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Title XII Report to Congress for Fiscal Year 2022

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The United States Agency for International Development (USAID) submits this report to Congress pursuant to Section 300 of Title XII of the Foreign Assistance Act of 1961, as amended, which requires:

The President shall transmit to the Congress, not later than September 1 of each year, a report detailing the activities carried out pursuant to this title during the preceding fiscal year and containing a projection of programs and activities to be conducted during the subsequent five fiscal years. Each report shall contain a summary of the activities of the Board established pursuant to section 298 of this title and may include the separate views of the Board with respect to any aspect of the programs conducted or proposed to be conducted under this title.

I. ENGAGEMENT BY THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT WITH INSTITUTIONS DEFINED UNDER TITLE XII OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

Overall Summary of Fiscal Year 2022 Progress Across Feed the Future Innovation Labs

USAID partners with Title XII universities on a wide range of topics to leverage the advanced capacities of U.S. universities, including on agricultural research and development, analytics, climate change, and nutrition. Many of these partnerships are within the Feed the Future Innovation Lab research community focused on reducing hunger, poverty, and malnutrition as part of the Global Food Security Strategy. In Fiscal Year (FY) 2022, the 21 Feed the Future Innovation Labs, supported by over 80 U.S. colleges and universities in 40 states, partnered with 137 international institutions of higher education in 39 countries. These partnerships include both research and degree programs.

The Innovation Labs provide short- and long-term training to support the sustainability of food systems, agricultural, and nutrition research and development activities while helping develop the next generation of scientists. In FY 2022 the 21 Feed the Future Innovation Labs provided short-term education and training to 32,620 individuals (37 percent female) from 22 countries. Most of the education training programming took place in Africa (57 percent) and Asia (27 percent).

In FY 2022, the 21 Feed the Future Innovation Labs provided long-term education and training, primarily graduate degree, to 465 individuals (49 percent female) from 22 countries. By region, Africa had the largest percentage of students (51 percent), followed by Asia (36 percent), the United States (10 percent), and Latin America and Caribbean (3 percent). The U.S. total of students was 85, of which 37 were international students who studied at 19 U.S. universities.

A Feed the Future Innovation Lab Partners Meeting was held virtually on May 11, 2022. The purpose of the meeting was to examine how the Innovation Labs can be mobilized

to address global impacts on food security and nutrition due to Russia's invasion of Ukraine. Discussions focused on technologies and innovations that can be used now and in the near- to medium-term to reduce food loss and waste, increase resource use efficiency, and prevent malnutrition. There were also presentations from David Laborde, Senior Research Fellow, International Food Policy Research Institute (IFPRI), and Antonina Broyaka, former Dean, Vinnytsia National Agrarian University, Ukraine. Over 130 people attended the meeting.

The Feed the Future Innovation Lab Annual Meeting was held in Washington, D.C. on September 20, 2022. The purpose of the meeting was to: (a) demonstrate how the Innovation Labs are strengthening food systems to withstand shocks and stresses, (b) identify game-changing research that has significant potential to address food insecurity, and (c) show how the Innovation Labs are inclusive and work at the local level to translate their research into scalable solutions. Eight Innovation Labs presented on three themes: 1) Food Systems Research: A look at the current state of global food systems, gaps in the system, and future directions for food systems and food systems research, 2) Expanding and Promoting Localization: How the Innovation Labs support locally led development, local capacity strengthening, and local systems practices, 3) Translating Science for Measurable Impact: How Innovation Labs are translating innovation into scalable solutions.

Below are short summaries of the progress various Feed the Future Innovation Labs (FTFILs) made in FY 2022 :

FTFIL for Animal Health

The FTFIL for Animal Health (AHIL), led by Washington State University, conducts research to develop and test improved animal health interventions such as vaccines and diagnostic tests focusing on East Coast fever (ECF). East Coast fever, a tick-borne disease affecting cattle in eastern, central, and southern Africa is a fatal disease and a major impediment to the establishment and growth of cattle in the region. FY 2022 marked the second year of the activity and the initiation of significant outputs and outcomes. AHIL completed the establishment of the molecular and diagnostics lab at the University of Nairobi veterinary school, which included the renovations of the lab facilities and the purchase of state-of-the-art lab equipment. All eight PhD students registered at the University of Nairobi under this activity completed their proposal defenses and started their lab experiments and field work. Field studies to assess the impact of ECF on household nutrition and economics began. Additionally, AHIL led the formation of a regional ECF taskforce to address the challenges of ECF vaccine production, registration, and distribution.

FTFIL for Applied Wheat Genomics

The FTFIL for Applied Wheat Genomics (AWG), based at Kansas State University, is developing new breeding methodologies using advanced genomics tools for the rapid

development of heat tolerant, high-yielding, and farmer-accepted varieties of wheat for South Asia. AWG is simultaneously increasing the research for the development capacity of the global wheat improvement system through the application of cutting-edge genomics in applied wheat improvement. AWG has initiated large-scale application of genomics tools for improvement of wheat. Through AWG, over 92,000 candidate wheat varieties and breeding lines from the International Maize and Wheat Improvement Center (CIMMYT) global wheat program have been genetically characterized. In addition, advanced testing for yield productivity for 4,806 elite candidate varieties has been completed in multiple locations across South Asia. The extensive field-testing data is brought together with the genomic profiling to build trait prediction models for selection and rapid advancement of the most promising, highest performing, and most climate resilient candidate varieties. With a particular focus on heat stress environments, the Innovation Lab maintains the vision that the application of new tools for genomics and breeding can ensure that the yield and economic value of wheat crops for farmers in South Asia increases through rapid development of superior, climate-resilient wheat varieties. The AWG activities include training support for local farmers, field staff, scientists, and students on the use of technology in phenotyping, characterizing wheat, and identifying wheat diseases such as rust, as well as data analysis. Of the individuals who have received U.S. government (USG)-supported, degree-granting, non-nutrition-related food security training through the AWG during the fiscal year, three out of seven, or 43 percent, were female students. In addition, of the persons trained in local capacity development activities, 95 out of 266 were female.

FTFIL for Crop Improvement

FTFIL for Crop Improvement (ILCI) serves as a support system for national agricultural research organizations (NAROs) in target regions to identify, develop, pilot, and transfer appropriate tools, technologies, and methods, equipping NAROs to deliver increased genetic gain and new varieties for key product profiles that advance the economic growth, resilience, and nutritional development goals of the Global Food Security Strategy (GFSS). During FY 2022, ILCI focused on developing tools, technologies, and methods; supporting regional Centers of Innovation (Cols) across Africa, Latin America, and the Caribbean; strengthening collaboration across disciplines and regions; and building relationships with strategic partners. ILCI also developed and strengthened relationships with a select group of historically-Black land grant universities in the United States, among them Delaware State University and Tuskegee University, through development of the new Thomas Wyatt Turner Fellowship (TWT). Research highlights include a comprehensive cowpea value chain analysis to understand specific gender dynamics in the cowpea value chain in Malawi, and a multidisciplinary approach to modernize breeding programs (e.g. through use of the cloud) across all focus countries. As understanding of local challenges developed, the program planned for growth in new areas, such as addressing seed access issues by bringing together public-sector breeding efforts with the private market, DNA fingerprinting, willingness-to-pay studies, and the customization of software to target breeders' unique needs by region.

FTFIL for Fish

The FTFIL for Fish improved efficiency of aquaculture production, feed production, and fish processing in Nigeria; implemented integrated rice-fish farming experimental plots in Nigeria; and improved the genetics of carp species in Bangladesh. Fisheries productivity in Cambodia improved through a searchable photo identification catalog of freshwater fishes, and in Kenya through community-led fish landing monitoring. The FTFIL for Fish mitigated risks to producers by launching an online E-AquaHealth diagnostic extension service platform at the University of Ibadan in Nigeria; identified major foodborne pathogens in fish and behaviors associated with food safety by fish processors in Dhaka, Bangladesh; and characterized pathogenic bacteria responsible for tilapia mortalities in Zambia for autogenous vaccine development. In Bangladesh the IL trained extension agents to use remote sensing technologies to identify fish ponds and produced extension videos; in Nigeria women fish processors increased their knowledge and customer engagement on nutrition and food safety through literacy tools; in Zambia women gained nutrition knowledge and researchers tested complementary foods integrating fish powder; in Kenya mothers and caregivers increased their use of fish in their diets and fishers' incomes increased from modified fishing gear; in Zambia researchers trapped invasive crayfish to understand their distribution in Lake Kariba and the Kafue floodplain; and in Ghana researchers analyzed 915 oyster samples for 16 minerals that will inform women shellfishers' decision-making to improve their livelihoods and nutrition.

