for R4.

Lessons Learned: R4 has changed the scale of its index from kebele to woreda, but implementing partners are farmers are concerned about basis risk. IRI has been facing challenges in developing indices that can be scaled up beyond the initial pilot villages across multiple agro-climatic zones and elevations.

Presentations and Publications: Two-page project summary, "Building Trust in Index Insurance with Picture-based Crop Audits in Ethiopia"

Theory of Change: Drafting still 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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "The Distributional Impacts of Large-Scale Land Transactions in Ethiopia"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: The survey tool was developed to capture basic demographic characteristics, risks and shocks they face, welfare, subjective beliefs, and insurance experiences. The tool also tracks dynamics captured in an annual household survey collected by ILRI in 2012-2015. The field experiments were designed, translated, and piloted. Activities led to further refinement of the experiments and procedures to be used during the main implementation. Partners continue to clean and document household data collected in August and September 2021 and will merge them with insurance purchase data from Oromia Insurance Company (OIC). Analysis of baseline data will contribute to tailored advice scripts. Another round of data will be collected in January 2022. Tailored feedback will be provided to participants based on elicited preferences and assigned treatment arm. OIC will sell insurance in January and February of 2022.

Capacity Building: Several cooperatives signed new Memorandums of Understanding with OIC to sell IBLI to its members and the public, increasing access to insurance in these remote regions. Hyuk (Harry) Son (3rd year Ph.D. student, Cornell University) has taken on additional responsibilities for the project. 50 enumerators and 10 supervisors were trained on research practices and data collection. 67 village insurance providers were trained or retrained on IBLI and how to sell it.

Lessons Learned: Data collection was adjusted due to (1) the COVID-19 pandemic, (2) regional conflicts, (3) national conflicts, (4) election-related events. Workplans are flexible meet objectives in this uncertain environment. Data monitoring identified issues in the data. Staff-time will be allocated to data monitoring, especially in the first week of data collection, so that issues can be identified and solved early on.

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 of Sub-Saharan Africa where families face the additional risks of climate-related shocks like drought. The USAID Resiliency in Northern Ghana (RING) project seeks to improve the nutrition and livelihoods of vulnerable families. This ALL-IN project measures the impacts of the RING project and tests whether nutrition-related messages by mobile phone reinforce the RING project's impact on families' nutrition and resilience. The study also analyzes the costs and benefits of nutrition-related messages to guide the future scaling up of such programs.

Achievements: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Digital Communication to Reinforce Nutrition and Household Resilience in Northern Ghana"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: TGhana 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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "The Impact of Irrigation on Improved Productivity and Market Value for Smallholder Farmers in Northern Ghana"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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 Agricultural Insurance Pool, Ghana Irrigation Development Authority, 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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Pairing Small-scale Irrigation and Index Insurance to Manage Risk and Expand Access to Credit in Northern Ghana"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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, University of Alabama, University of Ghana, WorldCover

Timeline: 2020-2021

Funding: $136,636 (USAID)

Description: An MRR Innovation Lab research team is building an index insurance product that insures against price variation that affects small-scale farming families as well as families who indirectly rely on stable agricultural prices. In addition to building this new type of agricultural insurance product for rural communities in northern Ghana, the team is evaluating take-up and demand that will determine the feasibility of scaling up the insurance.

The contract will follow from one currently in development by the MRR Innovation Lab. It will feature a satellite-based yield or rainfall measure with an audit provision that allows communities to request on-the-ground yield measurements to supplement satellite data. This index will be developed separately for each of the four primary crops in the study region: maize, soybean, cowpeas and groundnuts.

Achievements: There have been delays due to covid-19 but the researchers have still been able to make progress building out the insurance contract structure. The team has confirmed the availability of the necessary data for three crops across 10 years that will help with contract design for their target area of Northern Ghana.

