



# INNOVATION SCHOLARS PROGRAM

Showcase | 2016-2017



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Global Center for  
Food Systems Innovation  
MICHIGAN STATE UNIVERSITY





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## WHAT IS THE INNOVATION SCHOLARS PROGRAM?

Collaboratively created between Michigan State University (MSU) and Malawi's Lilongwe University of Agriculture and Natural Resources (LUANAR), the Innovation Scholars Program is an 15-month capacity-building program offered by MSU's Global Center for Food Systems Innovation (GCFSI). Serving LUANAR faculty and administrators—collectively called scholars—the ISP supports LUANAR's goal to equip graduates with the skills and mindset to solve the region's development challenges. Guided by the idea that innovation is a process that can be learned, the first cohort of scholars entered the program in June of 2016.

The ISP was co-created over the course of multiple working meetings between GCFSI staff and LUANAR administrators. GCFSI listened to what the university community needed, and a strong working relationship was established. Together, the group discussed the application and selection process, overall curriculum content, and scholar expectations.

ISP has two tracks tailored to the differing needs of faculty members and administrative leaders. In this way, the ISP takes a holistic approach to instituting gradual change within the university.

Faculty members learn techniques for bringing innovative thinking into the classroom and academic research. Individual scholars on the faculty track also propose a research project aimed at solving a specific food security challenge, and form a design team composed of internal and external partners.

Administrative leaders—including, deans, department heads, and the university registrar—develop ways to dismantle institutional constraints that inhibit innovation, and discuss new approaches to faculty assessment and other procedures.

Members of both tracks engage with leaders in the private and public sectors during public forums, while visiting Kenya's innovation ecosystem on a three-day Nairobi Excursion, and when working with their design team.

“When a project integrates leadership, like this one has, you're sure that you'll be able to have a change in culture. You'll be able to transform an organization.”

- Prof. Emmanuel Kaunda, former LUANAR Deputy Vice Chancellor

### THE PATH:

Human-centered capacity development



## FACULTY SCHOLAR NOTES

### Alinafe Mbendera

IT manager Alinafe Mbendera set out to improve the communication of knowledge and research to farmers and the public through digital stories.

“LUANAR conducts significant research and produces useful results that end up in journals in the library,” said Mbendera.

“But, this knowledge needs to be communicated to all stakeholders using other means. We can use digital stories and distribute them for free to the public and television stations.”

In addition to doing a literature review on the topic, Mbendera collected data in Linthipe to learn what farmers think of digital stories. He also researched the challenges facing the media office of the Ministry of Agriculture when it comes to using the stories. Mbendera then produced three digital stories in Ntcheu, Mchinji and Bunda.

“The biggest change (since the ISP) is to view problems and challenges from the stakeholders perspective, rather than from my perspective,” he said.

By producing content the farmers are in need of, Mbendera’s project shifted from researcher-centric to farmer-centric.

Mbendera said the ISP greatly impacted his views on research, and how it can be applied to his community for maximum impact.

“Empathy is the greatest thing I have learned, to solve problems from the client perspective.”

As for what is next, Mbendera would like to use lessons learned from his project, and explore the possibility of applying the same innovation to a different location. He also plans to engage with social and local media to publicize the innovations.

### Melaku Tefera

Melaku Tefera, professor in the Department of Veterinary Biomedical Science, began his study of veterinary science in Paris, France. Tefera’s project with ISP focused on goat productivity. Goats are the main livestock in Malawi and mortality is largely due to tick-borne diseases.

“My project produced technologies for applications of acaricide (a pesticide used in medicine) and nutrient supplementation for animals in natural pasture,” he said.

Tefera involved his students in the research project through case studies with the goats. His research, which primarily took place at LUANAR’s Sakura Farm, found that the application of acaricide caused growth rates to increase and goat mortality to decrease.

Tefera said the ISP program allowed him to focus on design thinking in local food systems research, and in his role as an agricultural educator.



Professor Melaku Tefera holds a goat used in his research at LUANAR’s Sakura Farm.





### Abel Sefasi

Abel Sefasi, with the Department of Molecular Biology and Biotechnology, launched a research project rooted in Mknhwani village, within Ntcheu District, that increased families' access to nutritious, affordable food.

"Malnutrition has affected the growth of Malawi's economy in various sectors, especially education and health," he said. "Most children do not learn well and suffer from vitamin A and iron deficiency."