FTFIL for Genomics to Improve Poultry

The FTFIL for Genomics to Improve Poultry (GIP-IL) seeks to improve the production of indigenous chickens in Africa by developing strategies to genetically enhance their resistance to Newcastle disease (ND) infection and heat stress. In FY 2022, the teams in Ghana and Tanzania completed experimental trials needed to determine the feasibility of integrating economically important traits, such as egg production and growth rate, into a genetic selection platform used to breed indigenous chickens for enhanced resilience to ND. In addition, the teams collected samples and data from ND outbreaks to characterize circulating viruses and identify risk factors for infection. The team also translated and disseminated an outreach video on ND prevention and control measures produced in collaboration with the Scientific Animations without Borders team. The video was translated into 15 languages/dialects and distributed to smallholder producers in Tanzania, Ghana, Kenya, Nigeria, Niger, Malawi, and Mozambique through WhatsApp networks, websites, and in-person gatherings.

FTFIL for Horticulture

The FTFIL for Horticulture conducted an extensive, locally led consultation process in each of the four global regions (West Africa, East Africa, South Asia, and Central America) to determine the research priorities. In FY 2022 the IL led a competitive request for applications from each of the four regions and selected research activities

from local partners paired with researchers in the United States and other global research institutions. The final research portfolio is locally led with oversight from regional managers in local partner institutions and focuses on indigenous fruit and vegetable production value chains with an emphasis on benefits to women and youth. Putting together an entirely locally-led portfolio was challenging as many local partner institutions do not yet have the capacity to apply for competitive grants, conduct rigorous research, and manage sub-grant funds. The IL thus made allowances for this lack of capacity and provided assistance and peer mentorship to local partners to ensure future success.

FTFIL for Integrated Pest Management

The FTFIL for Integrated Pest Management supported improved, environmentally sustainable yields for smallholder farmers through the implementation of participatory, integrated pest management (IPM) programs in horticultural, grain, and legume crops using centers of excellence for dissemination of best IPM practices and scalable solutions. In its most recent phase, the IPM IL was in operation from November 15, 2014, to May 15, 2022, with two and a half years of no-cost extension and two years of interruption of activities due to the COVID-19 pandemic. The achievements of the project, however, exceeded expectations, especially with the program's focus on identification, introduction, and scaling up of new and innovative pest management tools and technologies in host countries: Bangladesh, Cambodia, Nepal, and Vietnam in Asia, and Ethiopia, Kenya, and Tanzania in Africa. The accomplishments of the IPM IL paved the way for the successful establishment of the FTFIL for Current and Emerging Threats.

FTFIL for Legume Systems

The FTFIL for Legume Systems focuses on cowpea improvement and IPM in West Africa and common bean improvement in southern Africa. Research efforts this year resulted in the field testing of 27 plant improvement or production systems technologies. Notably, the IL is moving several varieties of cowpea and common bean toward release in FY 2024. These new varieties will have inherent pest resistance both in the field and in storage while maintaining or improving nutritional and other consumer-desired characteristics. The IL also verified that locally made neem tea bags, an income-producing activity for women's groups, are effective in reducing pest damage, reducing pesticide exposure, and increasing farm profits.

FTFIL for Livestock Systems

The FTFIL for Livestock Systems (LSIL) seeks to sustainably improve livestock productivity, marketing, resilience, and animal-source food (ASF) consumption using appropriate improved technologies, capacity development, and policies, in order to improve the nutrition, health, incomes, and livelihoods of vulnerable people. LSIL engages in long-term research and capacity-development efforts through a multi-

disciplinary, integrated, and competitively funded approach. In five target countries. Burkina Faso, Ethiopia, Nepal, Niger and Rwanda, –partner organizations include universities, research institutions, private sector actors, and civil society, among others. Although FY 2022 was a transitional year as a result of the launch of a new portfolio of projects, LSIL continued to share findings and awareness about the importance of ASF for nutrition, health, growth, and cognitive development through webinars, podcasts, and publications including 36 academic presentations and 22 peer-reviewed articles. In Nepal, LSIL researchers found that there was a positive association between dairy animal ownership and child and family diets during the ongoing COVID-19 pandemic. In Rwanda, LSIL researchers demonstrated that behavior change messaging that targets fathers increases children’s odds of consuming ASFs.

FTFIL for Peanut Research

The FTFIL for Peanut Research develops evidence-based technologies and practices, facilitates the widespread adoption of these technologies, and strengthens the capacity of private/public sector organizations to sustain innovation by smallholders. A network of peanut breeding across 10 countries in Africa, the Groundnut Improvement Network for Africa (GINA), allows for greater access to diverse varieties and genomic tools for crop breeding, knowledge, and expertise than is possible if each breeder and country is working alone. More and improved disease resistant varieties are one outcome of GINA. The FTFIL for Peanut Research is also developing private sector partnerships to ensure that technology reaches scale wherever possible.

FTFIL for Small-Scale Irrigation

The FTFIL for Small-Scale Irrigation (ILSSI) aims to expand farmer-led, small-scale irrigation in Ethiopia, Ghana, Mali, and Tanzania. Sustainable and profitable irrigation contributes to agricultural growth, resilient food systems, and better nutrition and health, particularly for vulnerable populations. ILSSI investigates how to feasibly and sustainably expand small-scale irrigation. Promising starting points include mapping adoption potential, developing innovative business models, achieving more sustainable resource use, leveraging the potential for irrigated livestock fodder, identifying innovative finance options, expanding irrigated gardens, and improving women’s access to irrigation. ILSSI achieves impact through continuous engagement with institutions and organizations nationally and globally, and through its capacity-development programs.

FTFIL for Collaborative Research on Sorghum and Millet

The FTFIL for Collaborative Research on Sorghum and Millet (SMIL) is a global hub of cutting-edge research for sorghum and pearl millet value chains. Focused on increasing the resiliency of small-scale producers, the SMIL links U.S. and international universities and research organizations in a collaborative effort to make sorghum and pearl millet the crops of the future working in target countries Niger, Senegal, Ethiopia, and Haiti.

The program is led by Kansas State University, in partnership with 15 institutions who lead projects, including Purdue University, Colorado State University, Texas A&M, the Senegalese Institute for Agricultural Research, and the University of Hohenheim, 18 collaborating local organizations in West Africa, and 16 collaborating institutions in Ethiopia. In Ethiopia, there is widespread dissemination of the improved, higher yielding sorghum varieties Merera OPV and hybrids ESH4 and ESH5, and a new white-seeded sorghum, Jabaa OPV, was approved for release. Local food product formulations were developed and tested with consumers, including injera made from mixtures of Merera with teff, which will significantly reduce the cost of production and increase household economic resiliency through food expenditure savings. In Niger, there has been large-scale promotion and outreach of the pearl millet seed ball technology with a focus on rural areas, to show the benefits of improved crop growth under dry conditions and low fertility soils. Seed balls increase average pearl millet yield by over 20 percent and profitability due to the low cost of production. In Senegal, multiple high-yielding sorghum varieties with disease and drought resistance were produced. A public Sensory Analysis Lab was opened, which serves as a hub for food product analysis and will evaluate the grain properties of new sorghum and pearl millet varieties under development. Challenges of civil and political unrest continued, but programs adapted, including through farmer-level research plots.

