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Higher Education Solutions Network FY 2016 Annual Report

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Global Center for Food Systems Innovation
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Kenyan farmers test Mahindi Master agro-input app, photo courtesy of Emilia Tjernstrom.

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ACRONYMS AND ABBREVIATIONS

AFRE	(Department of) Agricultural, Food, and Resource Economics at MSU
AFS	AgriFood System
AgMIP	Agricultural Model Intercomparison and Improvement Project
AGRA	Alliance for a Green Revolution in Africa
AHRD	Academy of Human Resource Development
ArcGIS	Geographic Information System
BFS	USAID Bureau for Food Security
BHEARD	Borlaug Higher Education for Agricultural Research and Development
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture (Colombia)
CRM	Climate Resilient Maize
CRSP	Collaborative Research Support Program
DFID	Department for International Development (United Kingdom)
DSI	Decision Support and Informatics
FACET	Fostering Agriculture Competitiveness Employing Information & Communications Technologies
FAO	Food and Agriculture Organization
FIP	Frugal Innovation Practicum
FSHN	(Department of) Food Science and Human Nutrition at MSU
FTF	Feed the Future
FSP	Food Security Policy Innovation Lab
GCFSI	Global Center for Food Systems Innovation
GDL	Global Development Lab
GIN	Goal Indicator
GIS	Geographic Information System
HESN	Higher Education Solutions Network
HICD	Human and Institutional Capacity Development
iAGRI	Innovative Agricultural Research Initiative
ICT	Information and Communication Technologies
ICTD	Information and Communication Technologies for Development
IDIN	International Development Innovation Network
IFAMA	International Food and Agribusiness Management Association
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IR	Intermediate Result
LU	Lincoln University
LUANAR	Lilongwe University of Agriculture and Natural Resources
MIT	Massachusetts Institute of Technology
M&E	Monitoring and Evaluation
MOOC	Massive Open Online Course
MSU	Michigan State University
MT1	Megatrend 1: Population Growth, Climate Change and Pressure on the Land
MT2	Megatrend 2: Rapid Urbanization and Transformation of Food Systems
MT3	Megatrend 3: Evolution in Skills Required by Food Systems Transformation
NGO	Non-governmental Organization
NSF	National Science Foundation
O1	Objective (1, 2, 3 or 4)
OST	USAID Office of Science and Technology
PIM	Policies, Institutions and Markets
RAN	Resilient Africa Network
RFA	Request for Application
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SIG	Student Innovation Grants
SUA	Sokoine University of Agriculture (Tanzania)

TechCon	Technical Convening
TERI	The Energy and Resources Institute (India)
TSC	Translational Scholars Corps
UC	University of California
UNIMA	University of Malawi
US	United States
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WIDER	World Institute for Development Economics Research at United Nations University
WUR	Wageningen University (Netherlands)
ZAMSEED	Zambia Seed Company
ZARI	Zambia Agricultural Research Institute

1. EXECUTIVE SUMMARY

The goal of the Global Center for Food Systems Innovation (GCFSI) at Michigan State University (MSU) is to create, test and enable the scaling of innovations in the food system, using an approach that is multi-disciplinary (six colleges are involved), focused on the entire food system, and forward-looking, considering three major trends that will impact future food system performance: (1) population growth, climate change, and pressure on land, (2) rapid urbanization and income growth, and (3) workforce development implications of changing food systems. GCFSI has three major objectives: Objective 1 – mobilize data and analytical tools to support development decision-making; Objective 2 – source, test, and scale up food systems innovations through \$3+ million in grants and GCFSI faculty-led projects, and Objective 3 – student engagement and partnerships to build a new generation of development innovators and practitioners.

In project year 3 (FY16), under Objective 1, we maintained the Decision Support and Informatics (DSI) tools and website and began marketing DSI as fee-paid services. Under Objective 2, we managed six ongoing major Faculty Innovation Grants and nine Student Innovation Grants, and issued the funding for ten round 2 Major Innovation Grants in October 2015. Three grants to faculty members at the Lilongwe University of Agriculture and Natural Resources (LUANAR) were awarded, and \$60,000 was provided for student innovation grants selected through the UC Berkeley Development Impact Lab/Big Ideas program. Five center-led project activities were implemented in support of the Climate Resilient Maize (CRM) scaling project. Eight research reports plus a synthesis report on the multipurpose legumes projects conducted in Malawi in 2014 were finalized. The Innovation Scholars Program (ISP) at LUANAR was launched in June 2016, and 5 projects were initiated on research translation, workforce development needs in the oilseed sector of Malawi, small-scale processing of pigeon pea in Malawi, post-harvest and marketing constraints in Ethiopia, and community legume seed systems in Malawi (the latter two implemented by partners from Wageningen University, WUR). The GCFSI website was completely redesigned, incorporating the multimedia Food Fix website set up by GCFSI's research translation director. A year 5 (FY17) work plan and budget were submitted, and a strategic planning exercise was launched for GCFSI under an initiative of its parent unit, MSU's International Studies and Programs.

We reached 10,806 beneficiaries this year with the technologies, approaches and innovations we tested and piloted. Under Objective 3, we engaged 55 students via our Translational Scholars Corps (TSC), study abroad programs, and a new Frugal Innovation Practicum (FIP) conducted in Malawi in August. We engaged 1,187 people via workshops, trainings and major events. The GCFSI website was accessed 18,091 times. We built and maintained connections with 88 partners, and published 10 publications, including articles and reports, about work supported by GCFSI.

2. MAJOR MILESTONES AND ACHIEVEMENTS

- Innovation Scholars Program (ISP) at LUANAR:
Over the last fiscal year, the ISP has passed several milestones that are worth noting. First, from December through February, GCFSI worked collaboratively with a select group of LUANAR faculty and administrators to co-design the ISP. The co-design was carried out using a design thinking process (e.g. Stanford Design Lab) that then became

the foundational problem-solving approach underlying the ISP. Important insights generated through this co-design process focused on the context and needs of LUANAR that greatly strengthened the program.

A second important achievement was the public launch of the program, bringing together international contributors (USAID) with national, local, and institutional representatives in order to introduce the program and its undergirding principles to the university and its constituent community.

The third milestone was the implementation of two of the four workshops, with workshop one focused on design thinking and workshop two covering community engagement. The first workshop tasked the scholars to create research design teams to facilitate the reimagining of the academic research process. The research design teams are an opportunity for the ISP fellows to practice implementing the concepts covered in the program and work as interdisciplinary, multi-sector research teams with the issues facing food system innovators. These teams embody and enact human-centered design for food system innovation in Malawi. During the second workshop, the teams utilized design thinking processes to develop guiding principles for community engagement, and create revised budgets and action plans.

The fourth milestone was the introduction of stakeholder forums around the themes of the workshops. The first forum, held in conjunction with the second workshop, focused on the theme of community engagement. The forum brought, for the first time, according to LUANAR's Vice Chancellor, external stakeholders including government officials, producers, and alumni into the LUANAR community for a frank exchange around expectations and possibilities.

- Completed funding for Round 2 GCFSI Major Innovation Grants: The GCFSI Management Team oversaw the completion of 3 GCFSI Major Innovation Grants, each funded by a sub-award process. A complete list of the grantees and project abstracts is presented in Appendix 1.
- Redesign of the FIP in Malawi: The second cohort of the FIP continued activities in Lilongwe, with significant revisions to program design and community engagement. While still focused on educational activities, the practicum adopted the use of human-centered design and student-initiated crowdfunding to catalyze student collaboration with Lilongwe market entrepreneurs to generate workable solutions to local problems. Local design charrettes were facilitated, and formalized project committees were established to continue dialogue with local government regarding implementation of small-scale, community-facilitated projects. As a result of the 2016 practicum, over 2 million kwacha, or \$3,000 USD, was dispersed to four Lilongwe markets. Managed by the local market committee, the money was used to fund specific improvement projects, including fixing a public restroom and building a security gate.

3. SUMMARY OF KEY ACTIVITIES

3.1 Objective 1: Mobilizing data and analytical tools to support development decision-making

Decision Support and Informatics (DSI) is currently working on a “fee for service” basis. Potential clients from MSU’s College of Engineering and Public Health are engaging with DSI to determine how DSI services and capacity can best be utilized to support their work.

3.2 Objective 2: Source, test and scale up food systems innovations

3.2.1 *GCFSI Management Team*

The GCFSI management team took the lead in implementing a suite of new Human and Institutional Capacity Development (HICD) activities designed to support the work of the LUANAR Innovation Hub. A trip to Malawi in December 2015 allowed the GCFSI management team to re-engage with LUANAR faculty in a fresh manner that more fully reflects the tenants of design thinking, which the center promotes. GCFSI strives to “practice what we preach” in terms of end user engagement and user-centered design. As a result, GCFSI and LUANAR jointly designed the ISP program and hired a Dr. Andy Safaloh as the Innovation Hub Coordinator.

GCFSI released a redesigned website in June 2016, which better reflects the current focus of GCFSI. The updated website better incorporates the work of GCFSI’s TSC, as well as the blogs and podcasts that are regularly published on The Food Fix, the multimedia and storytelling platform of the TSC.

3.2.2 *Activities in Support of USAID’s Climate Resilient Maize Program*

GCFSI designed a set of five projects to meet the needs established through USAID’s CRM program. The ideas investigated by GCFSI’s CRM teams continue to be further investigated by GCFSI faculty who work as part of the global scientific communities in their fields.

Participatory Video for CRM Extension in Kenya, Uganda, and Tanzania (CRM-1)

The CRM-1 team created a video based on participatory CRM extension methodology, in which local actors and video technicians presented the benefits and management techniques of CRM varieties to local farmers, in the area’s local language and environmental context. Having reached a milestone, the CRM-1 team presented their preliminary findings at three district level gatherings of professionals and scholars in Kenya. The CRM-1 team is currently finalizing their findings, and will produce peer-reviewed and practitioner publications and toolkits in FY17. Preliminary data analysis points towards increased adoption of practices by farmers who viewed the video.