Indigenous vegetables like amaranthus, jews mallow, cats whiskers, black jack and Ethiopian mustard are nutritious, climate resilient, adaptable and affordable, and are threatened with extinction. Sefasi said this is mainly due to climate change, growing population and minimal understanding of the value of these vegetables.

"The young generation considers these vegetables as weeds that should only be eaten by the poor, although previous studies have demonstrated that these vegetables have high vitamin A, high nutritive minerals like calcium and phosphorous and have medicinal properties," he said.

One major challenge addressed by Sefasi was the need to listen and learn from stakeholders, and not go into the community with assumptions. He also discovered the importance of making his research simple and understandable. That way, the stakeholders who he learns from are able to contribute throughout the entire process, from problem identification to landing on the best solution.

### Evance Chaima

There's a need to enhance crop diversification in Malawi so Lecturer Evance Chaima set out to find a way. He tested the potential of Nitrofix, an inoculant, to solve late seed germination in groundnuts, increase groundnut yields, and improve soil fertility by producing crops that add nutrients to the soil.

Chaima collaborated with his design team to develop a research plan. Field work took place during the 2016-17 rainy season on a student demonstration plot at LUANAR's Natural Resource Campus.

"The prototype was a randomized complete block design with four treatments that were replicated four times," said Chaima. "The results showed that application of Nitrofix significantly induced all growth attributes of all groundnut cultivars used."

Chaima, who works in the Department of Natural Resources, said the ISP strengthened his skills to approach and solve problems in the farming community, and taught him new ways to incorporate research into the classroom.

"The ISP broadened my knowledge and understanding of how applied research can be developed and implemented," he said. "It enabled me to allow criticism and give room to other people's, because in design thinking, there are several ways of arriving at one proper solution to a problem. It is an iterative process which allows you to come up with the best solution to applied research."

**"The ISP has broadened my knowledge and understanding of how applied research can be developed and implemented."**

**- Evance Chaima**





## FACULTY SCHOLAR NOTES

### Sera Gondwe

Sera Gondwe's research in Mchinji, Mkanda Extension Planning Area, focused on youth unemployment and underemployment challenges. The project enhanced the communication pipeline for practical skills to reach youth, and for theoretical skills to reach actors along the value chain.

**“Without collaborating and listening attentively to (partners’) challenges and proposed solutions, we will always do things the same way, which means no changes will ever materialize.”**

**- Sera Gondwe**

Through Gondwe's project, four recent graduates – two males and two females – spent months interning with small agribusinesses.

Following their field experience, the students carried their momentum forward. One of the students launched a soybean business, and two students were hired as interns with the commodity exchange.

“We realized that the lessons captured were not only helpful for designing programmes offered at LUANAR, but also could immensely contribute to the design of the National Youth Service Programme, which the Government of Malawi would like to embark on,” said Gondwe.

She now views herself and partners as learners, too, rather than solely teachers.

“Without collaborating and listening attentively to their challenges and proposed solutions, we will always do things the same way, which means no changes will ever materialize.”

### Chiku Mtegha

Chiku Mtegha, lecturer in the Department of Veterinary Biochemistry & Pharmacology, developed a contemporary way to potentially improve student understanding of biochemistry and chemical processes.

“Generally students fear this subject,” Mtegha said. “So I was looking for ways to get students to like and be more engaged with the subject.”

That inspired him to create a mobile app that incorporated course material, quizzes and educational games. To do so, Mtegha partnered with TECULES, a Lilongwe-based start-up company that builds innovative learning systems. He plans to introduce the app to first-year veterinary students.