FTFIL for Soy Value Chain Research

The mission of the FTFIL for Soybean Value Chain Research (SIL) is to establish the foundation for soybean development in Sub-Saharan Africa. SIL has a team of technical soybean experts with experience across the soybean value chain, from breeding, genetics, agronomics, and pest and disease management, to mechanization, food science, nutrition, and economics. SIL's Pan-African Trial (PAT) Platform has been scaled to 37 countries and 147 locations in 2022. Selection of high-performing soybean lines has resulted in 15 licensing agreements between nine licensors and 26 licensees, and 19 registered varieties resolving the problem of aged varieties and lack of seed for the soybean industry. SIL's Soybean Management with Appropriate Research and Technology (SMART) Farm platform has extended to 15 countries totaling 38 locations, and services a smallholder outgrower network of over 23,000 growers. SIL's multi-crop thresher is now commercially produced and sold in Ghana, Ethiopia, Kenya, Malawi, Uganda, Tanzania, and Zambia. SIL's Soy 360 suite of support services address soybean-specific technical guidance, new product development, and capacity building in Madagascar, Uganda, and Malawi. The SIL research investment portfolio involves a successful suite of early-, mid-, and late-stage technologies disseminated and scaled by a large and comprehensive network of public- and private-sector organizations seeking to develop soybean in Sub-Saharan Africa. SIL's strong communications and continuing education platform has been very effective, resulting in ending isolation and bringing practitioners and their organizations into an active and supporting community of peers.

Youth engagement presents new opportunities to educate on mechanization and industrial processes based on the SIL Multi-Crop Thresher and Soy 360 platforms. Thresher training courses attract significant interest among youth. Commercial manufacturing of the thresher shows additional opportunities for both young entrepreneurs and skilled laborers. Soybean processors and food and feed manufacturers expressed interest in more workforce training and formal industrial certificate programs. The SIL's Tropical Soybean Information Portal (TSIP) is a curated repository of information related to tropical soybean production, processing, and utilization. SIL University serves as the only online training platform for tropical soybean practitioners in the developing world.

FTFIL for Sustainable Intensification

The FTFIL for Collaborative Research on Sustainable Intensification (SIIL) is the global leader in transdisciplinary research, knowledge sharing, and capacity building, using sustainable intensification as a way to improve global food and nutritional security. This vision is supported by the associated Digital and Geospatial Tools Consortium at Kansas State University, the Appropriate Scale Mechanization Consortium at the University of Illinois at Urbana-Champaign, the Policy Research Consortium at Rutgers University, and the SOILS Consortium with the International Fertilizer Development Center (IFDC).

The SIIL supports an integrated research portfolio focusing on value chains through active partnerships and consultations with host-country networks of farmers, government and non-government agencies, private organizations, national and international research centers, university systems, and other stakeholders. SIIL's objectives are to develop research and capacity-building programs in collaboration with U.S. universities and international research organizations on activities related to sustainable intensification, and increased agricultural productivity and income that provides food and nutritional security to smallholder farmers in Africa and Asia.

FTFIL for Current and Emerging Threats to Crops

The FTFIL for Current and Emerging Threats to Crops (CETCIL) focuses on tackling pests, diseases, and weeds of crops in a climate-changed world. CETCIL is built on the global platform, PlantVillage, that the Pennsylvania State University has developed in partnership with the United Nations Food and Agricultural Organization (UN FAO), Consultative Group on International Agricultural Research (CGIAR), and National Agricultural Research Organizations (NAROs). This platform approach results in a cost-effective, highly efficient Innovation Lab with an integrated system that will enable collaborative research on novel approaches to monitor, predict, and combat current and emerging threats to crops in a world experiencing climate change.

For current threats, CETCIL follows the Forecast, Inspect, Training of Trainers, Evaluation, and Research (FITTER) approach:

- **Forecasting:** Enable the use of forecasting systems for biotic and abiotic stressors at the national and regional levels and build capacity for crop threat surveillance and forecasting.
- **Inspecting:** Determine the levels of pests and contribute to improve and update the forecaster.
- **Training:** Build capacity for managing current threats with IPM packages and the use of artificial intelligence (AI), cloud computing, apps, and genetic testing to secure effective monitoring and surveillance (including phylogenomics and stress modeling).
- **Training of the Trainers:** Build capacities of youth and women for the use of AI-based extension systems to empower smallholder farmers and enable them to grow more food.
- **Evaluation:** Evaluate the success of control strategies on pest incidence using initial surveillance strategy.
- **Research:** Evaluate existing IPM packages or develop new ones, improve surveillance tools and forecasting, and assess socioeconomic impact on gender and youth.

For emerging threats, CETCIL is following the Forecast, Assess, Research, Market and Surveillance (FARMS) approach:

- **Forecast:** Detection of anomalies through crop surveillance, remote sensing, and machine learning.
- **Assess:** Rapidly assess any detected anomalies and work with local extension agencies and NAROs to manage and confirm new threats.
- **Research:** Research-driven solutions for the control of confirmed emerging threats, based on a collective consensus of Technical Committees.
- **Market:** Engage with the private sector to accelerate market-based solutions.
- **Surveillance:** Evaluate the different control strategies integrating the issues of gender/youth engagement and socioeconomic implications.

FTFIL for Food Processing and Post-Harvest Handling

The FTFIL for Food Processing and Post-Harvest Handling (FPIL) leads a portfolio of applied research and development activities to strengthen post-harvest value chains to support Feed the Future efforts to advance the U.S. Government Global Food Security Strategy. The goal of the lab is to increase access to safe and nutritious foods by improving the drying and storage capacity of smallholder farmers and expanding market opportunities through diversified processed products that address market quality and nutritional needs. The program focuses on cereal value chains in Kenya and Senegal.

In FY 2022, the FPIL continued to build the capacity of local stakeholders. FPIL trained 7,819 beneficiaries on post-harvest management, food-to-food fortification, food processing, and nutrition. Additionally, 20 long-term trainees were advised by the FPIL. The FPIL published five peer-reviewed articles. The team completed three studies looking at the efficacy and cost-effectiveness of pre-and post-harvest management technologies to reduce aflatoxins while testing business models to bring these technologies to rural markets. Regarding processing and nutrition, the project completed the Market Penetration Study in Senegal to understand the market potential of project-developed, food-to-food fortified instant porridge. The FPIL assisted private-sector partners to create new fortified instant formulations. The team has prepared for a Kenya market penetration and nutrition study to kick off in October 2022. These efforts are essential to developing locally-led markets for post-harvest technologies. In the reporting period, the team trained a total of 7,819 beneficiaries. Of these trainees, 7,213 stakeholders were smallholder farmers, traders, and other stakeholders trained on proper post-harvest practices and improved post-harvest management technologies, including drying, moisture measurement, and hermetic storage. Further, 606 stakeholders were trained on food-to-food fortification strategies and food processing technologies.

FTFIL for Food Systems for Nutrition

The Food Systems for Nutrition Innovation Lab (FSN-IL) works to generate new evidence and disseminate promising technologies and practices that can support the uptake of food system innovations to improve incomes, diet quality, resilience, and nutrition. FSN-IL designs and manages an integrated effort across three interlocking activity domains to accomplish the following:

1. Generate new research for development (R4D) while also effectively disseminating existing but under-used, ready-to-use, pipeline-ready innovations;
2. Support human and institutional capacity development (HICD) in partner countries and in the United States aimed at promoting capacity to understand R4D and promotion of innovations; and
3. Engage across public and private sectors to catalyze uptake of innovations, share lessons on discovery-to-commercialization processes, and build expert resources, networks, and partnerships to support local solutions and critical development outcomes.

In FY 2022, FSN-IL successfully identified the first four focus countries (Bangladesh, Malawi, Mozambique, and Nepal), and developed and implemented five separate scoping exercises to identify, develop, and inform the design and prioritization of R4D, HICD, and engagement activities by engaging with the consortium partners, other network partners, and thought leaders across a variety of institutions and business networks. As a result, five scoping reports with a census of over 500 innovations across

the food systems domains were identified, out of which more than 250 innovations were prioritized.

One highlight of the scoping activity was the successful engagement strategy that allowed for efficient collaboration among the technical experts from 19 global partners. FSN-IL also interacted with representatives from minority serving institutions (MSIs) to discuss the strategy for convening the MSI cross-consortium working group. Additionally, throughout the year, FSN-IL participated and engaged with the community of practice (CoP) on food loss and waste (FLW). FSN-IL also interacted with Missions in Bangladesh, Nepal, Malawi, and Mozambique; other FTFILs; business networks; and private sector and development partners. The initial simultaneous onboarding and setup of 19 partners was challenging. Approvals required multiple communications between the partner institutions and the managing entity and ultimately pushed back the activity timeline.