Post-harvest Storage and Marketing Program Factors Affecting Demand for CRM Varieties (CRM-2)

Key informant interviews and survey data were used to collect information on Ethiopian maize storage business models: Cooperative models, private agribusiness-owned models, and agricultural commodity exchange models. At the writing of this report, political instability in Ethiopia has stopped the implementation of this work. The CRM-2 team is developing a contingency plan on how best to move forward.

Innovation Growth Modeling to Predict Adoption of CRM Varieties: Zambia Case Study (CRM-3)

During FY16, a GCFSI graduate student and faculty member analyzed farm household survey data to develop cost and return budgets for maize, for use as a baseline in cost-benefit analysis of CRM varieties. An initial report, entitled “GCFSI Zambia Maize Production Budget Report,” was submitted on January 15, 2016 to USAID. After receiving comments from USAID, the report was significantly revised and expanded, and resubmitted on March 11, 2016 as “Crop Budgets for Maize Production Costs and Returns: Zambia, 2010/11 to 2013/14,” by Ryan Vroegindewey and Eric W. Crawford. This report is currently available under the “Zambia Reports” section on the GCFSI publications website (<http://gcfsi.isp.msu.edu/publications/>). These reports will be used by USAID to better understand how improved CRM varieties may impact household profitability and adoption rates.

Using Geophysical “Big Data” to Improve Targeting of CRM Variety Adoption (CRM-4)

The CRM-4 team started disseminating their research results through seven peer-reviewed articles and four practitioner documents. In addition, the following geospatial models were finished: *Interannual Variable Model for Agricultural Productivity*, *Marginal Agricultural Land Identification Model*, and *Scaling and Targeting Development Strategies Model*. The CRM-4 supports the work of a GCFSI innovation grantee in Vietnam by placing a weather station at the exact site where the grantee is growing the cassava being used to develop the cassava model. Data from the weather station will allow the modelers to incorporate actual weather fluctuations into the model. Additionally, a weather station was placed in Malawi to support multiple GCFSI projects in legume and maize production with LUANAR. The weather station will support agricultural modeling a plot, regional and country level. In addition, it will be used by all forthcoming projects as a local weather reference point.

Assessing Drivers of Fertilizer Response in Maize in Tanzania and Malawi: Implications for CRM Scaling Programs (CRM-5)

The CRM-5 team continued to make progress implementing a truly cross-disciplinary research program focused on combining biophysical and socioeconomic data to better understand if environmental or human conditions are driving maize yields. In collaboration with the Taking Maize Agronomy to Scale in Africa (TAMASA) project, the Bill and Melinda Gates Foundation funded a project to implement this innovative maize response survey. Managed through the International Maize and Wheat Improvement Center (CIMMYT), survey data was collected from 780 households located across Tanzania. Survey data collection started in April 2016 and findings from the survey will be available in FY17.

3.2.3 Human and Institutional Capacity Development (HICD)

GCFSI embarked on a major new HICD effort in FY16. The focus of GCFSI’s HICD work is twofold: (1) build the capacity of LUANAR to produce innovative research and teaching and (2) build the capacity of GCFSI to utilize design thinking and agile project implementation. At the end of FY16, we can report that GCFSI has made progress on both fronts.

Innovation Scholars Program (HICD-1)

Following the official public launch of the ISP at LUANAR on June 28, 2016, LUANAR and MSU held the inaugural two-day workshop on June 29-30. Entitled “Design Thinking for

Innovation in African Food Systems,” the workshop was specifically organized for select Faculty and Academic Leadership Innovation Scholars, which were comprised of 22 staff representing 13 different academic departments and four administrative units. The workshop aimed to introduce the modeling principles and content of human-centered design for innovation in African food systems. Innovation Scholars designed teams to coordinate with, regarding their individual research projects. Dr. John Medendorp and Dr. John Bonnell, of MSU’s Center for Global Connections, facilitated the workshop.

The second of the Innovation Scholars Workshops took place on September 27 and 29, with individual meetings held for each of the 10 design teams that received funding for research through the ISP. The workshop utilized design thinking processes throughout the sessions to facilitate learning, assessment, and action planning regarding faculty and institutional community engagement. The faculty scholars and leaders developed (1) an appreciation for the range of community actors who are available to engage with, (2) core competences and values for scholars to successfully execute innovative community engagement, (3) guiding principles and values to engage more fully in their respective communities, and (4) revised budgets and action plans for their individual/collective research projects.

The objectives of the second workshop were to reframe what community engagement means in the university context and to reframe how to engage research that centers on real world problems. The design team meetings were intended to lend support and oversight for the research implementation process. Each Innovation Scholar assembled their own team consisting of stakeholders in their area of research. To discuss the perspectives of local and national stakeholders on the importance, opportunities, and challenges of LUANAR’s engagement in Malawian food systems, the workshop was held in conjunction with a public forum addressing the issue of LUANAR and community engagement. The events were held in collaboration with Dr. Paul Kibwika of Makerere University, Uganda, and Daimon Kabewa, Director of Extension at LUANAR. Additionally, a panel of university community stakeholders was seated, namely, Mr. Hastings Yotamu, Program Manager Representative for Ministry of Agriculture, Agricultural Development Division; the Honorable Felix Jumbe, Member of Parliament, Commercial Farmer, Peacock Industries; Mr. Victor Mhone, Farmers Union of Malawi; Mr. Tamani-Nkhono-Mvula, Civil Society Agriculture Network; Mr. Neil Orchardson, Technical Assistant, Oil Seed Products Technical Working Group.

The Deputy Vice Chancellor for Academic Affairs, Dr. Emmanuel Kaunda, stated, "This is the first time in my three years as DVC to see a stakeholder panel like this at LUANAR." The Vice-Chancellor, Professor Kanyama-Phiri, added, "This is the kind of event that puts LUANAR on the map." The main takeaways from the panel were (1) the stakeholders want to engage with LUANAR and (2) stakeholders value LUANAR’s input, when it is relevant to their challenges.

Private Sector/Researcher Teaming Grants (HICD-2)

This activity was folded into two other GCFSI-funded activities. Upon review of the package of projects being implemented with LUANAR, it was determined the best path forward to improve the interactions between LUANAR and the private sector was to weave private sector interaction into all GCFSI-funded LUANAR activities. Because of the change, the ISP has an expanded private sector research focus, and the Malawi Faculty Innovation Grants have an additional link

to the private sector, including, working with the agricultural supply firms to place LUANAR students in the field as farm advisors and working with fish processors to understand challenges faced in processing, distribution and marketing of fish harvested in Lake Malawi.

Skill Development for Research Translation and Communication (HICD-3)

GCFSI underestimated the demand for research translation and communication training in Malawi. The GCFSI team visited Malawi to plan our HICD-3 activities and quickly learned the USAID/Malawi Mission had asked the Feed the Future (FTF) Innovation Lab for Food Security Policy: Malawi to train Malawi journalists on how to report on local food security issues. GCFSI is now coordinating our planned activities to support the work of the Food Security Innovation Lab. GCFSI faculty members will train journalist targeted by the Innovation Lab group on how to report on issues around food security. The same GCFSI faculty will then train LUANAR faculty on how to talk to and interview with journalists. Following training, there will be a “field day” at LUANAR where the journalists will tour and interview LUANAR faculty. The HICD-3 established the “Malawi Bureau” of the Translational Scholars Corps to use LUANAR faculty, staff and students as reporters on food system challenges and interesting research. The team worked to incorporate lessons learned from the Translational Scholars Corps into the ISP.

Food, Environment, Agriculture, and Technology (FEAT) Symposium (HICD-4)

This activity was presented to LUANAR, and while well received, it is currently being considered for implementation in FY17 as the closing event of the Innovation Scholars Program. The event will provide LUANAR faculty with opportunity to present their ISP work to the public, journalists and government ministries. There may be an opportunity to hold this symposium during the annual meeting of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), scheduled for September 2017 in Lilongwe.

LUANAR Innovation Hub (HICD-5)

GCFSI is supporting the day to day activities of the Innovation Hub at LUANAR. The hub is tasked with supporting all GCFSI-funded activities and working to promote innovation across the university. In April 2016, Dr. Andy Safalaoh was appointed as the first Innovation Hub Coordinator at LUANAR. In this role, Dr. Safalaoh is the lead local contact for all GCFSI supported activities at LUANAR. Dr. Safalaoh organized the ISP launch in June 2016 and the second ISP workshop in September 2016. In addition, Dr. Safalaoh works to facilitate program administration on behalf of both LUANAR and GCFSI.

3.2.4 Workforce development assessment

Oilseed Sector WFD (Food Safety) (WFD-1)

GCFSI met with key personnel within LUANAR to arrange for LUANAR student interns to be included in a food safety training program, which is being implemented under the USAID-funded Integrating Nutrition into Value Chains (INVC) project. The interns will be identified through an oilseeds sector workforce development project currently being implemented by LUANAR faculty member, Dr. Alexander Phiri, for the Ministry of Trade. Later in Year 5, based on information gathered by the interns regarding skill needs in the oilseeds companies where they do internships, GCFSI staff will work with Dr. Phiri to identify any food safety training materials that might be added to the LUANAR curriculum.

Employment Trends and WFD Priorities for Food Traders and Processors in Tanzania and Mozambique (WFD-2)

The retail survey in Tanzania was designed and launched. Employment prospects analysis was completed for six countries (including Tanzania and Mozambique), based on projected patterns of growth in consumer demand. The results show a steady increase in employment in the post-farm segment of the agrifood system. Also it was found that increasing demand for products from high value farming such as dairy and fresh produce will create very attractive farming opportunities but will not absorb a large share of the workforce; most new farmers will be stuck in low-return production of cereals and pulses and very small amounts of cash crops.