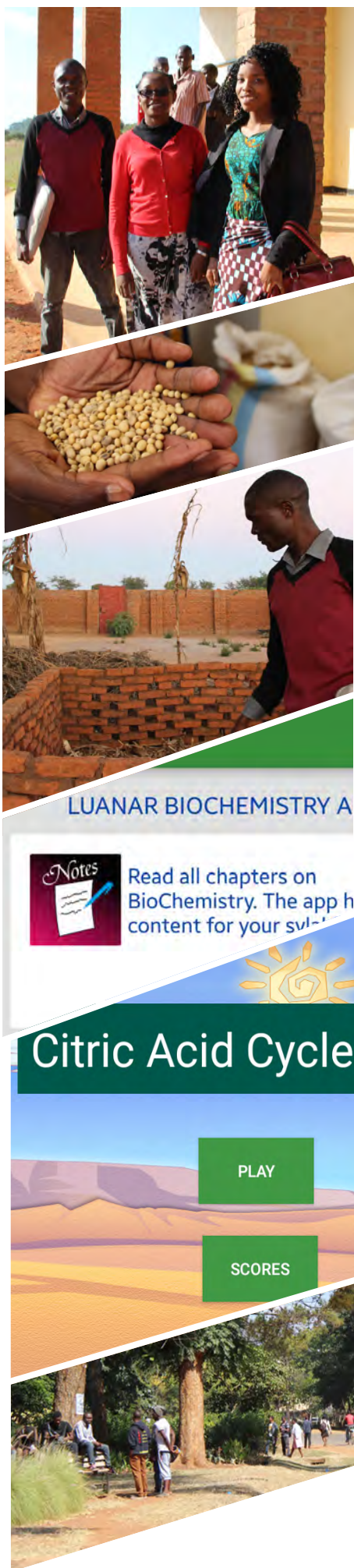
“The aim is to get students to use the app, and then see if it improved assessment performance and if they found it useful.”

Mtegha said the ISP has shown him the importance of involving the community and research stakeholders around LUANAR.

“It helps get a lot of ideas started.”



Chiku Mtegha, lecturer in Department of Veterinary Biochemistry & Pharmacology.





### Wilfred Kadewa

Wilfred Kadewa, Senior Lecturer and former Dean of Faculty of Natural Resources, knows that LUANAR can have a large impact on Malawi's food security. The university has a robust research capacity and can develop relevant solutions that consider the beneficiaries, he said.

While on the Nairobi Excursion, Kadewa said he witnessed how "universities are going out more and being proactive in the marketplace to provide relevant and much needed services to the public."

Since being involved with ISP, Kadewa said, "I am now more empathetic and more inclusive. I am more broad minded in thinking, and more specific by focusing on root problems. I am more strategic in diagnosing and solving institutional matters."

He points out the adaptability shown by members of the leadership track, who he collaborated with during the 15-month program. The group discovered that they had to switch course and reiterate to respond appropriately to their research findings and group discussions.

So, they went through two iterations of a prototype for a LUANAR-specific leadership development program.

While the ISP formally comes to a close, Kadewa said the next step is to institutionalize the latest prototype and pilot the leadership development program at LUANAR.

### Orpah Muchaneta Kabambe

"I have changed as a leader, and the leadership development program at LUANAR has changed over time as a result of the workshop series," said Orpah Muchaneta Kabambe.

"I have realized that I need to empathize and be able to understand the problem as a leader."

ISP's emphasis on the design thinking process helped her realize that there are several alternatives to a problem, and that analysing the root cause of an issue is an effective way to find a solution.

Interactions with stakeholders outside of academia led Kabambe to more deeply understand the crucial role those stakeholders play with regard to how a university functions.

Moving forward, Kabambe said, "I would like to see the Innovation Hub developed at LUANAR, and the incubates be mentored. It can be a way of resource mobilization. I have learned that we can commercialize research for sustainability of the University."

In the long term, she added, "I would love to see LUANAR being a role model for leadership development programs in the region so other universities in the country can learn from us."

**"I would love to see LUANAR being a role model for leadership development programs in the region so other universities in the country can learn from us."**

**- Oprah Muchaneta Kabambe**





## LEADERSHIP SCHOLAR NOTES

### Jeremiah Kang'ombe

Professor of Aquaculture Nutrition, Jeremiah Kang'ombe, said the ISP broadened his understanding of what it means to be a leader in his field.

"The ISP made me more interactive with fellow members of staff," he said, "encouraging intra-departmental collaboration. I now approach leadership as an area that needs good consultations and a lot of listening and doing."

Kang'ombe participated in the Nairobi Excursion where he learned how some Kenyan universities are using research laboratories for innovative learning right alongside commercial enterprises.

He also took note of the relationships among staff at the various universities, businesses and innovation centers the scholars visited. "The set-up is such that close attention (is paid) to inter-relationships between people, processes, and culture—that no one is left out in the culture that the entities have developed."

More specifically, Kang'ombe admired the Business and Incubation Centre at Kenyatta University.