FTFIL for Food Safety

Foods can be nutritious and available, but if those foods are unsafe, there is no food security. Contaminated foods are estimated to sicken 600 million people a year, contributing to impaired growth and development in children, food insecurity, and barriers to entry into the global food trade. By investing in data-driven approaches to identify the key points for intervention, the Feed the Future Innovation Lab for Food Safety (FSIL), led by Purdue University, supports countries in transforming the handling and processing of foods at the household, farm, and market level.

As travel and institutional pandemic restrictions eased globally, FSIL accelerated research activities in all focus countries. FSIL's four long-term research subawards in Bangladesh, Cambodia, Kenya, and Senegal entered their second year of implementation and data collection in FY 2022. FSIL also concluded its second competitive Request for Applications (RFA) process, which focused on Minority Serving (MSI)-led partnerships for global food safety research. Two projects were selected for funding in Nepal and Nigeria and activities began in mid-FY 2022. The FSIL management team continued to monitor and guide subaward activities through regular meetings and site visits. To promote knowledge sharing across projects, the program's first hybrid annual meeting and second virtual project exchange were held.

FSIL also highlighted project progress through Agrilinks, e-newsletters, social media, and a webinar. FSIL provided opportunities for graduate and undergraduate students in-country to strengthen their capacity to carry out impactful food safety research, in addition to the lab-based microbiology skills used to assess food safety risks. Participation in FSIL project activities enabled students to develop expertise and practice with research methods that will increase the impact and effectiveness of food safety research. They include training in risk-based, community-engaged approaches to food safety prioritization; experience with social sciences research methods that support social and behavioral change to reduce foodborne illness; and training in research

methods that ensure women's roles and access to resources are centered in projects' food safety practice recommendations and outreach efforts.

FSIL also supported multiple local partners in establishing Institutional Review Boards, which enhanced the institutions' capacity to conduct social and behavioral studies. Across countries and value chains, women have untapped potential to impact food safety and research must account for their roles, decision-making power, and access to resources in order to create impactful outreach activities and inform food safety practices and policies. To ensure these factors are analyzed in all project activities, FSIL long-term sub-awardees have a gender specialist who participates in quarterly FSIL Gender Working Group meetings to provide FSIL gender specialists with lessons learned and mutual support. In FY 2022, the group developed a Gender Working Group Logic Model to outline their objectives, assumptions, assets, challenges, inputs, outputs, and outcomes. The formalization of the group's efforts through the logic model will add clarity and rigor to FSIL's work.

All FSIL projects prioritize the engagement of youth to improve their nutritional status, resilience, and economic prospects. FY 2022 activities included the development of a literature review of youth participation in dairy processing and production in Senegal to develop targeted research questions and the engagement of poultry producers and specialists working with women and youth smallholder poultry farmers in Kenya in a risk prioritization workshop.

In Cambodia, a Women's Leadership Program hosted virtual training for undergraduate students focused on leadership, strengths, community engagement, and collective action to improve the use of food safety practices. The highest-achieving students helped facilitate two in-person workshops to empower female vegetable producers to become food safety leaders in their communities. Students reported gaining self-confidence in their leadership ability from the experience, which strengthened capacity for their involvement in food safety research.

Despite a strong track record in global food and agriculture research, Minority Serving Institutions (MSIs) have not participated proportionally in USAID-funded programs. In FY 2021, FSIL issued an RFA for MSI-Led Partnerships for Global Food Safety Research, a process which engaged 38 researchers from 23 different MSIs. The collaborative RFA process was designed to strengthen MSI competitiveness for subsequent FTFIL projects. The process concluded in FY 2022 with the selection of two projects. The project in Nepal is led by Tennessee State University, a Historically Black College/University (HBCU), and started activities in March 2022. FSIL's project in Nigeria began in May 2022 and is led by the University of Alaska Fairbanks, which is designated as both an Alaska Native and Native Hawaiian Serving Institution (ANNH) and a Native American-Serving Nontribal Institution (NASNTI).

In FY 2022 FSIL established a partnership with Neogen Corporation to support a new project in Nigeria. This partnership will facilitate the project's assessment of household

vulnerability to foodborne illness with ready-to-use supplies that will allow researchers to assess the presence of indicator microbes for foodborne illness on food contact surfaces and non-food contact surfaces in a large number of households in Nigeria. The co-investment by FSIL and Neogen in supplies will allow the team to rapidly and accurately collect and analyze samples using a validated, rigorous assessment protocol of multiple dilutions and duplicate plating.

FTFIL for Reduction of Post-Harvest Loss

Global food loss and waste amounts to \$1 trillion, and contributes approximately 10 percent of anthropogenic greenhouse gasses. The Post Harvest Loss Innovation Lab (PHLIL) reduces post-harvest food and seed losses to sustainably drive agriculture-led economic growth, strengthen resilience, and reduce malnutrition with inclusive benefits. PHLIL has enhanced in-country research and mitigation capacity, generating evidence that is informing policy and innovations scaling within food systems. In 2021-2022, PHLIL had several successes. In Bangladesh, a new public-private partnership supported the mass fabrication and distribution of a low-cost dryer as part of the government's agriculture subsidy program. More than 220 dryers have been manufactured, sold, and are operational in the country.

- Two graduate students were successfully relocated from Mekelle University in Ethiopia to Makerere University in Uganda to pursue the completion of their PhD program.
- In Ghana, poultry farmers in Dormaa and maize farmers in the north are collaborating in a symbiotic relationship and supporting each other's products. In order to safeguard their products and grow their businesses, both parties are using PHLIL technologies.
- PHLIL collaborated with Vestergaard Frandsen to validate the ZeroFly Hermetic bag. To date, VF has delivered eight million bags, many of which are in Ethiopia, Kenya, Somalia, and India.

Additionally, PHLIL continued to support in-country partners in enhancing research and extension capacity. These include:

- AgReach training with the University for Development Studies, the Women in Poultry Association, the Women in Poultry Value Chain Apex, the private sector in Ghana on Gender Technology Assessments, and youth and gender inclusion.
- Capacity development of Sesi Technologies in Ghana to enhance their marketing and distribution system to streamline the scaling of the ZeroFly Hermetic bag, GrainMate, and the post-harvest management practices training.
- Training the Bangladesh Agricultural Development Corporation on national seed supply post-harvest management and influencing the university's curriculum and study program on post-harvest loss reduction courses.

FTFIL for Markets, Risk, and Resilience

The FTFIL for Markets, Risk, and Resilience (MRR) made considerable progress on 29 awarded projects across 16 countries. These projects include impact evaluations of active programs as well as research that tests new approaches for strengthening food security and resilience. Midline results from northern Kenya showed that women who completed the livelihood-building program had significantly greater business assets, household cash, income, and savings than women in communities where no programming took place. Final results from Nepal found that women who took part in a livestock transfer and training program were more resilient to the impacts of the COVID-19 pandemic. Three new projects were launched, including one from Hamilton University that leveraged data from Mozambique and advanced econometric modeling to define and measure rural resilience in the context of poverty traps. Two additional projects expanded prior seed grants to test new agricultural index insurance innovations, including one in Ethiopia led by the University of Arizona, and another in Ghana led by U.C. Davis.

The MRR lab expanded collaborations across the development community while ensuring that the evidence reaches stakeholders who can readily incorporate it into their work. Through publications and participation in high-level partnerships, the MRR lab provided critical thought leadership in the areas of risk management, technology adoption, market development, and resilience. The MRR expanded efforts to strengthen development research capacity at African research institutions, including the launch of the ALL-IN Research Network (ARN), a new collaborative initiative that has become an active hub for African development researchers (with 135 participants as of FY 2022) who take part in mentoring, training, and peer working groups.

Significant challenges include sharp increases in travel costs that required several principal investigators to revise their budgets. Communications disruptions, particularly to internet access, continue to be a challenge as U.S.-based researchers collaborate remotely with in-country partners. University strikes in Nigeria stymied capacity-strengthening and while research activities have continued for three Feed the Future subawards there, capacity-strengthening activities for university staff have been delayed.