3.2.5 Seed systems development

Community-based Legume Seed System Development in Malawi Small-scale Pigeon Pea Processing (Seed-1)

The small-scale pigeon pea processing (SSP) activity will test and measure the impact of the introduction of appropriate scale technology livelihoods for smallholder legume growers, processors, and retailers in Malawi. The data collection process for the initial assessment has been completed; and some preliminary findings will soon be generated. The SSP project has initiated collaboration with another GCFSI innovation project (the bike-powered bean thresher in Zambia) in order to leverage that team's experience of testing and refining the bike-powered thresher in the human-centered design process of the SSP project. Through this collaboration, a LUANAR faculty member from the Department of Agricultural Engineering travelled to Zambia in July to observe the technology evaluation process for the bike-powered bean thresher.

Promoting Entrepreneurship in Informal Seed Systems for Legumes in Malawi (Seed-2)

This work is being developed by the Wageningen University (WUR) team (Gareth Borman from Center for Development Innovation/Integrated Seed Sector Development in Africa) and began implementation in May 2016. The goal of the project is to increase the local availability of quality legume seed by strengthening entrepreneurship in informal seed systems as a primary outcome. This team conducted interviews with key informants and have identified seed entrepreneurs. The next phase of the work will map seed networks and culminate in a training program to educate farmers, informal seed retailers, and other entrepreneurs on seed quality characteristics, management, basic financial literacy and other targeted skills.

Workforce Skills Needs for CRM Seed Systems (Seed-3)

This work is being developed by the WUR team (Domenico Dentoni from the Department of Social Sciences and Renate Wesselink from the Education and Competence Studies Group) and began implementation in May 2016. This team interviewed 31 stakeholders who are engaged around agricultural commodity exchange. The data collected is currently being analyzed. A trip is planned to Malawi for Feb 2017 to begin a conversation with LUANAR on how the key findings can be incorporated into curriculum changes in various LUANAR academic programs. In addition, a learning network was developed with other donors on new organizational forms of storage facilities and input supply. From this work, a value network framework has been developed and adopted by the Australian Center for International Agricultural Research (ACIAR), the Food and Agricultural Organization (FAO), and the Embassy of the Netherlands in Kenya.

3.2.6 Frugal Innovation Practicum

For the second year, the FIP provided a forum for MSU and LUANAR students to explore innovation in urban food systems as it relates to the work of small- and medium-scaled food entrepreneurs. With a focus on urban food exchange in Lilongwe, and using online and experiential learning activities, students gained a better understanding of the systemic factors that enable innovation and technological change and how to support informal food-based livelihoods. Like the first cohort, students conducted action research in four food markets in Lilongwe to identify issues that both block innovation and limit profits. In addition, students, retailers and city council members engaged in two half-day design thinking workshops to develop appropriate solutions to critical problems. New to this year's practicum was the availability of about \$775 to each market committee to address problems, which was made available through a crowd-funding effort and the Schoenl Family Undergraduate Grant (an award aimed to "fund the most outstanding projects which will serve dire human needs in countries other than the U.S.") in the amount of \$1,200, which was awarded to Trish Abalo, a student from the first FIP cohort, whose work focused on building existing informal coalitions towards sustaining cross-sector trust and collaboration.

3.3 Major Innovation Grants

Specific milestones of the selected Round 1 Major Innovation Grants (see details of grants in Appendix 1)

1. *Use of Orange Fleshed Sweet Potatoes in Enhancing Vitamin A-Nutrition in Tanzania:* The establishment of Village Community Banks (VICOBA) and registration of women's groups were completed. From this, small loans scheme for the women's group were established, and construction and inauguration of sweet potatoes processing shade was completed.
2. *Building Capacity for Assessing and Deploying Irrigation Technology Innovations in East Africa:* Since April 2016, the design and installation of all five adaptive research sites for irrigation innovations have been completed, and are now in the process of data collection and assessment. The first stage of the operational assessment has been completed in two sites, and this new information is being used to update the project's evaluation rubric. Based on this, site design modifications and innovations are planned.

Specific milestones of selected Round 2 Major Innovation Grants

1. *FarmerLink: Mobile enabling the coconut value chain in the Philippines:* The program saw major changes to partner operations, due to increased visibility using the data from the tool kit. For example, the Philippine Coconut Authority now receives daily reports on how their field agents are performing, which in turn, can be used to incentivize high performers and achievers. It also aligns the different offices quickly and there is no need to wait for several weeks to have visibility on what is happening in the field. Prototype was developed and showcased in August 2016 to various partners to identify use cases of relevance.

2. *Towards an improved cassava simulation model to aid management decisions in the tropics:* Field trials were established in north and south Vietnam, and partners were trained in non-destructive methodology through a joint learning process. The GCFSI-supplied weather station was installed right next to the test plots and is recording data which will be used to calibrate the simulation growth model.
3. *Implementation of a human-powered bean thresher for small-scale legume production in Zambia:* The project cultivated major development of working relationships, capacity building and foundation for future collaboration between MSU and key in-country institutions, primarily the Zambia Agriculture Research Institution, the project implementing partner.
4. *Low carbon footprint cool storage structures: improving storage and enabling processing of perishable produce:* Based on the models, three types of 1/10th scale evaporative cooling (EC) structures with walls of varying materials and design have been constructed at the Division of Agricultural Engineering, within the Indian Agricultural Research Institute (IARI), New Delhi. Additionally, the heat transfer model is being validated with the observed data. Construction of full-scale EC structures of 2 tonnes capacity is in progress at IARI and is nearing completion.
5. *Greener cassava processing system leading to zero waste for enhanced market access by small and medium entrepreneurs:* A pilot thermophilic anaerobic bioreactor for biogas production (7-meter cube) and hybrid solar-biogas was designed and constructed at the Tanzania Industrial Research and Development Organization (TIRDO).

Specific milestones of selected Round 2 Student Innovation Grants

1. *Concentrated solar drying of fresh agriculture produce in Uganda:* Prototype has been developed, and early adopters are giving feedback and areas of modification. Current drying performance results are being compared to traditional open sun drying.
2. *Testing capacity of maize soil ripper and seed planter in Tanzania:* The number of interested parties in the project has increased. A new mentor from the US is expected to arrive shortly. The team is currently working on recruitment for training farmers to use the maize planter/ripper, while evaluating for changes in design and development of prototype.
3. *Enhancing food security through Gravity Goods Ropeway in Nepal:* Grantees reported a 15% reduction in postharvest and transport loss. There was a 70% increase in average annual production that promotes household food availability.
4. *Molecular characterization of the microbial communities of traditionally fermented milk in Kenya:* Using DNA sequencing, microbial culturing, phenotypic characterization, and carbohydrates fermentation, the team has identified lactic acid bacteria and is working to isolate potential starter cultures for safe *amabere amaruranu* production.

3.3.1 GCFSI Follow on Funding

The investments GCFSI made into our innovation grantees are starting to produce returns. FY16 was the first year for GCFSI to collect follow on funding information from our innovation grantees. Thus, we are reporting GCFSI grantees generated almost \$3.5 million in follow on funding. The details of follow on funding receipts is presented in the table below:

Innovation	GCFSI Funds (USD)	Follow on Funding (USD)	Donor
PhotoSyncQ	100,000	600,000	McKnight Foundation
EWareHousing	100,000	695,834	BASIS AMA
		360,000	Agricultural Technology Adoption Initiative - Abdul Latif Jameel Poverty Action Lab (ATAI-JPAL)
		780,000	Wellspring
Towards an improved cassava simulation model to aid management decisions in the tropics	250,000	420,000	International Institute for Tropical Agriculture, through a grant from the Bill and Melinda Gates Foundation
Core Team / Wageningen University	150,000	372,000	Polish Ministry of Science and Higher Education
		110,000	Australia Center for International Agricultural Research (ACIAR)
		110,000	Embassy of The Netherlands in Nairobi (Kenya)
Linking climate services and soil diagnostics for climate-smart decisions for small-scale farmers and service providers	250,000	29,774	Columbia University
Frugal Innovation Practicum	70,000	1,575	CrowdPower
		1,200	Schoenl Grant
		200	Kiwassee Kiwanis

4. ENGAGEMENT OF PARTNERS AND OTHER ACTORS

4.1 Interdisciplinary Collaboration and Partner Engagement

4.1.1 *Interdisciplinary collaboration*

GCFSI opened a new area of interdisciplinary collaboration with the launch of the HICD activities in Malawi. To date, faculty from six MSU colleges or departments are involved in coordinating the HICD activities with LUANAR.

GCFSI tapped entrepreneurship and meeting facilitation experts from across MSU to host the first GCFSI Innovation Grantees Workshop in January 2016. Faculty from the MSU Business School, MSU Library, the MSU Hub for Innovation and Teaching, and the MSU Entrepreneurship Program helped design and lead the workshop. The workshop focused on building the capacity of our innovation grantees to communicate their research to a general audience and used the “Business Canvas” as a framework for the grantees to define their value propositions outside of academic research. A highlight of the workshop was each of the grantees gave a three minute “lightning talks” on their work.

4.1.2 *Partner engagement*

GCFSI expanded its MSU-based consortium to include MSU’s Hub for Innovation and Teaching and the Entrepreneurship and Innovation program. Our work with Hub for Innovation and Teaching is focused on how best to measure the impact of our ISP work beyond the number of people trained. We are working towards developing metrics that capture changes in behavior. The Entrepreneurship and Innovation team was instrumental in designing our successful Grantee Workshop. Our post-workshop work focuses on how to transfer lessons learned at MSU in developing a cross-disciplinary minor in Entrepreneurship to LUANAR.

The Round 2 Innovation Grantees have generated over 20 new partnerships. We expect these new partnerships to produce new innovation ideas and pathways in FY17.

4.2 Summary of collaboration across HESN

For a second year, GCFSI sponsored the Food System Innovation category of the UC Berkeley Big Ideas competition. GCFSI provided financial support (\$60,000) and 4 personnel who served as judges. The 2016 Big Ideas winner in the Food System Innovation category was Safi Organics, a student group at the Massachusetts Institute of Technology.