Capacity Building: There have been several virtual meetings between the researchers and stakeholders within the insurance sector allowing the team to conduct ground-truthing exercises to better understand the concerns of the companies around the concept of crop price insurance.

Lessons Learned: While working through the contract design, the team has been learning more about how to set the correct reference prices, and how best to best to predict a reference point in the future. The team has also acknowledged the difficulty of setting the premiums against overfitting risk, and picking the ideal sales window for the product.

Presentations and Publications: Two-page project summary, "Promoting Resilient Agricultural Growth with Area Revenue Index Insurance in Ghana"

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Reducing Poverty among Women by Strengthening the Shea Value Chain in Northern Ghana"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: Consultant Sebastian Bascom, was hired in early 2020. He moved to Kenya in early February then returned to the US in mid-March due to the COVID-19 pandemic. PI Sarah Janzen also traveled to Kenya in early February to train Bascom and facilitate initial contact and meetings with potential partners. Important meetings included those with the USAID Mission, Pezesha, Acre Africa and Busara.

Capacity Building: The project trained consultant Sebastian Bascom in impact evaluation methods and data analysis using STATA. Bascom is now in graduate school.

Lessons Learned: The project was built on the idea that the researchers need people to consistently engage Kenya partners face-to-face. COVID-19 has affected the team's ability to do this. The team still believes it is critical to have consistent engagement, ideally in-person to build a strong collaborative network.

Presentations and Publications: Two page project launch report, "Assessing the Impact of Digital Loans for Agriculture in Kenya."

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: Due to the COVID-19 pandemic, the team adjusted field protocols to ensure social distancing and other health and safety measures, including phone surveys. Due to the additional financial strain participants may face, the team re-evaluated take-up assumptions and demand for the project's financial products. The team has expanded and conducted a pilot study in the field. Thanks to PI Michael Kremer's new Development Innovation Lab at the University of Chicago, the team has a larger team supporting the project. Several team members have spent time in Kenya working with Innovations for Poverty Action on fieldwork and planning, including a new pilot survey aimed at assessing demand and testing plans for rolling out the experiment. The team is analyzing the pilot data and with those results will revise power calculations and the roll-out schedule. The full experiment will launch by early 2022 to continue through September 2022.

Capacity Building: The new partnership with the Development Innovation Lab at the University of Chicago includes collaboration with new researchers, including a postdoctoral fellow and a research associate who have participated in fieldwork, project planning, and research design. The team trained Innovations for Poverty Action field officers to conduct data collection in the field.

Lessons Learned: Demand for financed water tanks may be lower than anticipated due to the financial crisis associated with the COVID-19 pandemic. The team designed a new pilot survey to assess current demand. The team is also evaluating the water meter market for new products and how best to collect measurements from them.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Impact of Agro-Weather and Market Information on Productivity and Resilience in Farming Communities in Kenya"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

PROJECT UPDATE

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

Location: Kenya

Lead Principal Investigator: Nathan Jensen, International Livestock Research Institute (ILRI)

Collaborators: The BOMA Project, UC Davis

Timeline: 2017-2021

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 developed a survey aimed at tracking the impacts of the SARS-CoV-2 pandemic on households in pastoral settings. They collected the survey by phone from a sample of 402 pastoralists in Samburu County in August 2020. COVID-19 and policies aimed at reducing its spread increased the costs of activities and made it more difficult to connect with respondents.

Capacity Building: Enumerators were trained on collecting the survey.

Lessons Learned: Pastoralist households participating in this research reported a loss in terms of trade, making staple goods relatively more expensive.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Soil Testing for Soil Acidity Management on Smallholder Farms in Kenya"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: Over this last year the team lost LUANAR PI Dr. Lawrence Mapemba to COVID-19 in January. They have spent the intervening 6 months building up a new team with his peers at LUANAR, and with them building up the necessary relationships and connections with the World Bank and Government of Malawi so that the larger project to which this MRR trial is attached may begin. The team is close to finalizing agreements across institutions on the activities that will begin over the 21-22 crop year, and have spent months speaking regularly as a team to develop the RCT design that will be employed. The project inception workshop is planned for Q4 in 2021, along with the piloting of the framed field experiment. They anticipate FFE data collection will take place in 2022 Q1 so that the field experiment may be designed and launched for the 2022-2023 crop year.