FTFIL for Food Security Policy Research, Capacity, and Influence

The operational components of the FTFIL for Food Security Policy Research, Capacity, and Influence (PRCI) have proven effective, adaptable, and well-received by partners over the first three years of the program. By combining institutional strategic planning and leadership training with a diverse range of research opportunities, the capacity, output, and recognition of all PRCI partner centers and Africa Network of Agricultural Policy Research Institutes (ANAPRI) have been demonstrably enhanced. By emphasizing a Training of Trainers (ToT) approach and by placing local partners in the lead on policy engagement, gains are sustainable.

PRCI continued its intensive engagement with partners through virtual platforms developed during the COVID pandemic, while opening once again to travel and in-person engagement. Local partners dramatically increased training, with Policy Leadership in Agriculture and Food Security (PiLAF), MwAPATA Institute, ANAPRI, and Kasetsart University all conceiving and organizing training of their own; PiLAF's training on Stata reached over 500 participants across Africa.

PRCI exceeded targets in all five of the indicators for which targets had been set for Year 3. In addition, the lab achieved seven institutional architecture milestones and had 29 studies in various phases of policy development (“under research” and “available for policy consideration”).

II. FIVE-YEAR PROJECTION OF PROGRAMS AND ACTIVITIES

The GFSS guides the implementation of the Feed the Future initiative, promoting agriculture-led growth, resilience, and nutrition. The companion U.S. Government Global Food Security Research Strategy—also developed by the Feed the Future Interagency to help reduce hunger, poverty, and malnutrition through science, technology, and innovation—was similarly refreshed and launched in FY 2022. The revised GFSS and the Global Food Security Research Strategy continues to influence the design and implementation of activities and programs that will engage U.S. Higher Education Institutions (HEIs) over the next five years.

During the past year, the fallout from COVID-19 pandemic, Putin’s war in Ukraine, and climate impacts negatively affected decades of global gains in food security, poverty, and nutrition. Economic and natural shocks and stresses are projected to continue to increase in severity. USG-funded research and development, driven by partnerships with U.S. university activities and programs, is even more critical in the face of these challenges, to provide the opportunity to help the world’s agriculture and food systems become more resilient and adapt to these challenges.

Priorities specific to U.S. university science, technology, and innovation activities and programming will collectively represent three themes: 1) climate-smart agriculture and food system innovations, 2) nutrition and food systems, and 3) genetic improvement of crops and livestock. The Feed the Future research portfolio will continue to integrate biophysical, socioeconomic, behavioral, and policy research toward supporting affordable, nutritious diets for a well-nourished population; meeting the challenges of climate change; and strengthening and expanding access to markets and trade. Additionally, USG funding is increasingly focused on engaging stakeholders directly in the development, adaptation, and dissemination of agriculture and food system innovations, providing the opportunity for smallholder farmers, women and youth, and private and public sector to drive appropriate innovations to scale locally.

Examples of new Innovation Labs that will pursue these priorities include a new Irrigation and Mechanization Innovation Lab and a new Climate Resilient Crop Innovation Lab, both anticipated to be awarded by the end of FY 2023.

USAID plans activities to promote greater engagement of MSIs. This includes providing professional development opportunities for MSI students and engaging MSIs in Innovation Lab research activities.

III. SUMMARY OF THE ACTIVITIES OF THE BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT IN FISCAL YEAR 2022

The Board for International Food and Agricultural Development (BIFAD or Board) is a presidentially appointed, seven-member advisory body that includes no fewer than four representatives from U.S. universities, with additional representation from the private sector and civil society. Congress mandated the establishment of BIFAD, authorized under Section 298 of Title XII of the Foreign Assistance Act (FAA) of 1961, as amended, in recognition of the role that U.S. higher-education institutions play in agricultural development and in ensuring food security, both domestically and abroad. USAID funds and facilitates BIFAD's work in compliance with the Federal Advisory Committee Act of 1972.

Appointment of New BIFAD Members and Recognition of Outgoing Members' Service

On January 14, 2022, President Biden announced the appointment of six new BIFAD members and the reappointment of one member, including: Laurence B. Alexander, BIFAD Chair and Chancellor of the University of Arkansas at Pine Bluff; Pamela K. Anderson, Director General Emerita, International Potato Center (reappointed); Marie Boyd, Associate Professor of Law, University of South Carolina School of Law; Rattan Lal, World Food Prize Laureate and Distinguished Professor of Soil Science, The Ohio State University; Saweda Liverpool-Tasie, University Foundation Professor of Agricultural, Food, and Resource Economics, Michigan State University; Henri G. Moore, Vice President/Head of Responsible Business, Haleon; and Kathy Spahn, President and CEO of Helen Keller International.

In FY 2022, USAID and BIFAD recognized outgoing members for their service and contributions. Members whose service ended in January 2022 include: Mark Keenum, Former Chair and President of Mississippi State University; Richard Lackey, Founder and Chief Executive Officer of World Food Bank; Gebisa Ejeta, World Food Prize Laureate and Distinguished Professor of Agronomy at Purdue University; James M. Ash, Food and Agribusiness Group Leader, Husch Blackwell, LLP; David Matthews, USDA Business Development Officer, United Community Bank; and Mark McDaniel, Partner, McDaniel and McDaniel Attorneys, LLC.

Prioritization of BIFAD Focus Areas

Informed by discussions with USAID Administrator Samantha Power and other Agency leaders in February through May 2022, the Board developed a work plan to guide BIFAD activities over the next two years. The Board prioritized addressing three key global challenges through evidence-based recommendations to USAID: 1) strengthening agricultural and food systems to respond to global food security crises and to mitigate the impacts of shocks, including shocks caused by conflict, pandemics, and climate, 2) improving the affordability of safe and nutritious foods, recognizing that

nutrition is foundational to development, and 3) identifying strategies and programs to adapt to and mitigate climate shocks in agricultural and food systems.

Significant achievements of the Board in FY 2022 include the following:

Launch of the Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems

Launched by BIFAD and USAID in June 2022, the subcommittee leads transdisciplinary evidence-gathering to advise BIFAD with independent recommendations to improve USAID programming and strategies. The subcommittee is envisioned to support USAID's role in accelerating systems change and transformative climate change adaptation and mitigation approaches in agriculture, food systems, and nutrition, and in targeting climate finance to benefit smallholder farmers.

Members of the subcommittee include:

- Co-Chair Erin Coughlan de Perez, Research Director, Dignitas Professor, Friedman School of Nutrition, Tufts University, USA;
- Co-Chair Eva (Lini) Wollenberg, Research Professor, Gund Institute, University of Vermont, Associate Scientist, Alliance of Bioversity International and International Center for Tropical Agriculture (CIAT), USA;
- Mauricio Benitez, Nature-Based Solutions and Food Systems Lead, responsAbility Investments AG, Switzerland;
- Daniela Chiriac, Senior Consultant, Climate Policy Initiative, UK;
- Juan Echanove, Associate Vice President, Food and Water Systems, CARE, USA (until September 2022);
- Chinenye Juliet Ejezie, Founder and CEO, Dozliet, Anim Farms, and Country Coordinator, Climate Smart Agriculture Youth Network (CSAYN), Nigeria;
- Jessica Fanzo, Bloomberg Distinguished Professor of Global Food Policy and Ethics, Johns Hopkins University, USA;
- Mario Herrero, Professor, Cornell Atkinson Scholar, Department of Global Development, Cornell University, USA;
- Sophia Huyer, Gender and Social Inclusion Lead, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), ILRI, Canada;
- Andrew Muhammad, Professor and Blasingame Chair of Excellence in Agricultural Policy, University of Tennessee, USA;
- Carlijn Nouwen, Co-founder, Climate Action Platform for Africa (CAP-A), The Netherlands;
- Ishmael Sunga, Chief Executive Officer, Southern African Confederation of Agricultural Unions (SACAU), South Africa;

- Angelino Viceisza, Associate Professor of Economics, Spelman College, USA;
- Peter Wright, Senior Technical Advisor, Climate Resilient Agriculture, CARE, USA (from September 2022).