GCFSI anticipates the newly implemented FY16 activities that focus on innovation will provide additional pathways for GCFSI to collaborate with other HESN peers.

4.2.1 *Data*

The majority of GCFSI funded projects spent FY16 collecting and finalizing data collected from the field. We will be making the data available in accordance to the USAID Open Data Management regulations in FY17.

4.2.2 *Solutions: Creation, Testing, Scaling*

As GCFSI funded projects move through the implementation phases, our projects will enter into testing and scaling in FY17. In FY16, the new Center-led projects, especially the activities to support the LUANAR Innovation Hub, were created and began initial testing.

4.2.3 Student Engagement

In FY16, GCFSI's cross HESN student engagement focused on supporting the UC Berkeley Big Ideas Food System competition. GCFSI provided the judges to the competition and the prize money for the winner of the Food System category. The Frugal Innovation Practicum provided funding for 18 students. The GCFSI supported 10 graduate students.

5. USAID ENGAGEMENT

5.1 USAID/LAB and USAID/Washington Interactions

5.1.1 USAID/LAB interactions

1. Emilia Tjernström - Bringing FarmVille to the Tropics: Emilia presented a brownbag at the Lab in DC in June 2016 to share the design and motivation behind the project.
2. Stephanie White - Frugal Innovation Practicum: Stephanie communicated with HESN's Emmanuella Delva regarding FIP activities.
3. Sangeeta Chopra - Low carbon footprint cool storage structures: Improving storage and enabling processing of perishable produce: Emmanuella Delva visited at IARI during her tour to India. A presentation of the project objectives and outcomes was given, as well as a tour of the storage facility created at IARI under this project on October 2016.
4. Shamba Shape-Up: Supported by USAID Development Innovation Ventures.
5. Kurt Richter - Met with Emmanuella Delva, Karen Duca and Ticora Jones in June 2016 to discuss GCFSI programing.

5.1.2 Other (non-LAB) USAID/Washington interactions

1. Mike Hamm - Participated in an Urban Food Security Roundtable hosted by the Bureau of Food Security.
2. Sieg Snapp - CRM5 - USAID Food Security Bureau, Jerry Glover.
3. Pouyan Nejahashemi /Joe Messina - USDA/FAS and Bureau for Food Security, Moffatt Ngugi, email correspondence.
4. Stephanie White - Frugal Innovation Practicum: BFS-Karen Duca.
5. Sangeeta Chopra - Low carbon footprint cool storage structures: Improving storage and enabling processing of perishable produce: Has been in communication with Bahiru Duguma, Director, Office of Food Security with USAID/India.

5.2 USAID Mission Interactions

1. USAID Ethiopia
 - i) Domenico Dentoni - Elleni Melesse and Melat Getahun.
2. USAID India
 - i) Sangeeta Chopra - Low carbon footprint, cool storage structures, improving storage and enabling processing of perishable produce: Vamsidhar Reddy T.S., Project Management Specialist (Climate Adaptation), Food Security Office-USAID India visited us and attended a meeting between the project team and USAID on May 26, 2016 at our storage facility at IARI.
3. USAID Malawi
 - i) Sieg Snapp - CRM5 USAID Malawi Martin Banda

- ii) Stephanie White - Frugal Innovation Practicum - Chrispin Magombo (attended Lilongwe City Council discussions and currently engaging in discussions regarding involvement in future iterations of the program).
 - iii) Eric Crawford and Kurt Richter - met with Chrispin Magombo to discuss the portfolio of GCFSI-funded activities in Malawi. This discussion led to the submission of concept note for a LUANAR Student Innovation Competition.
4. USAID Tanzania
 - i) Sieg Snapp - CRM5 team met with USAID Tanzania officer, David Charles, to discuss activities.
 5. USAID Uganda
 - i) Kate Scow - Building Capacity for Assessing and Deploying Irrigation Technology Innovations in East Africa Yes, the PI, project staff, and the Director of UC Davis' International Programs held face-to-face meetings in Kampala with the US AID Uganda Mission's head of Agricultural Programs, Simon Byabagama. We discussed opportunities to partner with other USAID supported projects.

6. MONITORING AND EVALUATION

6.1 M&E Updates

The GCFSI Monitoring and Evaluation (M&E) system went through major changes in FY16. Not only did GCFSI adapt the M&E system to reflect changes in the HESN indicators, FY16 also marked the first period where all GCFSI funded Innovation Grantees were reporting. GCFSI took the opportunity created by changes in the HESN indicators and the number of grantees reporting impact to redesign our M&E system. GCFSI switched to a Google Forms-based reporting system to capture the initial data from our implementers and grantees. Our M&E team then reviewed the data and followed up with individuals with questions.

We are happy to report that with a very few exceptions, GCFSI met or exceeded our FY16 M&E targets.

6.2 Deviance from M&E Targets

GCFSI was very successful in hitting our FY16 M&E targets. When the FY16 M&E targets were set at the end of FY15, GCFSI was on the cusp of launching two new major areas of work. The newly funded Innovation Grantees reached considerably more beneficiaries than originally estimated. In addition, the research previously funded by GCFSI began to produce a large volume of peer reviewed publications, articles and information dissemination via other media.

GCFSI did not meet the target of six innovations, technologies or approaches evaluated in FY16. We reported 1 evaluation. This underperformance is, in part, due to the fact most of our innovations are new and have not evolved to the point where an evaluation is merited. We plan on reporting a higher number of evaluations in FY17.

7. LESSONS LEARNED/BEST PRACTICES

7.1 GCFSI Management

- Communication channels are key to receiving and giving updates to partners. Email and in-person meetings are useful, but other, less standard communication channels (e.g.

Skype, WhatsApp, Facebook groups) help improve communication with partners in the field.

- Design thinking and agile management work best when all team members treat each other with mutual respect and trust.

7.2 Objective 1

There is demand for DSI services from a wide range of audiences throughout MSU. However, the DSI team will need to work closely with their potential clients to understand what exactly the client needs and whether it is possible for DSI to fulfill the need.

7.3 Objective 2

HICD

- Participatory design processes (e.g. open design process) create buy-in, build trust, and produce contextualized, relevant outcomes.
- Modeling the desired type of collaboration with a partner institution is most effectively executed using an open design process rather than simply talking about it. Because we are modeling a design thinking process in the Innovation Scholars Program, our local partners have embraced design thinking.

Participatory Video

- Farmers are particularly responsive to the actions of people that appear to be similar to them, and observe many social cues in the videos that help them decide how similar the actors really are.
- Videos are more effective when supported by discussion and demonstration by local experts in live group formats. These discussions help to reinforce key points and clarify misconceptions.
- Farmers are sensitive to the production quality of the videos, and respond better to videos that are both entertaining and that "tell a story" that is relevant to their lives.

Biophysical "Big Data"

- "Scaling Up" does not have a universally accepted definition across research and development institutions; likewise, pathways to scaling up agricultural technologies and/or best practices vary across institutions.
- Existing soil data (AfSIS soil) are too coarse for assessing agricultural land suitability and mapping marginal land in Africa, especially for smallholder farms. Accurate and finer resolution soil data are needed.

Innovation Grantee

GCFSI Innovation Grantees as a group made great strides in implementing their research. However, they faced issues in terms of how to maintain sufficient communication with local partners and measure the true impact of their work beyond basic "countable" indicators. The Grantees are experiment with improving their communication and how to measure impact in ways that capture the more intangible aspects of their work.

Bicycle Powered Bean Thresher

- Evaluation activities including the planning, execution, analysis and report writing require an immense amount of time and resources to complete.
- Accuracy of user feedback is relative to the level of prototype finalization. To get more conclusive results, users must test a more finalized prototype.

Building Capacity

- Identifying equitable access to irrigable land is the most challenging issue for small irrigation systems.
- There are few formal rules or protocols governing the access to and use of existing irrigation systems, and women farmers seem to be most excluded from potential opportunities.
- Having a farmer-elected committee that holds regular, periodic reviews of governance and technical issues is critical for irrigation system sustainability.

FarmerLink: Mobile Enabling the Coconut Value Chain in the Philippines

- Continuous engagement that not only provides room to communicate wins, but also creates a foundation for honest and tough conversations – especially those that are related to implementation roadblocks is vital.

Towards an Improved Cassava Simulation Model to Aid Management Decisions in the Tropics

- A two-step piloting scheme that starts first with a core research team, and then with partners, is needed before implementing actions in the field.

Improving Performance of Anaerobic Digestion Systems in Uganda

- More funding was directed to the host country to support field work, which was a more efficient use of funds. The funding change also increased in-country training of personnel and better supported project outcomes.

7.4 Objective 3

Frugal Innovation Practicum

- The provision of small grants appears to be promising, but there is a need to create some sort of point of contact that is responsible for encouraging transparency. We are still in early stages, but the process of iteration, checking assumptions, participation, and more, is promising.

8. FUTURE ACTIVITIES

- Innovation Scholars Program
 - A Food, Environment, Agriculture and Technology (FEAT) symposium, set in a Malawi venue, but with East African participation, will be held in late FY17 in conjunction with the RUFORUM annual meeting in Lilongwe.
- LUANAR Innovation Hub Student Competition
 - GCFSI will team up with Resilient Africa Network (RAN) to offer a Youth Spark Innovation Grant competition at LUANAR.

- LUANAR students are excited about developing their innovative capacity. However, the students will require coaching. To that end, GCFSI is teaming with two alumni from the Young African Leaders Initiative (YALI), Rachel Sibande (mHub) and Lombola Lombola (Bamboo Express), to design and implement the student coaching. In addition, LUANAR faculty who are participating in the GCFSI ISP will serve as coaches.

9. RISKS AND MITIGATION PLAN

The main risk for FY2017 comes as a result of increased level of field-level activities being implemented across GCFSI. FY17 will present the challenge of monitoring and supporting the large number of Center-led projects, while simultaneously working with principal investigators, MSU academic leaders, and potential funders on strategic planning for sustaining the work of GCFSI beyond FY2017.

