HIGHER EDUCATION SOLUTIONS NETWORK - ANNUAL REPORT (FY 2013)

MICHIGAN STATE UNIVERSITY
GLOBAL CENTER FOR FOOD SYSTEMS INNOVATION (GCFSI)
AGREEMENT NO. AID-OAA-A-13-00006

SUBMITTED: OCTOBER 30, 2013
REPORTING PERIOD: FY 2013, 4th QUARTER AND FIRST ANNUAL REPORT

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GCFSI Fourth Quarter and First Annual Report

Acronyms

AFRE	(Department of) Agricultural, Food, and Resources Economics at MSU
ArcGIS	Geographic Information System
BFS	USAID Bureau for Food Security
DFID	Department for International Development (United Kingdom)
DSI	Decision Support and Informatics
FACET	The Fostering Agriculture Competitiveness Employing Information Communication Technologies
FSG	Food Security Group
FSHN	(Department of) Food Science and Human Nutrition at MSU
FtF	Feed the Future
GCFSI	Global Center for Food Systems Innovation
HESN	Higher Education Solutions Network
iAGRI	Innovative Agricultural Research Initiative
ICT	Information and Communication Technologies
ICT4D	Information and Communication Technologies for Development
IR	Intermediate Result
LU	Lincoln University
MIT	Massachusetts Institute of Technology
M&E	Monitoring and Evaluation
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
O1	Objective (1, 2 or 3)
OST	USAID Office of Science and Technology
RAID	Redundant Array of Independent Disks
SUA	Sokoine University of Agriculture- Tanzania
TERI	The Energy Resources Institute - India
TSC	Translational Scholar Corps
UC	University of California (at Berkeley)
US	United States
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WUR	Wageningen University - The Netherlands

GCFSI Fourth Quarter and First Annual Report

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Executive Summary

Michigan State University (MSU) launched the implementation of Agreement AID-OAA-A-13-00006 with activities aimed at establishing and solidifying the basic structures of the Global Center for Food Systems Innovation (GCFSI). On November 8, 2012, after notice of award, our first step was to assemble the core multi-disciplinary team. We engaged MSU faculty and staff, reached out to our partners, Wageningen University (WUR), Sokoine University of Agriculture (SUA), Lincoln University (LU) and The Energy Resources Institute (TERI), and established connections with other Labs in the Higher Education Solutions Network (HESN). November 10 and 11, 2012, we participated in the Launch Event of the HESN held in Washington, D.C. We used this opportunity to broaden our team by building linkages to fellow labs as wells a USAID experts in the areas of focus of the GCFSI.

During the months of November and December we began to formulate our work plan and to identify additional key members of our team. On January 2-3, 2013 a team of USAID staff members visited MSU to engage in an in-depth conversation of critical elements of the annual work plan and to agree on the general direction of the Center. From January to March, 2013 we focused on developing our Annual Work Plan and the M&E Plan. During February 12 and 13, 2013 a team from GCFSI visited our partner Lincoln University with the purpose of engaging faculty and administrators to clarify their contributions to our work. From March 2 to 9, GCFSI team members traveled to Tanzania to introduce GCFSI to SUA.

March 21 and 22, we organized a GCFSI Launch Event with the presence of USAID representatives from Office of Science and technology (OST) and the Bureau for Food Security (BFS), as well as top leadership from MSU, faculty, core partners, and members from the private sector and the community. Two days prior to this event —March 19 and 20— we held working sessions with all GCFSI partners, including representatives from WUR, TERI, LU and SUA, to help develop linkages in the larger team and give everybody a chance to better know our GCFSI colleagues; identify the best talent and contributions from our partners to the Megatrend work; and define the methodology and focus of the megatrends concerning the geographic and content scope of the future white papers.

During this last quarter, the GCFSI team focused on finalizing the research for the first iteration white papers and presenting them to USAID in July/August 2013. We engaged in significant conversation with various across USAID to complete the final white papers by September, 2013. We had an important symposium in August 2013 that was designed to vet and discuss the content of the white papers. This event really helped GCFSI to hear the opinions of members of the scientific community about the research and to make changes as needed. Finally, we spend a large portion of this last quarter looking into our strategy for year two, and developing plans and budget accordingly.