"People with ideas, regardless of qualifications are recruited, (and) allowed to develop their ideas. Seed money is provided to them at prototype stage."

In terms of how this could be applied to LUANAR, Kang'ombe said, "creation of designated places to discuss innovation ideas is a good idea. Ideas are idle if they are not discussed and implemented in some way."

### Zione Kalumikiza

A leader in the Department of Food Science and Nutrition, Zione Kalumikiza, noted that LUANAR is in an important position to influence policy and practice in Malawi.

"Feeding a growing population in the context of a changing environment will require generation of knowledge and technologies to ensure access to safe and adequate food," she said. "These can be generated by staff and students in the university, and LUANAR can contribute to a vibrant agricultural workforce that can transform Malawi's food situation."

While the challenges are great, Kalumikiza does not shy away from finding new solutions.

"I am now more open to change, and consider 'failure' as normal in the context of innovation."

Working to incorporate the value of innovation into the fabric of LUANAR leadership, Kalumikiza collaborated with the ISP leadership track to develop a way forward.

The latest prototype the group settled on is quite different from the first plan, which was to create a curriculum for leadership development. Now the idea is to apply their latest prototype and collect lessons learned.

During the research phase, she said, "With every learning opportunity, we were able to have a better understanding of the problem(s) and this informed the development of a suitable prototype for testing."

"I now understand that leadership drives the extent of change, and that the greatest changes happen where innovation is embraced by leadership."





# UNLEASHING INNOVATION

How GCFSI's Innovation Scholars Program impacted Malawi's leading agricultural university

By Katie Deska

Malawi's indigenous vegetables are cheap to grow and rich in nutrients, so why aren't farmers cultivating them? That's the question a Lilongwe professor set out to solve.

"When I was developing the research proposal, we were going to do it in the lab. But, a meeting with my design team changed that. Now there is more community involvement," said Dr. Abel Sefasi, Head of the Horticulture Department at Lilongwe University of Agriculture and Natural Resources.

Sefasi is one of about 20 LUANAR faculty and administrators who participated in the 2016-2017 cohort of the Innovation Scholars Program, a 15-month capacity building program. Co-created by LUANAR and Michigan State University's Global Center for Food Systems Innovation, the program strengthens LUANAR's capacity to creatively address national and regional development challenges, particularly around food security. Scholars engage with design thinking via workshops, community forums, international site visits and applied research.

"We knew we didn't need to do formal training or introduce a new scientific research technique to LUANAR," said Kurt Richter, Deputy Director of GCFSI. "Instead, we had to figure out how to energize academics to look at food security problems, and have the confidence and tools to create change. We believe innovation is a process that can be taught, and we rely on design thinking to make it happen."

By teaching and modeling the principles of design thinking, program facilitators enable the LUANAR community to consider



problems from different angles, recognize potentially inaccurate assumptions, and pioneer new ideas.

"In this approach, we tend to find solutions that surprise us, in helpful innovative ways," said Dr. Bill Heinrich, ISP Facilitator and Director of Assessment with MSU's Hub for Innovation in Learning and Technology.

"It's in having enough of a trusting relationship with the scholars that they've been willing to follow along this journey and learn with us."

The five-stage process of design thinking—empathy, problem definition, ideation, prototyping, and testing—was embedded in program content and also used to guide program planning, implementation and assessment.

"We had not anticipated having members of the university leadership in the program. We were very much focused on the faculty themselves, and developing their research capacity. But, from the very

beginning of the collaborative planning process, the faculty said, 'None of this will have any effect unless leadership is on board,'" said Dr. John Medendorp, ISP Facilitator/Leadership Track Lead, and International Project Manager at MSU's Center for Global Connections in Food, Agriculture and Natural Resources.

In response to the faculty's concerns, the GCFSI crew modeled the design thinking concepts it teaches, and modified the program structure. Facilitators arranged for two parallel tracks—a Faculty Track for professors and researchers, and a Leadership Track for university administrators/leaders. Then facilitators posed a challenge to the scholars.

"Essentially we asked, 'What are you going to do, as an academic here at LUANAR, to transform the food system in Malawi?'" said Dr. John Bonnell, ISP Facilitator / Faculty Track Lead, and Director of MSU's Tanzania Partnership Program.



The scholars embarked on a variety of applied research projects including, Sefasi's community-based experiment with indigenous vegetable cultivation; Melaku Tefera's construction of a portable goat spraying device to decrease disease transmission; and Sera Gondwe's creation of an internship program that matches agribusiness students with farmers seeking marketing skills.