To combat this, GCFSI made the strategic decision to refill the recently vacated position for the communications manager position and hired a part-time program aide. The communications manager will be responsible for communicating the impact of GCFSI to USAID, the internal MSU community, and external parties. The program aide will assist the Assistant Director with monitoring and evaluation, implementation of the ISP project and other support for administrative procedures.

10. ENVIRONMENTAL MONITORING

The GCFSI-funded *Grasshopper and Locust Farming as a Sustainable Source of Protein for Non-Ruminant Livestock and Humans in Kenya* innovation grant was determined to require an Environmental Monitoring and Mitigation Plan (EMMP). The Principle Investigator for the project, Dr. John Nduko, provided GCFSI with a written EMMP report. The report is attached to this Annual Report as Appendix 3. In summary, Dr. Nduko and his team are following the EMMP protocols and fully implementing the EMMP. To date, there have been no monitoring measures that raised any form of alarm. The project is on track to be successfully implemented.

Appendix 1: GCFSI Major Innovation Grants

Round 1 Innovation Grants:

1. **Use of Orange Sweet Potatoes in Enhancing Vitamin-Nutrition in Tanzania.** *Project Team: C. S. Prakash, Eunice Bonsi, Suchet Loois, Conrad Bonsi, Desmond Mortley, Norma Dawkins, Adelia Bovell-Benjamin, Joel Tumwebaze (graduate student from Uganda), Tuskegee University. Theobald Mosha, Henry Laswai, Sokoine University of Agriculture; Howarth Bouis, International Food Policy Research Institute.*
2. **Analysis of Strategies to Reduce Vulnerability to Climate Change in East Africa.** *Project Team: Bradford Mills, Virginia Tech; Genti Kostandini, University of Georgia; Anthony Murray, Federal Reserve - Charlotte; Joseph Rusike, Alliance for a Green Revolution in Africa; Jawoo Koo, Carlo Azzari, and Zhe Guo, International Food Policy Research Institute.*
3. **Building Capacity for Assessing and Deploying Irrigation Innovations.** *Project Team: Kate Scow, University of California, Davis; Sieg Snapp and Vicki Morrone, Michigan State University.*

Round 2 Early Stage Innovation Grants:

1. **Low Carbon Footprint, Cool Storage Structures to Empower Farmers: Improving Storage and Enabling Processing of Perishable Produce.** *Sangeeta Chopra, Indian Agricultural Research Institute; Randolph Beaudry, Michigan State University.*
2. **Bringing Farmville to the Tropics: App-based Simulations to Build Farmers' Understanding of Customized Fertilizer Recommendations.** *Travis J. Lybbert, University of California, Davis; Emilia Tjernström, University of Wisconsin, Madison.*
3. **Grasshopper and Locust Farming as a Sustainable Source of Protein for Non-Ruminant Livestock and Humans in Kenya.** *John Masani Nduko, Anthony Kingori, Faith Toroitich, and James Ondiek, Egerton University, Kenya.*
4. **Cell Phones as a Lifeline for African Beekeepers.** *Maryann Frazier, H. Patch, and C. Grozinger, Pennsylvania State University; E. Muli, B.K. Muli, and Patrick Kariuki, South Eastern Kenya University.*
5. **Market Access and Zero Waste through a Green Cassava Processing System.** *Anselm P. Moshi and Humphrey P. Ndossi, Tanzania Industrial Research and Development Organization.*

Round 2 Technology Evaluation Grants:

1. **Implementation of a Human-Powered Bean Thresher for Small-Scale Legume Production in Zambia.** *Ronald C. Averill and James D. Kelly, Michigan State University.*
2. **FarmerLink: Mobile Enabling the Coconut Value Chain in the Philippines.** *Leo Tobias and Ana Herrera, Grameen Foundation.*
3. **Linking Climate Services and Soil Diagnostics for Climate-Smart Decisions for Small-Scale Farmers and Service Providers in Tanzania.** *Clare Sullivan and Johnson Semoka, The Earth Institute, Columbia University.*

4. **Improving Performance of Anaerobic Digestion Systems in Uganda.** *Rebecca Larson, University of Wisconsin, Madison; and Vianney Tumwesige, Green Heat - Kampala, Uganda,*
5. **Toward an Improved Cassava Simulation Model to Aid Management Decisions in the Tropics.** *Julian Ramirez-Villegas, International Center for Tropical Agriculture, Colombia; Tin Maung Aye, International Center for Tropical Agriculture, Vietnam.*

Appendix 2: Round 2 GCFSI Student Innovation Grants

1. **Concentrated Solar Drying of Fresh Agriculture Produce in Uganda.** *Project Team: Ssemwanga Mohammed, Swaib Semiyaga, Nakiguli Fatumah.*
2. **An Innovative Approach to Producing, Distributing, and Marketing Food in Ghana.** *Project Team: Clement Kubuga, Bonnie Bucqueroux, Won O. Song, Katherine Alaimo.*
3. **Molecular Characterization of the Microbial Communities of Traditional Spontaneously Fermented Milk in Kenya.** *Project Team: Moses Barasa Sichangi, Phares Muraya, Caroline Chepkemoi, John M. Nduko, Joseph Matofari.*
4. **Avocado Oil Press Trials in Tanzania.** *Project Team: Ellie Klose and Elizabeth Hoffecker Moreno.*
5. **Enhancing Food Security through Gravity Goods Ropeways in Nepal.** *Project Team: Diwakar K.C., Chubamenla Jamir, Ritendra Thapa Magar.*
6. **Use SMS to Document Maize Trader Participation in Government Reporting Protocols in Zambia.** *Project Lead: Stephen Morgan.*
7. **Peer Comparisons to Increase Adoption of Sustainable Agriculture Practices in Pakistan.** *Project Lead: Joshua Gill. PhD Candidate in Michigan State University's Department of Agriculture, Food and Resource Economics,*
8. **Alternative Protein Source for Fish Feeds for Aquaculture in Kenya.** *Project Lead: Nguhe Ruth Matanda.*
9. **Test the Capacity of an Improved Maize Planter/Ripper in Tanzania.** *Project Lead: Salim Msury.*

Appendix 3: Environmental Mitigation and Monitoring Report

Potential Environmental Impact #1 (from the Initial Environmental Examination): Potential to create human food products that are unsafe for human consumption

Mitigation measures to avoid or reduce this potential impact

Mitigation Measure: Grantee and their Implementing partners will submit to USAID a description of the methods they will use to monitor and confirm that the human food products they produce as a result of USAID-funded research activities are free of bacterial pathogens and other pathogens that could make people sick.

Implementation Activity: GCFSI and Egerton University have produced this EMMP, which outlines the activities that will be undertaken to comply with the mitigation measure listed above and the monitoring process used to assure compliance.

GCFSI will report every six months to USAID/HESN and USAID/Kenya Mission the activities and results of this Environmental Mitigation and Monitoring Plan. Annual reports will also be submitted by Oct 30, 2016 and Oct 30, 2017.

Implementation Activity: The sub-award documents between GCFSI and Egerton University will contain the appropriate language to ensure compliance with USAID's Initial Environmental Examination (IEE).

Implementation Activity: The AOR and/or onsite manager of their representative of HESN will undertake field visits, as possible, and consultations with implementing partners to jointly access ongoing activities, their environmental impacts, and associated mitigation and monitoring.

Implementation: Field visits will be coordinated by GCFSI and Egerton University as requested by USAID.

Monitoring, Timing, Responsibilities, and Results: On demand as determined by USAID.

FY16 Annual Report Status: The Egerton University implementing team is currently developing products meant for human consumption. To ensure that the products are free of bacterial pathogens and other pathogens, the products are being developed in a clean environment through processing methodologies that ensures that the products are free of pathogens. Microbial analysis will be done for any contaminants and samples will be submitted to the Kenya Bureau of Standards to ascertain the results.

Implementation Activity: Based on the process outlined in this activity/project implementation plan, implementing partners' reports to USAID will also include brief updates on mitigation and monitoring measures being implemented, results of environmental monitoring, and any major modifications/revisions in the development activities and mitigation and monitoring procedures.

Implementation: GCFSI and Egerton University will work to jointly provide brief updates on any issues that arise in the mitigation and monitoring processes.

Monitoring, Timing, Responsibilities, and Results: Periodically over the course of the project.

FY16 Annual Report Status: The team to conduct the auditing at Egerton University is being constituted and a budget of \$2,000 is requested. This will ensure that the food prepared meets the standards and is processed as per ISO 22000:2005 standards that guarantee food safety.



Figure 1: Autoclave, will be used to autoclave prepared food to ensure it is free of pathogens

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: All food will be prepared and stored in establishments approved for the purpose using clean and pathogen-free equipment and containers.

Implementation: In the project, the project implementers will conduct the activities of food preparation at the Dairy and Food Pilot Plants (ISO 22000:2005 certified) of Egerton University. Regular monitoring will be done to ensure that the food is prepared and stored in pathogen-free containers. The results of this monitoring will be reported to USAID.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits us to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, and Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: The activities of food preparation at the Dairy and Food Pilot Plants of Egerton University are being done in a clean facility. Regular monitoring will be done and will be led by University food safety team, spearheaded by Prof. Joseph Matofari, food safety expert, and ISO 22000:2005. The food storage containers considered for packaging are of food grade and free of pathogens. The audit report will be reported to USAID once the experiments are complete.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Potable water will be used in preparation of food.

Implementation: Water used for processing will be periodically analyzed to ensure it is potable.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact will be provided.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: The water used for food processing has been collected and submitted to Kenya Bureau of Standards for Microbial and Chemical Analysis to assure portability. A second test will be done and once the results are available, they will be shared with GCFSI, USAID and Egerton University Management. Dr. Nduko will communicate the results by January 2017.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Food products will be processed or cooked to destroy pathogenic microorganisms.