We had significant activity in the area of defining our potential hub, and completed trips to Kenya, Malawi and Uganda for this purpose. We received in the later part of the quarter hub proposals from LUANAR in Malawi and from the University of Nairobi.

Finally, GCFSI participated in various conferences, symposia and events throughout the year which served as a great platform for us to develop excellent relationships with important stakeholders, and to showcase GCFSI work for the year. We feel we had a very successful year one, loaded with growth, excellent research and significant network growth.

Part 1: Major Milestones and Events Completed

1.1. Milestones

Please see the chart in section 2.1 below.

1.2. Major Events

- HESN Launch, November 2012.
- GCFSI Launch Event, May 2013.
- White Paper Symposium, August 2013.

1.3. Major Publications

None applicable to date.

1.4. Communications

None applicable to date.

Part 2: Description of Key Activities

2.1. Annual Objectives

Below is a list from the approved GCFSI Monitoring and Evaluation plan that shows the Center's goals for project year one, the starting baseline as well as our actual achievements.

Lab Name: *GCFSI*		Date of submission *30-Oct-13*		Data through: FY13 Q4	**FY13 Target**	**FY13 Actual Total**
HESN Ref. **Indicators (HESN Standard and Lab Custom)**		**Reporting?** **(Y/N)**	**Lab Ref.**	**FY12 Baseline**		
Goal	**Create a global interdisciplinary network of Development Labs to solve distinct development challenges**					
	HESN Standard Indicators					
Gin1	Ratio of total value of outside (non-USAID) resources utilized to the dollar value of USAID investments	Y	Gin1	0	$2M	0
Gin2	# of transformative innovations, technologies, or approaches that were developed with human, financial, or institutional resources contributed by HESN Development Labs	Y	Gin2	0	0	0
Gin3	# of transformative innovations, technologies, or approaches that were piloted with human, financial, or institutional resources contributed by HESN Development Labs	Y	Gin3	0	0	0
Gin4	# of transformative innovations, technologies, or approaches that were adopted with human, financial, or institutional resources contributed by HESN Development Labs	Y	Gin4	0	0	0
Gin5	# of transformative innovations, technologies, or approaches that achieved wide-scale adoption with human, financial, or institutional resources contributed by HESN Development Labs	Y	Gin5	0	0	0
Gin6	# of transformative innovations, technologies, or approaches evaluated with human, financial, or	Y	Gin6	0	0	0