Transmission of Recommendations from the BIFAD-commissioned study, *Agricultural Productivity Growth, Resilience, and Economic Transformation in Sub-Saharan Africa: Implications for USAID*

BIFAD commissioned the [report](#), *Agricultural Productivity Growth, Resilience, and Economic Transformation in Sub-Saharan Africa: Implications for USAID*, which reviews the evidence of evolving economic transformation and progress towards resilience in sub-Saharan Africa (SSA) and provides a priority agenda for promoting transformation and resilience in the region, recognizing the varying challenges faced by fragile, low-income, lower-middle-income, and resource-rich countries. Report authors included: University Foundation Professor Emeritus of Agricultural, Food, and Resource Economics Thom Jayne, Michigan State University; Louise Fox, Nonresident Senior Fellow at the Brookings Institution and Fellow of the Blum Center for Developing Economies at University of California, Berkeley; Keith Fuglie, Economist in the Structure, Technology, and Productivity Branch, Resource and Rural Economics Division, at the U.S. Department of Agriculture Economic Research Service; and Adesoji Adelaja, John A. Hannah Distinguished Professor in Land Policy in the Department of Agricultural, Food, and Resource Economics at Michigan State University. The report recommends that USAID contribute to economic transformation and resilience by supporting African governments and other partners across the following opportunity areas:

1. Supporting COVID-19 recovery and focus on building resilience to human, animal, and plant diseases and to climate stress, all of which may become greater challenges to improving livelihoods in Africa;
2. Accelerating productivity-led agricultural growth, with particular emphasis on supporting national and regional agricultural research and development, extension services, and policy analysis capacity to promote technical innovation on smallholder farms and in broader agri-food systems;
3. Encouraging private sector-led efforts to expand employment opportunities for young Africans;
4. Achieving economic empowerment for women;
5. Capturing the opportunities for intra-African agricultural trade and supporting the African Continental Free Trade Area (AfCFTA) agreement;
6. Reducing the rural infrastructural deficit;
7. Leveraging strengths in African institutional capacity development to accelerate bringing innovative ideas and products into social and economic use;

8. Supporting African countries in the development of approaches to transparency and citizen engagement for policy reform, considering the importance of political economic factors, governance, and accountability for countries to invest in the infrastructure, policies, and institutions necessary for transformative growth; and
9. Leveraging USAID convening power and U.S. global leadership in agricultural innovation.

In FY 2022, the BIFAD formally transmitted the report and the Board's recommendations, and an accompanying [policy brief](#), to the USAID Administrator and facilitated dissemination of the report at various public engagements.

Response to the Global Food Security Crisis: Launch of BIFAD's Resilience Workstream with a Public Meeting

BIFAD members appointed on January 14, 2022, convened their first public meeting, *The Global Food Security Crisis: Exploring the Evidence Base and Lessons from the Past to Strengthen Agricultural, Nutrition, and Food Systems in the Face of Shocks* on May 23, 2022. Drawing from evidence and lessons learned during previous crises, including the COVID-19 pandemic and the 2007-08 global food price crisis, the public meeting identified opportunities to build more resilient food systems in the face of the current global food crisis exacerbated by Russia's invasion of Ukraine.

Announcement of the BIFAD Awards for Scientific Excellence in a Feed the Future Innovation Lab

In May 2022, the BIFAD announced the recipients of 2021 BIFAD Awards for Scientific Excellence in a Feed the Future Innovation Lab. Thomas (Thom) Jayne, University Foundation Professor of Agricultural, Food, and Resource Economics at Michigan State University, was selected for the Senior Researcher or Research Team Award. He was recognized for his exemplary economic and policy research on food systems transformation in Africa with the Feed the Future Innovation Lab for Food Security Policy Research, Capacity, and Influence. Dr. Seerjana Maharjan, at the time a doctoral student at Tribhuvan University in Nepal, was awarded the Student Researcher Award and was recognized for her research contributions to the Feed the Future Innovation Lab for Integrated Pest Management, led by Virginia Tech, with a focus on the ecology and biological control of invasive weed species in Central Nepal. Members of the 2021 awards review panel included: Henri G. Moore (Panel Chair), BIFAD Member and Vice President/Head of Responsible Business, Haleon; Jemimah Njuki, Chief of the Economic Empowerment Section at UN Women; Moses Kairo, Dean and Professor in the School of Agricultural and Natural Sciences at the University of Maryland Eastern Shore; and Nighisty Ghezze, Director of the International Foundation for Science.

Table 1 summarizes BIFAD's public events, stakeholder engagements, and formally transmitted recommendations to USAID during FY 2022.

Table 1: Summary of BIFAD Events in FY 2022

Date and Location	Event	Highlights
<p>October 22, 2021</p> <p>(Virtual)</p>	<p>BIFAD-commissioned study discussed at a World Food Prize Borlaug Dialogues side event, <i>Agricultural Innovation for African Sustainability and Resilience</i></p>	<p>Drawing from recent evidence, including the BIFAD-commissioned study, <i>Agricultural Productivity Growth, Resilience, and Economic Transformation in Sub-Saharan Africa: Implications for USAID</i>, recommendations put forward in the 2021 African Agricultural Status Report, and previous BIFAD co-hosted events at the UN FSS Science Days at the UN Food Systems Summit and African Green Revolution Forum 2021 (AGRF2021), the event convened leaders to identify priority actions for investments in agricultural research, development, and extension and an enabling policy environment. The event put forward priority areas for regional and global leaders to respond to climate change and build more resilient food systems: 1) improving capacities of government ministries and agencies to promote technical innovation and to respond to major shocks in food systems, 2) balancing research partnerships between international research institutions and national agricultural research systems, and 3) communicating research results to policymakers to influence policy change and investments.</p>
<p>February 21, 2022</p> <p>(Virtual, Podcast)</p>	<p>BIFAD-commissioned report highlighted in the AGRF Podcast: <i>Agricultural Research and Development: Essential to Accelerate Progress and Recovery Towards Inclusive Agricultural Transformation in Africa</i></p>	<p>A podcast episode of the AGRF2021 series featured key findings of the BIFAD-commissioned report, <i>Agricultural Productivity Growth, Resilience, and Economic Transformation in Sub-Saharan Africa: Implications for USAID</i>, and a discussion among panelists from Kenya, Nigeria, and South Africa about necessary actions for accelerating progress and recovery toward inclusive agricultural transformation in SSA.</p> <p>Podcast moderator, Agnes Asiiimwe Konde, Vice President for Program Innovation and Delivery at Alliance for a Green Revolution in African (AGRA), and lead author of the report, Thom Jayne, Professor Emeritus at Michigan State University and Advisor to the President of</p>

Date and Location	Event	Highlights
		the African Development Bank, discuss key findings of the BIFAD-commissioned study.
<p>May 11-12, 2022</p> <p>(Virtual)</p>	<p>BIFAD member participation in the Feed the Future Innovation Lab annual meeting</p>	<p>BIFAD members participated in the virtual Feed the Future Innovation Lab Partners Meeting. BIFAD Chair Laurence Alexander offered welcoming remarks at the start of the meeting. BIFAD member Henri Moore provided closing remarks, including an announcement of the 2021 recipients of the BIFAD Awards for Scientific Excellence in a Feed the Future Innovation Lab.</p>
<p>May 23, 2022</p> <p>(Virtual)</p>	<p>BIFAD Public Meeting: <i>The Global Food Security Crisis: Exploring the Evidence Base and Lessons from the Past to Strengthen Agricultural, Nutrition, and Food Systems in the Face of Shocks</i></p>	<p>BIFAD members appointed on January 14, 2022 convened their first public meeting, <i>The Global Food Security Crisis: Exploring the Evidence Base and Lessons from the Past to Strengthen Agricultural, Nutrition, and Food Systems in the Face of Shocks</i>. The agenda included an introduction to newly appointed BIFAD members, a briefing on the Board’s work plan priorities, and an overview of key upcoming initiatives. BIFAD also announced new work relating to systemic solutions for climate adaptation and mitigation in agriculture, nutrition, and food systems to inform the implementation of USAID’s recently released climate strategy. BIFAD hosted expert panelists to address the urgent challenges posed by fragile food systems, which, in the face of short-term and long-term shocks, are driving increases in poverty, hunger, and child stunting. Findings, conclusions, and recommendations from this public meeting were prepared in late FY 2022.</p>
<p>June 13-14, 2022</p> <p>(Washington, D.C.)</p>	<p>BIFAD Participation at the Association for Public and Land Grant Universities (APLU) Council of Presidents Meeting and the APLU Council of 1890 Universities Meeting</p>	<p>BIFAD Chair Laurence Alexander participated in the annual meeting of the APLU Council of Presidents and in the meeting of the APLU Council of 1890 Universities in Washington, D.C. For the morning session, APLU President Peter McPherson invited Chair Alexander to provide welcoming remarks to the Council of Presidents, to introduce USAID Administrator Samantha Power, and to facilitate a fireside chat and question-and-answer session with the Council</p>