Implementation: The food products from the insects will be cooked/processed to destroy pathogenic microorganisms and regular checks will ensure this is attained.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. The ISO 22000 2005 guidelines will be used to determine the exact list of pathogens tested for post processing. All test will be completed in ISO 22000:2005 certified labs and by certified lab technicians. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided documenting when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: For the foods that are being processed, they will be assessed for the presence of pathogens. Reagents for microbiological analysis have been ordered and Prof. Matofari (Egerton University) will audit the results. Furthermore, analysis of the same specimens will be conducted by Kenya Bureau of Standards.



Figure 2: Reared locusts to be used for preparing baby weaning formula

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Food products will be processed, handled, packed, stored and transported or shipped hygienically and all necessary precautions taken to prevent recontamination.

Implementation: There will be regular checks to ensure the food is processed, packed and transported hygienically.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. The ISO 22000 2005 guidelines will be used to determine the exact list of pathogens tested for post processing. All test will be completed in ISO 22000 2005 certified labs and by certified lab technicians. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: After processing, Bernadette Misiko, will be in charge of monitoring that this mitigation measure has been effected.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Food stores. All measures will be taken to ensure food stores are free of vermin such as rodents, flies and cockroaches.

Implementation: There will be regular checks to ensure the food is stored in rooms free of vermin.

Processed, packed and transported hygienically.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided documenting when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders

FY16 Annual Report Status: The Dairy and Food pilot plant where the food processing is being done is ISO 22000:2005 certified and there is continuous monitoring and auditing. Therefore, the food is stored in places free of vermin. Dr. Nduko oversees this mitigation measure.



Figure 3: Food pilot plant store of Egerton University. The doors ensure that it is vermin free.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: No person shall be allowed to sleep in food stores or food preparation rooms such as kitchens.

Implementation: Nobody will be allowed to sleep in the food stores.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided documenting when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: As per the policy of the Department of Dairy and Food Science and technology of Egerton University that houses the food pilot plant where food processing experiments are being conducted, nobody is allowed to sleep in the food stores. Furthermore, the premises are monitored by the university security staff.



Figure 4: Food pilot plant store of Egerton University. Nobody sleeps in the premises.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: All food handlers will be free of communicable diseases and must undergo regular medical check-ups (At the point of handling food, they will be in possession of a health certificate).

Implementation: All food handlers will go for regular checkups and be issued with a health certificate.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: It is a requirement by the ISO 22000:2005 that all people handling food at the food pilot plant have a health certificate. The students working on the project will be examined and the results will be communicated in due course. Ms. Bernadette Misiko, who is a technician coordinating the project has a health certificate.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Materials and articles in contact with foodstuffs (e.g. packaging materials or containers) will be non-toxic and innocuous.

Implementation: All materials used to handle the food will be of food handling quality.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. The ISO 22000 2005 guidelines will be used to determine the definition of nontoxic and innocuous. All tests will be completed in ISO 22000 2005 certified labs and by certified lab technicians. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided documenting when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: All the materials for handling food are of food grade (stainless steel). Packaging will be done in glassware that are of food grade.



Figure 5: Stainless bench and buckets (Food grade) for handling food at food pilot plant of Egerton University

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: No harmful additives or foreign substances including microbial toxins or chemical residues in concentrations injurious to health will be tolerated in the developed products.

Implementation: No harmful chemicals will be added to the food.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided documenting when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: No additives will be added to the food processed. The processed food will be analyzed at Kenya Bureau of Standards to confirm this. Once the food development is completed, samples will be dispatched to Kenya Bureau of Standards for safety assessment.

Implementation Activity: Kenya Environmental/Food Safety Law or Policy: Foodstuffs or food ingredients will be transported and stored separately from poisonous substances such as pesticides, fertilizers.

Implementation: Any ingredient added to the foods must be certified by the Kenya Bureau of Standards to ensure high quality.

Monitoring, Timing, Responsibilities, and Results: The timings will be as per ISO 22000:2005 certification. Responsible parties are:

- Kenya Public Health officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: Foodstuffs or food ingredients will be transported and stored separately from poisonous substances such as pesticides, fertilizers. The results will be audited by the Egerton University ISO audit team and communicated to GCFSI, USAID and all stakeholders.

Implementation Activity: Consumer Protection Act, 2012 (Revised 2014): The project implementers will focus on consumer rights to quality food products that are of a reasonably merchantable quality.

Implementation: The project implementers will make sure that the products are processed, packaged and labeled in a standard acceptable way

Monitoring, Timing, Responsibilities, and Results: The monitoring will be periodic and determined by changes in packaging. The guidelines, as outlined in the Consumer Protection Act, 2012 (Revised 2014), will be followed. Responsible parties are:

- Consumer Federation of Kenya (Cofek)
- Egerton University Management
- Principal Investigator (Dr. John Nduko)

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: In the current state, there are efforts to design products to be made from grasshoppers. During the processing, packaging and labeling, the procedures will be done in a standard way, as will be confirmed by the Egerton University ISO auditors.

Implementation Activity: The Kenya Bureau of Standards Act Cap 496 of the Laws of Kenya: The Kenya Bureau of Standards (KEBS) develops standards for common consumer and utility goods to protect consumer health, safety and the environment such as food and safety, and chemicals.

KEBS also carries out quality control, inspection and market surveillance to retail, wholesale and open markets to assure products in the markets are safe. The project implementers will ensure that the food products developed meet the standards (chemical, physical, and microbiological). The implementers will also ensure that they meet quality standards during regular checks. A certificate of compliance will be issued and a copy shared.

Implementation: The project implementers will submit the food samples to Kenya Bureau of Standards for analysis to ensure that they are safe. Regularly, samples will also be analyzed to ensure there is continuous quality assurance.

A certificate of compliance will be obtained from the Kenya Bureau of Standards.

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: After the products are processed, they will be submitted to Kenya Bureau of Standards for analysis to ensure that they are safe. Regularly, samples will also be analyzed to ensure there is continuous quality assurance. The results will be conveyed to GCFSI, USAID and Egerton University management. Dr. John Nduko will write and submit the report.

Implementation Activity: Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012): **Section 3. Prohibition against sale of unwholesome, poisonous or adulterated food:** The project implementers will ensure,

- That the food does not have in or upon it any poisonous or harmful substance.
- That the food is wholesome and fit for human consumption.
- That the food does not consist in whole or in part any filthy, putrid, disgusting, rotten, decomposed or diseased substance or foreign matter; or adulterated.

Implementation: **Section 3:** The project implementers where applicable will prepare wholesome food that is not poisonous and with no adulteration hence fit for human consumption

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- The Kenya government chemist laboratories & Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

- *FY16 Annual Report Status: The food will be processed as per ISO 22000:2005 guidelines and samples will be submitted to the Kenya Bureau of Standards to ensure that the food does not have any poisonous or harmful substance; is wholesome and fit for human consumption; and it does not consist in whole or in part any filthy, putrid, disgusting, rotten, decomposed or diseased substance or foreign matter; or adulterated. The Egerton University ISO auditors will vet the process to ensure standards are maintained.*

Implementation Activity: Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012): **Section 4. Deception:** The project implementers will ensure that labels, packages, treatment, processing, selling or advertising of the developed food products are not in contravention of any regulations made under this Act, or in a manner that is false, misleading or deceptive as regards its character, nature, value, substance, quality, composition, merit or safety.

Implementation: **Section 4:** Where applicable, the project implementers will ensure that there is no deception as regards labeling, packaging, processing, selling and advertising. They will stick to national and international standards.

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- The Kenya government chemist laboratories & Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: The project implementers will ensure that labels, packages, treatment, processing, selling or advertising of the developed food products are not in contravention of any regulations of Kenya or in a manner that is false, misleading or deceptive as regards its character, nature, value, substance, quality, composition, merit or safety. This will be implemented by Kenya Bureau of Standards and any certificate of quality issued will be submitted to GCFSI and USAID.

Implementation Activity: Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012): Section 5. Standards of foods: The project implementers will ensure that the food is labeled, packaged, sold and advertised in compliance with Kenya standards to avoid being mistaken for a different food.

Implementation: **Section 5:** The project implementers at all times will comply with standards required by Kenyan laws regarding the standards of food.

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- The Kenya government chemist laboratories & Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: Dr. John Nduko will ensure that the food is labeled, packaged, sold and advertised in compliance with Kenya standards to avoid being mistaken for a different food. All necessary information will be promptly conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

Implementation Activity: Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012): Section 6. Prohibition against sale of food not of nature, substance or quality demanded: If the developed products are sold, no prejudice of the purchaser shall be taken with regard to the nature, substance, and quality of the products demanded.

Implementation: **Section 6:** Where products will be developed for sale, all information regarding the products will be disclosed to purchasers.

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- The Kenya government chemist laboratories & Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: Where products will be developed for sale, all information regarding the products will be disclosed to purchasers. This is a statutory requirement (Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012)) and this will be confirmed by the Kenya bureau of standards when application for the acceptance to commercialize the product will be made.

Implementation Activity: Food, Drugs and Chemical Substances Act Cap254 of the laws of Kenya (Revised 2012): **Section 7. Preparation of food under insanitary conditions:** The project implementers will ensure that the food is sold, prepared, packaged, conveyed, stored or displayed for sale under sanitary conditions.

Implementation: **Section 7:** At all times, the project implementers will prepare food in sanitary conditions. The food and dairy pilot plant of Egerton University that is ISO 22000:2005 certified will be used for production of the foods.

Monitoring, Timing, Responsibilities, and Results: The monitoring will be as per ISO 22000:2005 certification requirements and when Kenya Bureau of Standards deems necessary for quality checks. Responsible parties are:

- The Kenya government chemist laboratories & Kenya Bureau of Standards officers
- Egerton University ISO auditors
- Principal Investigator (Dr. John Nduko)
- Mrs. Bernadette Misiko

Where necessary, digital photos will be provided to show implementation of the mitigation measure. For every occurrence of monitoring, a data table will be provided that documents when the monitoring occurred and who completed the monitoring. Summary narrative describing any evidence gathered during monitoring that permits to assess whether the mitigation was successful for avoiding or reducing the potential environmental impact.