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Lab Name: *GCFSI*		Date of submission *30-Oct-13*	Data through: FY13 Q4	FY13 Target	FY13 Actual Total
HESN Ref. **Indicators (HESN Standard and Lab Custom)**		**Repor ting? (Y/N)**	**Lab Ref.**	**FY12 Baseline**	**FY13 Target**	**FY13 Actual Total**
	institutional resources contributed by HESN Development Labs					
Gin7	# of US students via HESN partners serving as fellows in developing countries (for more than one month)	Y	Gin7	0	0	0
Objective 1: Improve data quality, access and analytics to advance evidence-based development decision making						
Oin1	# of new data-related technologies, tools, approaches, and best practices supported or applied with human, financial, or institutional resources contributed by HESN Development Labs	Y	O1in1	0	5	0
Oin2	# of data sets provided to or made accessible to USAID operating units and programs, HESN partners, and the broader development community with human, financial, or institutional resources contributed by HESN Development Labs	Y	O1in2	0	1	0
Oin3	# data-related analyses, mapping activities, and expert consultations provided for USAID operating units and programs, HESN partners, and the broader development community with human, financial, or institutional resources contributed by HESN Development Labs	Y	O1in3	0	1	0
IR 1.1	Expand the availability and improve the quality of development data					
IR1.1in1	*# of citations in targeted fora/publications/projects of data collected or made available through human, financial, or institutional resources contributed by HESN Development Labs(custom indicator)*	N	N/A	N/A	N/A	N/A
IR 1.2	Create and improve data-driven methodologies, tools, and analytics					
IR1.2in1	*# of users who access data and tools made available with support from human, financial, or institutional resources contributed by HESN Development Labs (custom indicator)*	Y	IR1.2In2	0	0	2641
IR 1.3	Build a development ecosystem that applies data, analytics, and evidence to drive solutions and improve decision making					
IR1.3in1	# of USAID operating units using geographic analysis to prepare strategies and design, implement, monitor, and evaluate development projects ^	N	N/A	N/A	N/A	N/A
IR1.3in2	*# of development professionals proficient in data management and use due to human, financial, or institutional resources contributed by HESN Development Labs (custom indicator)*	N	N/A	N/A	N/A	N/A
Objective 2: Accelerate the creation, testing, and scaling up of transformative innovations, technologies and approaches						
O2in1	Time required for developing, piloting, adopting, scaling, and evaluating transformative innovations, technologies, and approaches receiving human, financial, or institutional resources contributed by HESN Development Labs	Y	O2in1	0	8	8
IR 2.1	Expand the research, identification and design of transformative innovations, technologies and approaches					
IR 2.2	Increase assessment, analysis, and evaluation of innovations, technologies and approaches in context					

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Lab Name: *GCFSI*		Date of submission *30-Oct-13*	Data through: FY13 Q4	**FY13 Target**	**FY13 Actual Total**
HESN Ref. **Indicators (HESN Standard and Lab Custom)**		**Reporting? (Y/N)**	**Lab Ref.**	**FY12 Baseline**		
IR2.2in1	# of white papers, articles, assessments, analyses, and evaluations on development challenges, innovations, technologies, approaches, and contexts (drafted with human, financial, or institutional resources contributed by HESN Developments Labs) published in targeted fora and publications OR provided to USAID operating units, HESN partners, and the broader development community	Y	IR2.1in1	0	5	9
IR2.2in2	# of citations of white papers, articles, assessments, analyses, and evaluations (drafted with human, financial, or institutional resources contributed by HESN Developments Labs) on development challenges, innovations, technologies, approaches, and contexts in targeted fora/publications/projects	Y	IR2.1in2	0	0	0
IR2.2in3	*# of targeted communities who participated in assessment, analysis, and evaluation of innovations, technologies, and approaches supported with HESN Development Lab(custom indicator)*	N	N/A	N/A	N/A	N/A
IR 2.3	Foster and expand collaborations among private and public sector actors and local communities that allow solutions to be scaled					
IR2.3in1	# of MOUs or other agreements signed with public sector, private sector, local community partners, and one HESN Development Lab	Y	IR2.3in1	0	0	0
IR2.3in2	# of stakeholders engaged in problem solving with one HESN Development Lab (disaggregated by partnership type)	Y	IR3.1in1	0	2	11
IR 2.4	Build network members' mutual capacity for high-risk development, testing, and implementation of solutions					
Objective 3: Catalyze a global interdisciplinary ecosystem of individuals and individuals that shares knowledge, promotes learning, and builds mutual capacity						
O3in1	Network member perceptions of GCFSI value and progress (including HESN Development Labs, USAID and GCFSI partners)	Y	O3in1	0	0	0
O3in2	# of MOUs or other agreements signed with public sector, private sector, and local community partners and more than one HESN Development Lab	Y	O3in2	0	0	0
O3in3	# new development related classes or disciplines created by university departments with human, financial, or institutional resources contributed by HESN Development Labs	Y	O3in3	0	0	0
IR 3.1	Build and support an infrastructure for collaborative problem-solving among HESN development labs and USAID					
IR3.1in1	# of development programs/projects/efforts undertaken collaboratively by Network members	N	N/A	N/A	N/A	N/A
IR3.1in2	# of stakeholders engaged in collaborative Network problem solving with more than one HESN Development Lab (disaggregated by partnership type)	N	N/A	N/A	N/A	N/A
IR 3.2	Catalyze ongoing knowledge sharing and learning among HESN development labs and USAID					
IR3.2in1	# of visitors to Network knowledge-sharing platforms	Y	IR3.2In1	0	300	2641