Date and Location	Event	Highlights
		<p>Director, USAID Administrator, and participants related to U.S. land-grant universities' contributions to international development. That afternoon, Chair Alexander addressed the APLU Council of 1890 Universities, introducing the newly appointed BIFAD members, presenting an overview of the Board's priority work plan areas, emphasizing the Board's commitment to strengthening engagement with MSIs, and advising USAID on priorities to deepen the Agency's engagement with MSIs and better leverage the expertise of faculty, staff, and students at MSIs toward the shared goals of international agriculture, nutrition, and food security research and development.</p>
<p>August 31, 2022</p> <p>(Virtual)</p>	<p>BIFAD Public Meeting: A Consultative Workshop on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems</p>	<p>BIFAD hosted a virtual public meeting to publicly introduce the newly established BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition and Food Systems. The public meeting provided an opportunity to share the objectives, questions, and proposed methodology of a forthcoming BIFAD-commissioned climate study, guided by the subcommittee. The public meeting gathered input on identifying leverage points, enabling systems, and prioritizing USAID action areas for transformative systemic change, with a focus on promoting inclusivity, gender equity, and addressing the needs of underrepresented populations.</p>
<p>September 20-21, 2022</p>	<p>BIFAD member participation in the Feed the Future Innovation Labs Annual Meeting: Harnessing the Power of Agricultural Research to Transform Food Systems</p>	<p>During Feed the Future Innovation Labs Annual Meeting, BIFAD members actively participated and discussed their work plan, including primary focus areas of resilience, nutrition, and climate change. BIFAD Members Saweda Liverpool-Tasie and Pamela Anderson highlighted opportunities for Innovation Labs to contribute intellectually to BIFAD's work, particularly in evidence mapping of vulnerabilities in food and nutrition systems. Chair Laurence Alexander discussed BIFAD plans to elevate the</p>

Date and Location	Event	Highlights
		<p>participation and leadership of U.S. MSIs in USAID food security work. BIFAD Members Marie Boyd and Henri Moore announced the BIFAD Awards for Scientific Excellence in a Feed the Future Innovation lab, recognizing outstanding researchers and research teams for their achievements under the Innovation Labs. Lastly, BIFAD Member Rattan Lal provided an update from the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems.</p>

IV. RESPONSE BY THE BOARD FOR FOOD AND AGRICULTURAL DEVELOPMENT TO THE REPORT SUBMITTED TO CONGRESS BY THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT FOR FY 2021 UNDER TITLE XII OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

Introduction

BIFAD is pleased to respond to the Title XII Report to Congress for FY 2022. In a year fraught with the impacts of climate change, political unrest, and the residual effects of the COVID-19 pandemic, all of which erode decades of past development gains, the Board commends USAID and university partners in the United States and around the world for their global leadership and continued commitment to ending hunger, malnutrition, and poverty. The Board recognizes the need to balance responding to urgent on-the-ground needs in a timely way with the longer-term investments needed to build resilience in the face of shocks, including those in research and capacity strengthening. Having reviewed the FY 2022 Report, the Board offers the following reflections:

Engaging U.S. Universities in Implementation to Fulfill the Objectives of the USAID Climate Strategy 2022-2030

BIFAD is pleased to see the emphasis on climate change adaptation and mitigation in the newly revised U.S. Government Global Food Security Research Strategy (GFSRS),¹ which supports targets for adaptation and mitigation as outlined in the USAID Climate Strategy 2022-2023.² BIFAD commends the work of the FTFILs and their partners focused on solutions to help farmers and other food system actors adapt to the challenges of climate change through the development of climate-resilient agricultural technologies and practices. USAID's vision for the new Climate Resilient Crop Innovation Lab underscores the Agency's commitment to prioritize climate change adaptation in USAID research investments and HEI partnerships. The Board is also elevating climate change as a key focal area of its work and launched the Subcommittee for Climate Change Adaptation and Mitigation in Agricultural, Nutrition, and Food Systems in 2022. The subcommittee's mandate is to provide BIFAD with independent and evidence-based recommendations on priorities in the agricultural, food security, and nutrition sectors in two areas: 1) systemic solutions for climate change adaptation and mitigation, and 2) innovations in climate finance.³ Through the subcommittee, the Board will work to ensure the USAID Climate Strategy and U.S. Government Global Food Security Strategy, including the GFSRS, are coordinated and

¹ Feed the Future. (n.d.) U.S. Government Global Food Security Strategy Fiscal Year 2022—2026. <https://cg-281711fb-71ea-422c-b02c-ef79f539e9d2.s3.us-gov-west-1.amazonaws.com/uploads/2022/10/U.S.-Government-Global-Food-Security-Research-Strategy-508c.pdf>.

² USAID. (2022). USAID Climate Strategy 2022–2030. <https://www.usaid.gov/policy/climate-strategy>

³ BIFAD. (n.d.) 187th Public Meeting Minutes. <https://www.usaid.gov/sites/default/files/2023-01/BIFAD%20187%20Public%20Meeting%20Minutes.pdf>

mutually reinforcing. BIFAD intends to review the subcommittee's final recommendations in early October 2023 and submit recommendations to the USAID Administrator by November 2023.

Engaging the U.S. and International Higher Education Community in Research to Identify and Scale Up Promising Solutions to Address Gaps in Infant and Young Children's Diets

Significant opportunities exist for USAID to engage HEIs to identify and scale up promising solutions to increase the affordability, availability, accessibility, and convenience of safe, nutrient-dense foods for infants and young children. On October 19, 2022, BIFAD hosted a public meeting, *Fed to Thrive: Accelerating Action on Nourishing Foods for Infants and Young Children*, as a side event at the World Food Prize. Responding to the United Nations Children's Fund's (UNICEF) landmark report, *Fed to Fail?: The Crisis of Children's Diets in Early Life*,⁴ the Board gathered a panel of expert presenters and sought public input on evidence-based solutions to improve diets during the critical development stages for infants and children six months to two years of age. BIFAD transmitted findings, conclusions, and recommendations⁵ from the public meeting to USAID Administrator Samantha Power with the following recommendations:

- Elevate improvement of diets of infants and children six to 23 months of age as central in USAID's multi-sectoral nutrition programming.
- Organize USAID resources and structures to maximize multi-sectoral integration and long-term efforts.
- Focus social assistance programs to target households with women and children in the first 1,000 days to improve access to and uptake of nutritious diets for infants and young children.
- Leverage USAID's knowledge assets, convening power, and influence to partner with host-country governments and international bodies to improve the policy and regulatory environment for children's diets, including standards for specialized complementary foods and related products.
- Position young children's right to nutritious diets as an essential priority in national development agendas.
- Support development of an enabling environment for food industries, particularly small- and medium-scale enterprises, including improving access to necessary

⁴ UNICEF. (2021). *Fed to fail? The crisis of children's diets in early life*. Child nutrition report. https://www.unicef.org/media/107226/file/Fed_to_Fail_-_BRIEF_-_ENGLISH_-_Final.pdf

⁵ USAID. (n.d.) Transmittal Memo BIFAD 186th Public Meeting on Fed to Thrive: Accelerating Action on Nourishing Foods for Infants and Young Children. <https://www.usaid.gov/bifad/document/transmittal-memo-bifad-186th-public-meeting#:~:text=BIFAD%20transmitted%20the%20following%20recommendations%20for%20USAID%3A%201,in%20infant%20and%20young%20children%E2%80%99s%20diets.%20More%20items>

financing and technical assistance, and provide incentives for them to produce affordable and safe nutrient-dense foods for children six to 23 months of age.