The results obtained will be conveyed to GCFSI, USAID, Egerton University management and all concerned stakeholders.

FY16 Annual Report Status: Preparation of food is and will be done under sanitary conditions. It will also be sold, packaged, conveyed, stored or displayed for sale under sanitary conditions. The Egerton University ISO auditors will ensure this together with the statutory bodies (The Kenya government chemist laboratories and Kenya Bureau of Standards officers).

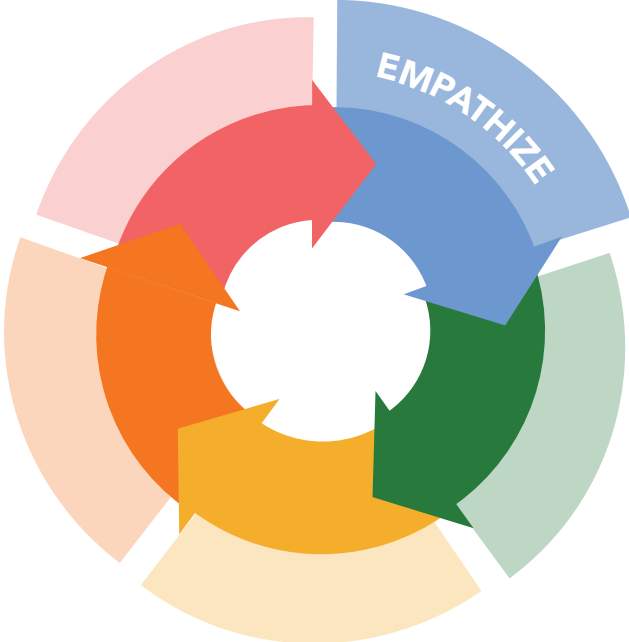
Appendix 4: Innovation Scholars Program Workshop Participant Workbooks

GCFSI has received several questions about how the ISP is being implemented. GCFSI is dedicated to implementing this project with a new level of transparency. We have attached the detailed workshop participant workbooks for the first two ISP workshops that were implemented in FY16.

The following pages include the participant workbook for ISP workshop I: Design Thinking for Innovation in African Food Systems, and for ISP workshop II: Engaging Communities for Innovation in African Food Systems.

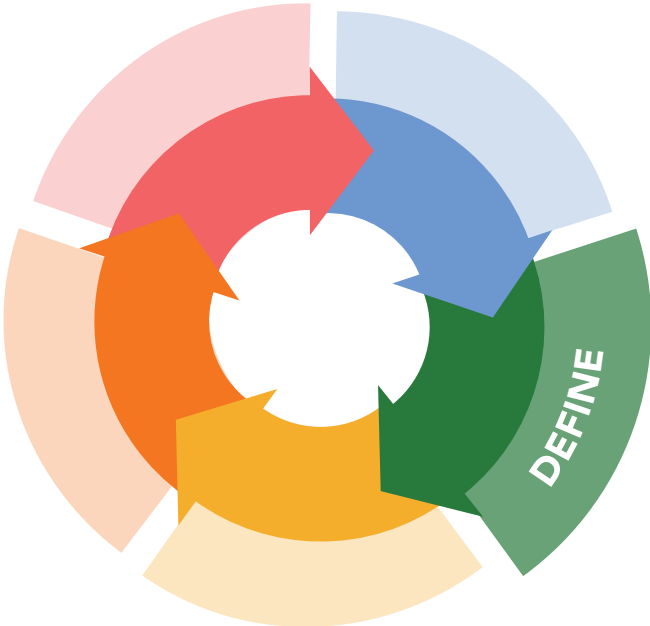
Design Your Project Process

Based on Day 1 work, map out your project process using phases of Design Thinking.



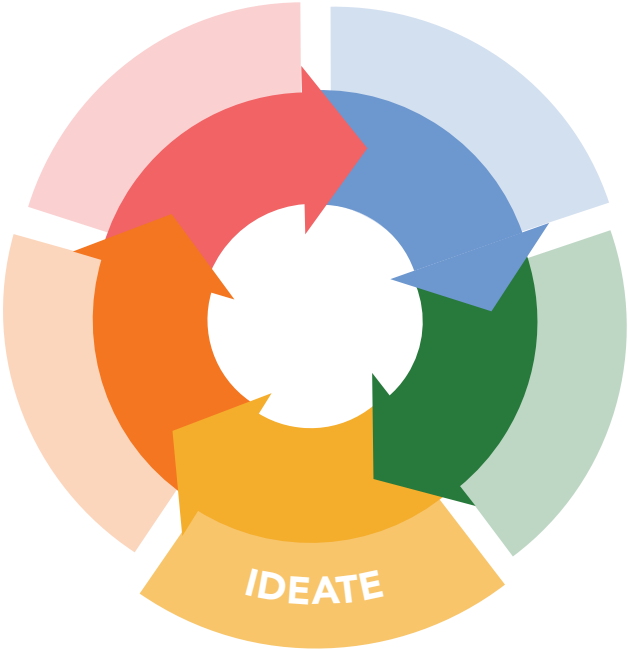
Design Your Project Process

Based on Day 1 work, map out your project process using phases of Design Thinking.



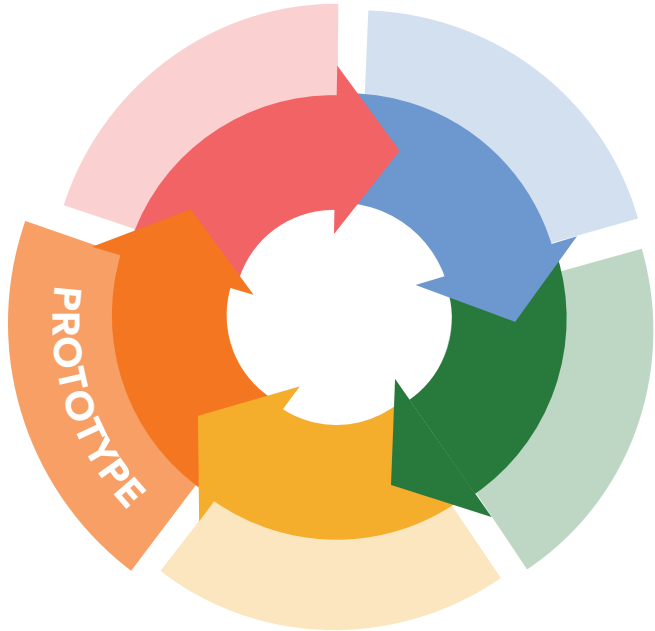
Design Your Project Process

Based on Day 1 work, map out your project process using phases of Design Thinking.



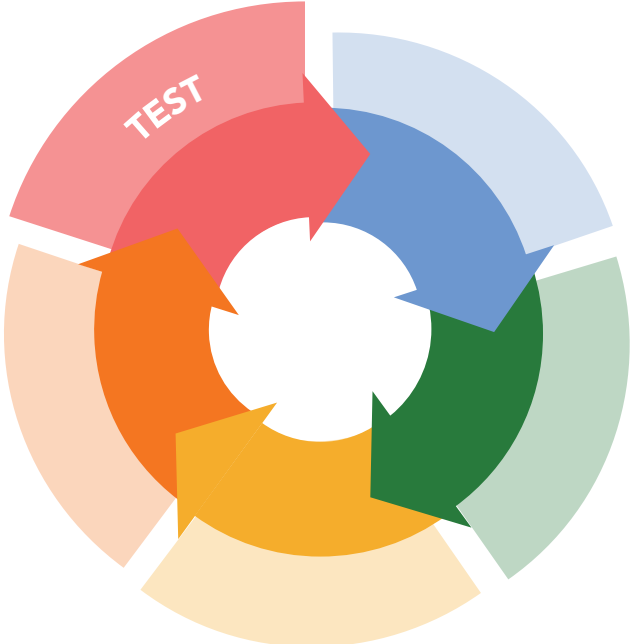
Design Your Project Process

Based on Day 1 work, map out your project process using phases of Design Thinking.



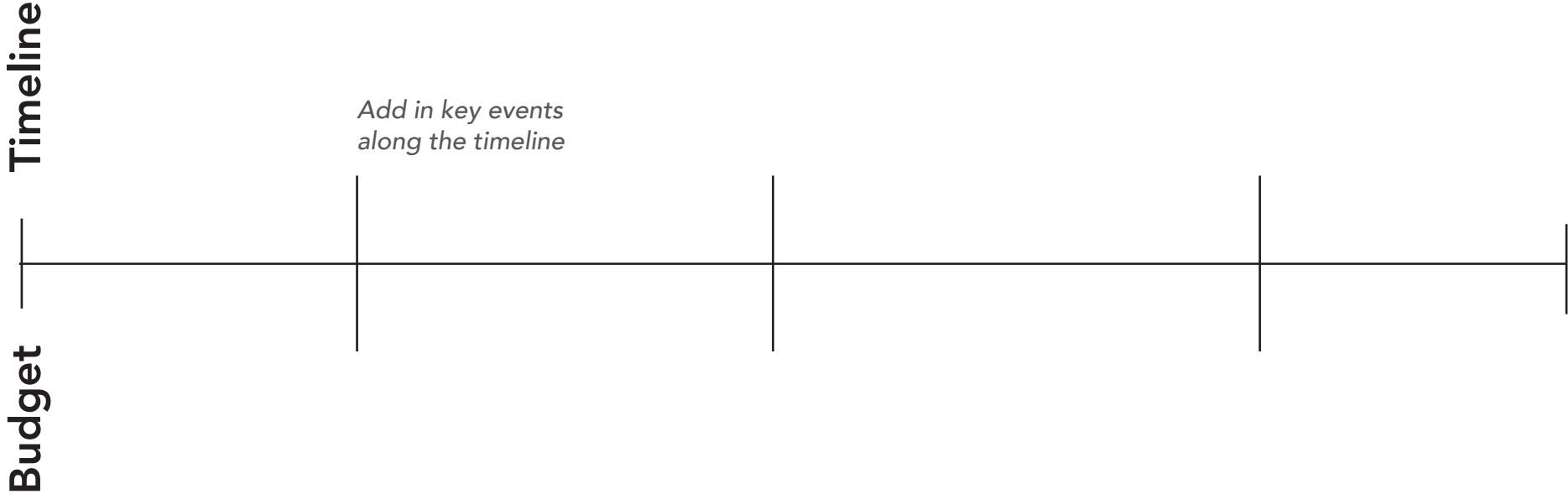
Design Your Project Process

Based on Day 1 work, map out your project process using phases of Design Thinking.