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Lab Name: *GCFSI*		Date of submission *30-Oct-13*	Data through: FY13 Q4	FY13 Target	FY13 Actual Total
HESN Ref. **Indicators (HESN Standard and Lab Custom)**		**Repor ting? (Y/N)**	**Lab Ref.** / **FY12 Baseline**		
IR3.2in2	Frequency of use of Network knowledge sharing platforms by different types of Network members	Y	IR3.2In2 / 0	100	2299/day
IR 3.3	Create new disciplines, collaborative platforms, and learning opportunities that train students, staff, and faculty to solve development challenges				
IR3.2in3	# of successes and failures circulated on Network knowledge-sharing platforms	Y	IR3.2In3 / 0	10	Not available
IR3.3in1	# of classes supported by HESN Development Labs with human, financial, or institutional resources contributed by HESN Development Labs	Y	IR3.3in1 / 0	0	0
IR3.3in2	# of collaborative platforms created by the HESN or with human, financial, or institutional resources contributed by HESN Development Labs	Y	IR3.3in2 / 0	1	6
IR 3.4	Engage students, staff, and researchers in solving distinct development challenges				
IR3.4in1	# of students participating in short term practica or other field experiences through human, financial, or institutional resources contributed by HESN Development Labs	Y	IR3.4in1 / 0	45	51
IR3.4in2	# of Hubs created with human, financial, or institutional resources contributed by HESN Development Labs	Y	IR3.4in2 / 0	0	0
IR3.4in3	# of participants in Hubs, summits, and other problem-solving institutions created with human, financial, or institutional resources contributed by HESN Development Labs	Y	IR3.4in3 / 0	0	0
IR3.4in4	*# of participants in crowd-sourcing or other open challenges created with human, financial, or institutional resources contributed by HESN Development Labs*	Y	IR3.4in1 / 0	30	131
	Lab Custom Indicators				
IR1.1In1	# decision support and informatics requests for scholarly efforts	Y	IR1.1In1 / 0	2	0
IR1.2In1	# discrete functionalities of the decision support and informatics platform	Y	IR1.2In1 / 0	2	2
IR2.2In1	# of concept notes reviewed in response to GCFSI RFA	Y	IR2.2In1 / 0	100	119
IR2.2In2	# of applications reviewed in response to GCFSI RFA	Y	IR2.2In2 / 0	30	0
IR2.2In3	# of proposals selected for funding in response to GCFSI RFA, but that did not receive funding	Y	IR2.2In3 / 0	5	0
IR2.2In4	# of Innovation Grants awarded in response to GCFSI RFA	Y	IR2.2In4 / 0	20	9
IR3.1In2	# of participants for virtual and in person presentations discussing white paper and problem definitions	Y	IR3.1In2 / 0	60	70
IR3.4In5	# of MSU colleges collaborating internally	Y	IR3.4In5 / 0	5	7

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2.2. Summary of Key Activities and Outcomes

The last quarter of project year one, was devoted to completing the first iteration white papers, launching the student innovation grants and the innovation grants, and planning for year two. Specifically, some accomplishments for the quarter and the year were:

1. Launched the gender component with the hiring of Dr. Nathalie Me-Nsope in August 2013.
2. Conducted year two work planning sessions and developed the work plan and the year two budget.
3. Completed the first iteration of the white papers, which were delivered to USAID in July, and held various discussion sessions with USAID, which resulted in revisions to the first drafts.
4. Conducted a symposium in the campus of MSU August 22 and 23, 2013 which focused on vetting the white papers with various invitees.
5. Drafted the Request for Applications (RFA) for the innovation grants, vetted the RFA with USAID, and issued the RFA. We negotiated the process to manage this grants process, and engaged Dr. Doug Gage from the office of the MSU Vice-President for research to manage this first round. Received 119 concept notes, and worked with the office of the Vice-President for Research at MSU to categorize the concept notes, select the review panel, and distribute the notes for review.
6. Added Ayesha Razzaque to the GCFSI team, who transitioned to manage the Translational Scholar Corp (TSC) component of the project as of September 2013.
7. Managed the change of Dean of International Studies and Programs from Dr. Jeff Riedinger to Dr. Steve Hanson.