Finally, BIFAD recommended that USAID “identify and scale up promising solutions to address gaps in infant and young children’s diets.” The Board recognizes that the FTFILs and other USAID HEI partnerships are well positioned to engage their local research partners and other stakeholders throughout food systems to lead this critical work. Specifically, the Board recommended an increased emphasis on research and careful evaluation of solutions to address the diets of children six to 23 months of age, a critical target population considering the extraordinary nutrient needs at this age and the lifelong impacts of poor diets in early life. Initiatives such as the Innovation Lab for Fish’s work in Zambia to test complementary foods integrating fish powder, and in Kenya to pilot social behavioral change programs for increased fish consumption, exemplify the role the Innovation Labs can play. Many FTFILs are dedicated to evaluating the nutrition outcomes of scalable innovations. BIFAD recommended that USAID and implementing partners in research, including the FTFILs, should disaggregate results to identify and explicitly target potential impacts among the six-to-23-months age group. Together, USAID, HEIs, and global partners can work together to deliver on the global commitment to feed a fragile world.

Engaging the Full Breadth of Higher Education Partnerships

To advance solutions to the most challenging and complex issues in agriculture, food, and nutrition, USAID must leverage the full capacity of the U.S. university community, including U.S. MSIs. MSIs have a long history and significant experience promoting access to higher education for historically underserved populations and supporting the development of communities in resource-constrained settings.

BIFAD plans to contribute to the Agency’s vision of promoting and sustaining inclusive and equitable engagement of diverse voices in Agency programming with a proposed Subcommittee on MSI Engagement and Leadership in USAID’s Agricultural, Food Security, and Nutrition Programming. Pending approval by the USAID Administrator, the subcommittee’s work will explore inclusive engagement, partnership models, and thought leadership opportunities for MSIs and advise BIFAD on approaches to elevate the strengths and perspectives of MSIs within USAID’s agricultural, nutrition, and food security work. BIFAD anticipates engaging many U.S. HEIs, including FTFILs’ lead institutions and partners, in the subcommittee’s work going forward.

BIFAD is encouraged by USAID and the FTFIL community’s commitment to meaningful engagement with MSIs in FY 2022. The Title XII Report indicates a significant increase in the number of MSIs engaged in the FTFILs. In FY 2022, a total of 84 institutions, of which 25 were MSIs, supported the FTFILs, compared to 21 MSIs among 85 total institutions in FY 2021, and 15 MSIs among 78 total institutions in FY 2020. BIFAD recognizes that the Agency is engaging MSIs through other programs as well and hopes to see continued advancements in these partnerships alongside additional

opportunities for MSI engagement and leadership in USAID food, agriculture, and nutrition programming.

Investing in Socially Inclusive Capacity Strengthening

U.S. HEIs have a long history of supporting capacity strengthening among universities, national agricultural research systems, and other education and research partners globally. BIFAD commends USAID's ongoing commitment to capacity strengthening, which is key to its localization efforts, including institutional capacity strengthening investments led by the Policy Research for Capacity Strengthening (PRCI) Innovation Lab and through the short- and long-term training opportunities provided through the FTFILs. The Board would be interested to learn more about the notable decrease in the number of trainees in FY 2022 compared to FY 2021, a decrease of about 22 percent in short-term trainees and 12 percent in long-term trainees. BIFAD also notes that women's participation in short- and long-term training remains well below 50 percent in the training programs reported. Given the current gender disparity in representation among researchers and educators in many of the countries where USAID works, BIFAD hopes to see an increase in women's participation in the future.

Funding Partnerships with Local Research, Education, and Extension Institutions

In response to the FY 2021 Report, the Board highlighted a notable 20 percent decrease in funding to U.S. and foreign HEIs between FY 2019 and FY 2020. In FY 2021, rather than returning to pre-pandemic levels, funding for U.S. HEIs fell by an additional 4 percent. BIFAD expressed hope that funding in FY 2022 would surpass pre-pandemic levels with an upward trend. Increased support for HEIs in the countries where USAID works will address growing challenges to food security, resilient production, and nutrition. Consistent with the Agency's commitments to locally led development⁶ by "shifting funding and decision-making power to the people, organizations, and institutions that are driving change in their own countries and communities," BIFAD hoped to see a greater share of funding to local HEIs that bring together invaluable, on-the-ground expertise in the agriculture, nutrition, and food security sectors. The Board would be encouraged to see additional emphasis on the development of strategies to strengthen local HEI organizational and research capacity and to support the development of their faculty and students through FTFILs and other initiatives.

Though the funding data from FY 2022 are not yet provided, BIFAD will be pleased to review and assess progress to increase HEI partnerships at local and global levels.

⁶ Moving Toward a Model of Locally Led Development: FY 2022 Localization Progress Report | Document | U.S. Agency for International Development (usaid.gov)
<https://www.usaid.gov/localization/fy-2022-localization-progress-report>

Concluding Reflections

In the year ahead, BIFAD looks forward to advancing meaningful contributions across these institutions and with partners around the world.

Submitted by the following BIFAD members on August 23, 2023:

Laurence B. Alexander, BIFAD Chair and Chancellor, University of Arkansas at Pine Bluff

Pamela K. Anderson, Director General Emerita, International Potato Center

Marie Boyd, Associate Professor, University of South Carolina School of Law

Rattan Lal, Distinguished Professor of Soil Science and Director of the College of Food, Agriculture, and Environmental Sciences (CFAES) Rattan Lal Center for Carbon Management

Saweda Liverpool-Tasie, Michigan State University Foundation Professor, Department of Agriculture, Food, and Resource Economics, Michigan State University

Henri G. Moore, Vice President/Head of Responsible Business, Haleon

Kathy Spahn, President and CEO of Helen Keller International

V. APPENDICES

U.S. Higher-Educational Partners of the Feed the Future Innovation Labs during Fiscal Year 2022

SUMMARY

- Total of 84 institutions, of which **25 are MSIs**, in 42 states, Washington, D.C. and Puerto Rico [*Note*: Universities in red font below are MSIs].
- 13 universities **lead** 21 Innovation Labs working with 71 partner institutions [*Note*: Universities in **bolded font** below lead the ILs].

<p>Alcorn State University (MS) Arizona State University Arkansas State University Auburn University (AL) Boston University California State University Chico California State University San Bernardino Catholic University of America (DC) Clemson University (SC) Colorado State University Columbia University (NY) Cornell University (NY) Delaware State University Duke University (NC) Emory University (GA) Florida A&M University Georgia State University Hamilton College (NY) Harvard University (MA) Iowa State University John Hopkins University (MD) Kansas State University Lincoln University (MO) Louisiana State University Massachusetts Institute of Technology Michigan State University Middlebury College (VT) Mississippi State University</p>	<p>Montana State University New Jersey City University North Carolina A&T University North Carolina State University North Dakota State University Northwestern University (IL) Ohio State University Oklahoma State University Pennsylvania State University Prairie View A&M University (TX) Purdue University (IN) Rutgers University (NJ) San Diego State University South Carolina State University South Dakota State University Stanford University (CA) Syracuse University (NY) Tennessee State University Texas A&M University Texas State University Texas Tech University Tufts University (MA) Tuskegee University (AL) University of Alabama University of Alaska Fairbanks University of Arizona University of Arkansas University of California, Berkeley University of California, Davis University of California, Riverside University of California, San Diego</p>	<p>University of California, Santa Barbara University of California, Santa Cruz University of Chicago University of Colorado University of Connecticut University of Florida University of Georgia University of Illinois University of Kentucky University of Maine University of Maryland, College Park Univ. of Maryland, Eastern Shore University of Michigan University of Minnesota University of Missouri University of Nebraska University of North Carolina University of Pennsylvania University of Puerto Rico, Mayaguez University of Rhode Island University of Tennessee Utah State University Virginia Tech University Washington State University Washington University in St. Louis (MO) Williams College (MA)</p>
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