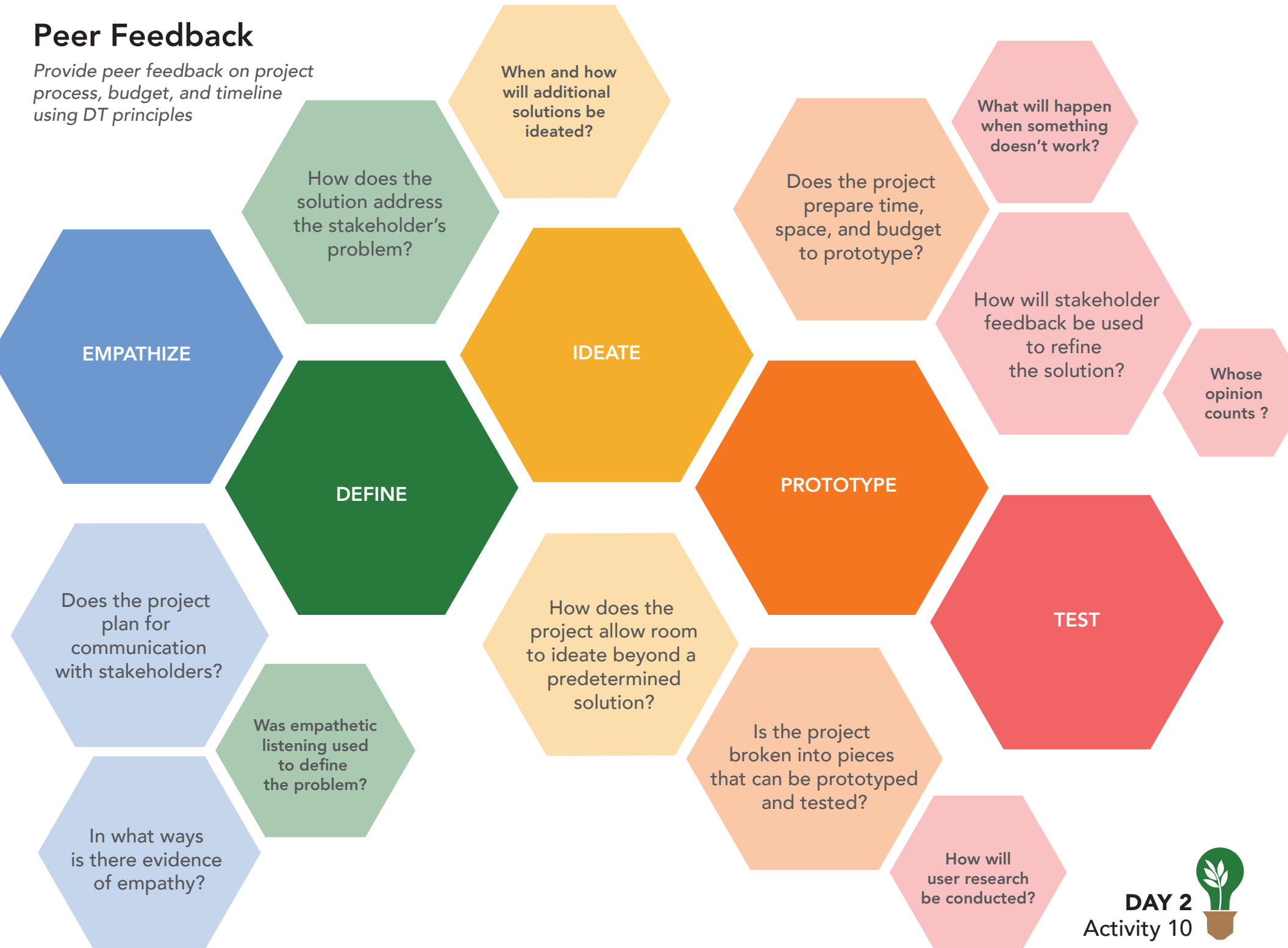
Design Your Timeline and Budget

Identify benchmarks for tranches for each phase of funding.



Peer Feedback

Provide peer feedback on project process, budget, and timeline using DT principles



Design Your Team

Create a plan for developing your design team, then get feedback from a partner

IDEATE

Draft the members of your design team.



TEST

Does your proposed team meet the necessary KSA?

PROTOTYPE

What knowledge, skills and abilities does your project need?

First Team Meeting

Use this page to plan your agenda for your first meeting. Some things to include: DT, Benchmarks, deliverables



Innovate Engagement Workshop

September 27-29, 2016

INNOVATION SCHOLARS PROGRAM



Innovate Engagement Workshop Agenda

Connecting Academic Scholars and Real World Development Challenges

Day 3
Apply

*How do we apply it
to our projects?*



Day 1

Introduce

*What is Community
Engagement?*

Day 2

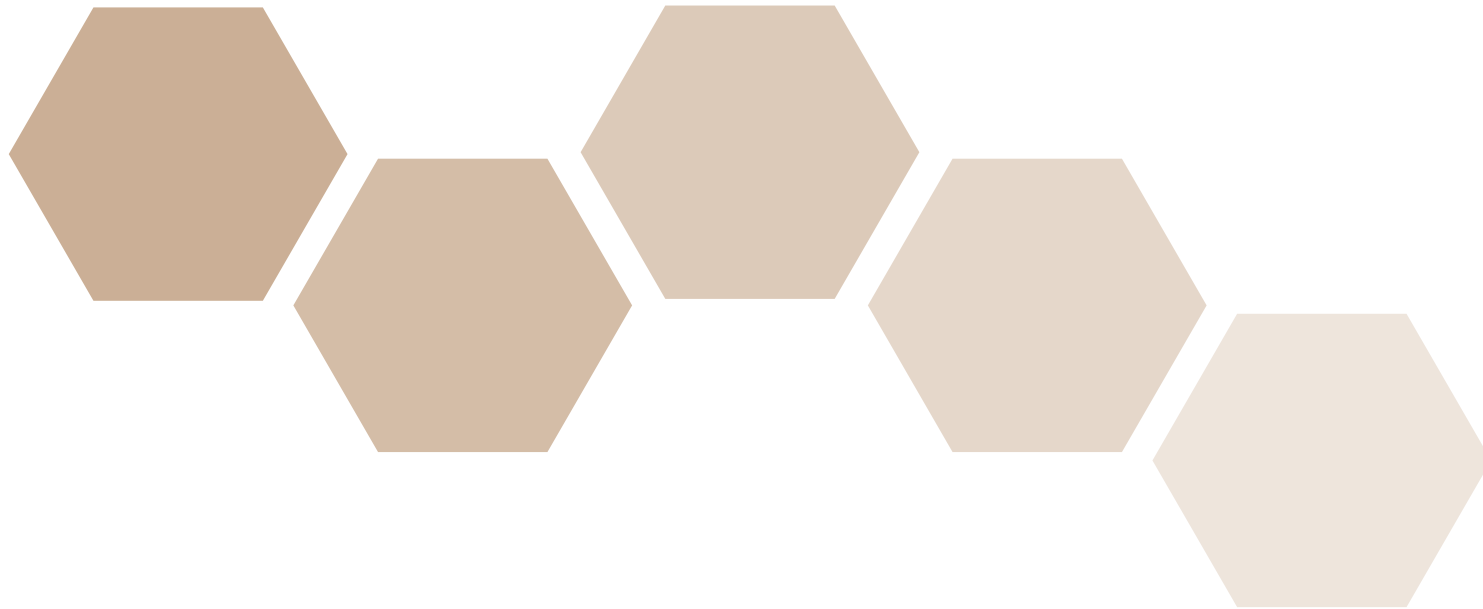
Contextualize

*Why does it matter
at LUANAR?*



Day 1
Introduce

Reviewing Concepts of Design Thinking





Day 1 Introduce

Engaging Communities for Innovation in African Food Systems: *What this means for your project*



Community Actors

What are the categories of actors/
stakeholders in the community that
we envisage to engage with?



Competences & Values

As scholars, what do we need to be able to
do/do differently to engage better with the
community in a mutually beneficial manner?



Principles and Values

What are the underlying principles and
values that should guide our engagement
with community to achieve our shared goal?



Day 1
Introduce

Engaging Communities for Innovation in African Food Systems:
What this means for LUANAR and Malawi



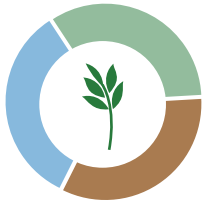
Experiences

What lessons learned from our current engagement should inform future engagement?



Values

Where is Community Engagement being used and what assumptions are held by the Institution for CE work?



Agenda

- i. Community engagement in African Universities**
- ii. Community engagement at LUANAR**
- iii. Stakeholder Perspectives**
 - Choose 3-4:
 - NASFAM or another NGO
 - Alum (young graduate / entrepreneur)
 - Dir of Animal Health
 - Dir of Extension Services (preferred)
 - Dir of Crops
 - Prince Kapondamgaga - Farmers Union

Notes



Day 3
Apply

Operationalizing Community Engagement:
How do we get started?



Day 3
Apply

Planning Community Engagment

1 **Next Steps**
for monitoring implementation of
community implementation and
support system

2 **Strategies**
for continuous learning
within and across teams

3 **Strategies**
for institutionalizing lessons
learned and creating awareness
in the entire university