Solar Powered Water Pumps

8. Held meetings with the MasterCard Foundation management team in MSU to establish specific collaboration action items.
9. Hosted the visit of a delegation from India (Dr. Dinesh Kumar Goyal, Principal Secretary, Government of Rajasthan, India and Director General of International Horticulture Innovation and Training Center) who presented their innovative technology for a solar powered water pump.

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10. Hosted a visit from Dr. Ruben Echeverria, Director General of CIAT (Centro Internacional de Agricultural Tropical in Cali, Colombia).
11. Launched preparations for an event to be hosted by MSU in India, along with TERI to kick-off year two.
12. Launched preparations for the HESN Technical Convening.
13. Launched the new GCFSI website.
14. Conducted hub assessment trips to Kenya, Uganda and Malawi.
15. Drafted the RFA for the student innovation grants, completed the selection process and selected nine awardees, as follows:

University	Topic	Alignment
Purdue	Development of an Acquaponics System for use in Developing Countries	MT1, MT2
Purdue	Multifunction Mobile Utility project for Food Security in Sub-Saharan Africa	MT1, MT2
Makerere	Evaluation of Simple Biogas Technologies for Domestic Use in Urban and Peri-Urban Areas of Kampala, Uganda	MT1, MT2
MSU	Design a Carbon Neutral Algae-Based Animal Feed Culture System	MT1, MT2
U of Florida	Sustainable hydroponic gardening to increase fresh food stocks in dense East African urban settings	MT2
Wageningen	Protix, insects for food and feed in Eastern Africa	MT2
Berkeley	Designing Innovative Public Health Solutions – Food Systems Focus	MT3, MT2
MSU	Identification and production of marketable shelf-stable fruit juice products for developing regions	MT2
Wageningen	The ProClimate Model: Bridging Innovation across Generations & Expectations along the Food Chain	MT2

As with previous quarters, each of the teams on the project aligned themselves to the general goals outlined before, and participated in Center related activities such as the white paper development and symposium. In addition, they conducted activities specific to their team, which we narrate separately below.

Megatrend One

The primary objectives of Megatrend One (MT1) were to 1) develop a white paper that identifies current data, methods and knowledge gaps and determines critical research needs that specifically address food production/supplies in priority developing countries, 2) develop a formal problem statements document directly related to the whitepaper generation process, and 3) build a team to accomplish 1 and 2. The products of the 4th Quarter meaningfully advanced these goals. The most significant was the completion

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of the MT 1 Whitepaper: *Messina, J., Adhikari, U., Carroll, J., Chikowo, R., DeVisser, M., Dodge, L., Fan, P., Langley, S., Lin, S., Me-nsope, N., Moore, N., Murray, S., Nawyn, S., Nejadhashemi, A. Olson, J., Smith, A., Snapp, S. 2013. Population Growth, Climate Change and Pressure on the Land. Global Center for Food Systems Innovation – Whitepaper Series. 95 pp.* The vast majority of the work accomplished during the quarter focused on the preparation of this document. The delivery of this whitepaper confirms the completion of the goals. The second most significant activity was the field site visit by members of MT 1 to Malawi to test the significance and generalizability of the gaps in science detailed in the 3rd Quarter and elaborated in the white paper. The trip included meetings with two Principal Secretaries of Government, the Vice-Chancellor of Bunda College of Agriculture, and we presented our work to the USAID sponsored Feed the Future program in Salima. Sieg Snapp and Joe Messina of MT 1 received an award from the Bill & Melinda Gates Foundation, "Perennial grain crops for African smallholder farming systems. The science of this proposal is directly related to the work and gaps discussed in the whitepaper. Two important 4th Quarter external presentations were delivered by team members.