Capacity Building: The team met for the first time in Kenya in August, when the first opportunity to travel arose. Malawi travel was not permitted until September of this year due to COVID-19 Delta variant.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Empowering Local Decision Making to Improve Land Management in Malawi"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

PROJECT UPDATE

Resilience in the Aftermath of Disaster in Mozambique

Location: Ghana

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

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: $136,636 (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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Subsidizing Learning About Resilience-building Agricultural Technologies in Mozambique"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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 designed, tested and implemented a phone survey on shocks and coping strategies during the COVID-19 pandemic. The survey was conducted in March-April by IDA Associates and led by Dr. Sudhindra Sharma. The team conducted 1,247 phone interviews out of a 1,332 sample. Data was cleaned and processed. Preliminary findings have been reported to Heifer International.

Capacity Building: Due to travel restrictions, the in-country team (IDA Associates led by Dr. Sudhindra Sharma) has taken a lead role in ongoing future data collection with minimal oversight from the U.S.-based PIs. Survey programming was also led by IDA Associates, demonstrating much greater capacity than in earlier collaborations. These efforts demonstrate earlier capacity development investments. The team began conversations with Dr. Ben Wood, Heifer International's Director of Monitoring, Evaluation, Research and Learning, regarding improvements to their standardized surveys for global monitoring and evaluation. One master's student is being trained in data analysis and economic development theory with funding provided by the University of Illinois, while collecting data for analysis in her master's thesis.

Lessons Learned: Phone surveys are relatively inexpensive, and network connections are sufficient to reach the study population. For simple data collection efforts, phone surveys present an opportunity.

Presentations and Publications: None to report.

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Adapting to Climate Risk with Mutual Weather-Index Crop Insurance in Nigeria"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Digital Literacy, Output Market Access, and Demand for Rural e-commerce in Nigeria"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Linking Financial and Agricultural Innovations for Women Farmers' Resilience in Nigeria"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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: This year, the main activities include: (1) cooperative and farmer endline surveys for 2020A. As part of the pilot study that was funded by J-PAL-ATAI, the team conducted an endline survey with 41 cooperatives and 336 farmers, (2) introduced and connected 81 cooperatives with Africa Improved Foods (AIF), the main maize processor in Rwanda, (4) embarked on monitoring to ensure adherence to the research design, (5) enrolled co-ops for 22A through World Food Program (WFP) to evaluate the effect of linking to the WFP Farm to Market Alliance (FtMA) ecosystem in which maize cooperatives can gain access to different major buyers in Rwanda, (6) randomly assigned the 186 cooperatives into treatment and control groups, stratified by above and below the median of female ratios (7) baseline survey for 186 new cooperatives.

Capacity Building: The team has not begun capacity-building apart from stakeholder meetings. They have been in discussion with WFP to organize an impact evaluation training for their staff but this was hindered by COVID-19 restrictions. The team has agreed with WFP to organize hybrid (online and in-person) training sessions in 2022.

Lessons Learned: The Rwanda Agriculture Board could not guarantee access to the SNS agriculture database that would provide input purchase data. The reason given was that the system was still under development. For future research, the team recommends identifying and validating data sources during the research design phase.

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 made progress on a data sharing agreement with the Société d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal (SAED) to refine land use classification algorithms that would vastly improve characterization of irrigation infrastructure in the study area. After receiving SAED data, the team plans field visits and will begin the primary statistical analyses. In Rwanda, government policy related to COVID-19 limited field activities and required the postponement of additional surveys and interventions. Since restrictions were lifted, the team launched follow-up surveys. Efforts have focused on data cleaning of the first two surveys and preliminary analysis for the land contract intervention.