"Many small-scale farmers lack the knowledge to grow their business," said Gondwe. At the same time, her students can't find jobs when they graduate. So Gondwe initiated an internship program for recent LUANAR agribusiness management graduates. Her approach to transforming Malawi's food system is indicative of the systems thinking, which design thinking pairs perfectly with.

"Here in U.S. or elsewhere, we don't understand the specific nuances of food security problems in Malawi, so we can't give some tech-based recipe for solving them," said Richter with GCFSI. "But, what we offer through the Innovation Scholars Program is a method that allows LUANAR to reach conclusions on their own and generate user-focused solutions."

Zeroing in on the need to foster this ethos from within the university itself, scholars in the Leadership Track identified LUANAR's obstacles to innovation. They conducted research with past, current and aspiring leaders, and used their findings to inform a leadership development program to be piloted at LUANAR.

To help generate ideas and spark regional collaborations, the Innovation Scholars visited Nairobi, Kenya, for a three-day field study (pictured above). LUANAR faculty and leaders toured four local universities, a handful of research-for-development institutions and two private sector start-up incubators.



Throughout the excursion, scholars discussed how elements of the different systems might be applied to LUANAR and the Malawian food system.

"For the leadership track, the biggest challenge we faced was how do we embrace that culture of innovation while we also have our existing systems?" said Zione Kalumikiza, Deputy Head of the Department of Food Science and Nutrition at LUANAR. "The trip to Nairobi gave us an opportunity to see what our friends are doing and consider what we can do. It was enriching to see how they bring in new ways of thinking into the education system and ensure that students develop that culture."

As Malawi's premier agricultural university, boasting 3,300 students and counting, LUANAR is in a unique position to help Malawi nudge the needle towards food security. Faculty, leadership and students who embrace innovation and the entrepreneurial spirit influence the fate of the country.

"Innovation in agriculture is important because all of Malawi's economy depends on agriculture," said LUANAR former Deputy Vice Chancellor Emmanuel Kaunda.

"My vision is to leverage the connection with LUANAR to ensure that there are farmers that do value addition, that it is of quality, and is in a state of commercialization in a serious way.

"And when projects are just brought in with our faculty, sometimes it's very difficult to internalize the results and the outcomes.

"But, when a project integrates leadership, like this one has, you're sure that you'll be able to have a change in culture.

"You'll be able to transform an organization."



Prof. Emmanuel Kaunda, former LUANAR Deputy Vice Chancellor.



## INNOVATION SCHOLARS PROGRAM FACILITATORS

Facilitated by experts specializing in higher education and adult learning, the ISP teaches and models the principles of design thinking and systems thinking that enable the LUANAR community to consider problems from new angles, recognize potentially inaccurate assumptions, and finally, break ground on new solutions. Faculty members practice design thinking while working on research teams aimed at identifying and implementing food security solutions.

ISP facilitators conduct ongoing assessment to track the scholars' progression toward adoption of design thinking. Facilitators communicate regularly with scholars about project progression, and reference the scholars' workbook notes and reflections. Assessment findings inform future decision-making and help ensure facilitator meet the scholars where they are.

### ISP Lead Team

**Kurt Richter**, Deputy Director, GCFSI

**John Bonnell**, Faculty Track Lead

**John Medendorp**, Leadership Track Lead

**Bill Heinrich**, Director of Assessment, MSU Hub for Innovation in Learning and Technology

### LUANAR Lead Team

**Professor Emmanuel Kaunda**, former LUANAR Deputy Vice Chancellor

**Andy Safalaoh**, ISP Coordinator for LUANAR

### Wageningen University & Research Lead Team

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**Libby Hoffman**, Hub for Innovation in Learning and Technology

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# Innovation is a process, not a product.

## Innovation happens when people see opportunity where they once saw a problem.

Launched at Michigan State University in 2012,  
the Global Center for Food Systems Innovation (GCFSI)  
is one of eight development labs established through the  
Higher Education Solutions Network of the  
United States Agency for International Development.

Through research and capacity-building activities,  
we create, test and enable the scaling of food security solutions.

The Innovation Scholars Program is hosted in collaboration with  
Malawi's Lilongwe University of Agriculture and Natural Resources.

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