- Woznicki, S.A., A. P. Nejadhashemi , M. Parsinejad, 2013. Crop irrigation and yield uncertainty due to climate change. First International Conference on Global Food Security, September 29 to October 2, Noordwijkerhout, The Netherlands (*poster presentation*).
- Messina, J.P. 2013. Cascading Complexity: models, tsetse, climate change and agriculture. 24 September. Climate System and Human Health Initiative, Yale University, New Haven, CT.

Megatrend Two

The MT2 team developed background papers on food safety, food loss and waste, gender issues in the supply chain, private sector investment in SSA food systems, the nutrition transition in SSA, and urban agriculture. They finalized the spreadsheet –based projection model to support the scenario projections of consumer demand patterns that formed a key pillar of the MT2 white paper. In addition, they synthesized data and conducted analysis on urbanization patterns in SSA and ESA (East and Southern Africa), and synthesized data and conducted analysis on food import patterns in SSA and ESA (East and Southern Africa). This team integrated all this information into the first iteration of the white paper that was finalized by 30 September.

Finally, MT2 collaborated with Modernizing African Food Systems (a consortium between MSU, University of Pretoria, and Makerere University) and with MT3 to prepare a proposal for a special session at the 2014 IFAMA conference on African food system transformation and implications for human skill needs.

Megatrend Three

Along with other teams, MT3 focused extensively on completing their white paper. This team engaged in various calls with USAID and other teams in GCFSI to define their focus, direction and strategy.

They expanded their engagement with USAID by connecting and working with Karen Duca. They broadened their stakeholder engagement by:

- Attending the InnovATE conference in Washington, D.C.
- Meeting with the BHEARD project administration.
- Engaging in discussions with FHI 360 for possible points of collaboration, including the international workshop planned for early 2014.
- Meeting with Andrew Gerard from the Global Knowledge Initiative.
- Leading conversations with MT2 and WUR concerning the IFAMA conference planned for 2014.

Information and Communication Technology for Development

Following the team's field visit in western Kenya and Tanzania in June, the ICT4D team spent most of the fourth quarter on preparation of the ICT4D white paper as well as a companion research paper that examined the barriers to rural farmer use of SMS-based market information systems. The following outcomes were developed during this period:

- The ICT4D white paper draft was completed and presented at the GCFSI Symposium in August, and a revision completed and submitted at the end of September.
- A research paper entitled, "Why Aren't Farmers Using Cell Phones to Access Market Prices? Uncovering Barriers to Market Information Service Adoption in Rural Kenya," was submitted to Association for Computing Machinery, Conference on Human Factors in Computing Systems (CHI '14).

Shamba Shape-Up: Source: www.shambashapeup.com

- Organized an upcoming workshop, "ICT4Ag: Opportunities and Challenges for Using Technology to Reach Rural Farmers in the Developing World." This is accepted as an Open Session, at the International Conference on Information and Communication Technologies and Development (ICTD '13), Cape Town, South Africa. Eliza Oreglia from UC Berkeley and Judith Payne from USAID will join Charles Steinfield and Susan Wyche from GCFSI as workshop presenters.
- Susan Wyche submitted an innovation grant proposal, "Simu Shape Up: Edutainment to Shape Up Cellphone Use among African Rural Farmers, with Laura Murphy of Tulane and David Campbell of the Mediae Company in Kenya in response to the GCFSI first year RFA. This project concept emerged from the team's first year field work.