Capacity Building: In Senegal, the team has developed relationships with a number of contacts within SAED. In Rwanda, collaboration continued with the World Bank and Rwanda Ministry of Agriculture. While COVID-19 prevented in-person meetings, the team maintained regular meetings with both partners, including presentations to Ministry of Agriculture officials on previous irrigation research and a presentation on preliminary results to a partner group at the European Union.

Lessons Learned: In Rwanda, preliminary analysis of the land contract experiment points to small impacts. Local farmer brokers are aware of the contracts and their features. Most contracts were dispersed, and multiple farmer brokers requested additional contracts. Written contracts are being used only in a fraction of land transactions. The intervention does not appear to have substantially changed aggregate activity of village land markets.

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: After several months of COVID-related delays, the team launched its collaboration with the MAAIF division charged with crop inspection (DCIC) in fall 2020. The team finalized the maize seed system research design to leverage DCIC inspection protocol and processes. It included a sampling design based on the planting returns reported by maize seed companies for the top 7 varieties in Uganda. The team surveyed outgrowers and seed companies, and in Spring 2021 they collected additional samples and data from agrodealers. The team has analyzed the survey data and processed the seed samples, which will be shipped to a lab in Australia for genotyping against the reference library constructed in collaboration with the crop research division of MAAIF (NaCRRI). In Summer 2021, the team shifted to the bean seed system pilot led by co-PI Enid Katungi at CIAT with a nearly finalized research design. The team plans to launch the bean seed system work in late Oct or Nov 2021 and will continue through March 2022.

Capacity Building: The team plans a workshop with DCIC in late 2021 to formalize learnings and what they may mean for DCIC work going forward. This summer they hired Isaac Ahimbisibwe as a GSR from UC Davis, as he planned to be in Uganda for his own research and has provided excellent assistance while expanding his toolkit.

Lessons Learned: DCIC supervisors and inspectors have been very willing to cooperate and learn from the process. This collaboration has enabled much of the work to continue despite periodic shutdowns for COVID-19.

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: This research project was funded in 2021.

Capacity Building: None to report.

Lessons Learned: None to report.

Presentations and Publications: Two-page project summary, "Strengthening the Resilience and Empowerment of Women Smallholder Farmers in Uganda"

Theory of Change: Drafting still underway.

Impact Pathways

RESEARCH OBJECTIVES

Details currently in progress.

ACTIVITIES

Details currently in progress.

OUTCOMES

Details currently in progress.

IMPACTS

Details currently in progress.

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 research team faced field-work challenges due to the COVID-19 pandemic and national elections. The team adjusted protocols to ensure that COVID-19 safety precautions were in place and successfully received institutional approvals in Zambia and at UC Berkeley to proceed. Enumerators completed two rounds of household visits. Round 1 included baseline surveys, the planning intervention and exercises measuring willingness-to-pay and beliefs. Round 2 involved the labeling intervention. The team piloted changes to the planning exercise to make it effective, efficient and amenable to scaling. In July-September 2021 the team disseminated research results and possible partnerships with 12 different stakeholders, including the World Bank, Ministry of Community Development and Social Services, and Alliance Ginneries (AG).

Capacity Building: Enumerator training was conducted before the baseline surveys and the planning intervention (Sep-Oct 2020). 12 enumerators (3 supervisors, 8 surveyors and 1 surveyor assistant) attended 4-day training.

Lessons Learned: Interviews with former participants in June provided insights on enhancing the project's impact. The research team asked farmers what expenditures were not fully covered in the planning exercise, then made the planning sheet more comprehensive. They also explored opportunities for scale-up. Farmers were open to be trained in groups and suggested transferring knowledge to local leaders. There is also potential to conduct the intervention with couples as there are expenses that are commonly managed by women while others are decided by men.

Presentations and Publications: None to report.

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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