Data Systems Informatics

The DSI team launched the beta version of USAID WEB-IT site with a fascinating demonstration during the August Symposium. GCFSI students showed the participants the capabilities of the site, operations and described the work to come. In particular, the DSI team completed the following activities:

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Data Management

- Formatted and organized World Development Indicator (WDI) data
- Created and populated a MSSQL database system with complete WDI Indicators
- Continued data collection
- Setup a seamless transfer between the data on MSSQL and the ArcGIS server

GIS Development

- Attended an online advanced ArcGIS for Javascript course through Geospatial Training LLC
- Created and populated an ArcSDE database for feature-access geospatial data with a high degree of scalability for big data applications
- Developed and deployed two ArcGIS template applications for visualizing data
  - Swipe: compares two features over the same geographic area
  - Map Compare: allows up to three features to be shown on separate maps
- Incorporated the WDI 2011 indicators as over 500 selectable maps
- Included social media integration to selected mapping applications
- Deployed an application to allow users to visualize geocoded csv files on the fly

Website Deployment

- Deployed the DSI website for world-wide use
  - Includes custom charting, Tableau, and ArcGIS applications
  - Fully incorporated provided Megatrend descriptions, labels, and data
  - No unexpected downtime or site crashes
- Created an interactive data-agnostic charting system currently displaying the full WDI indicator dataset

Hardware and Software

- Received another Dell PowerEdge R720 servers for a test bed deployment
- Redeployed the servers in the Engineering subnet at Michigan State University
- Purchased and authorized Microsoft's Remote Desktop for off-site development

Team meetings

- Held weekly meetings discussing software development, desired features, and long-term goals
- Continued discussions about data management and site design
- Taught the undergraduate professorial assistants how to create map-based feature classes

Translational Scholars Corps

The TSC team welcomed Ayesha Razzaque as the new manager of the TSC component. She started leading the TSC September 2013, and transitioned from the management conducted successfully by Tom Smith and John Dirkx. Under their leadership, the TSC team completed various tasks:

- Created a TSC Handbook and Policies manual. The objective of this manual is two-fold: (1) it provides a detailed introduction to the TSC by introducing a framework for the operation of the

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TSC and a taxonomy delineating various roles and associated competencies within the TSC; (2) to serve as a reference guide for the TSC students. The handbook is being developed by the TSC as a group and will be vetted by all megatrends upon completion.

- Continued to contribute to the internal and external communication across the center via a listserv email, a Facebook group, the GCFSI website, monthly newsletter, Flickr page, and video interviews of Mega-trend/cross-cutting team leads and students.
- Organized a TSC summer picnic attended by 20 students and faculty.
- Created a PowerPoint that shows how TSC is structured and cuts across the GCFSI.
- Created a series of three posters for the August GCFSI Symposium and developed a luncheon presentation to highlight the role of students in GCFSI.
- Created a poster and MT3 video for the InnovATE Conference.
- Conducted Skype presentations by students from TERI and WUR during weekly TSC meetings.
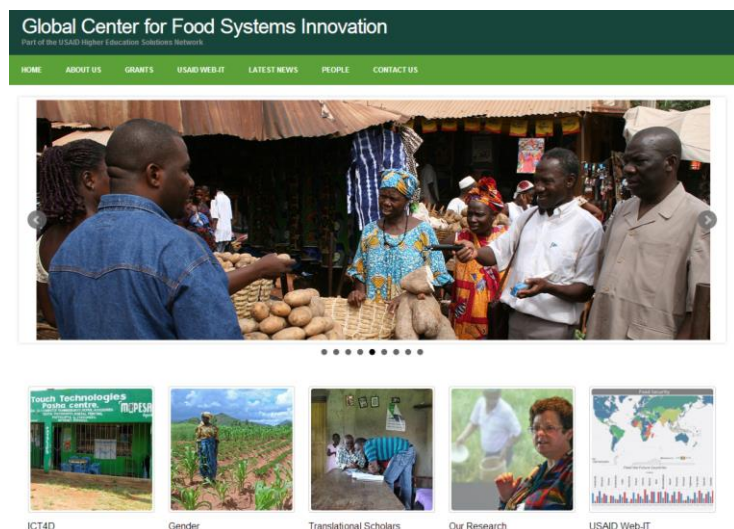
New GCFSI website

Part 3: High Value Areas of Collaboration [HVAC] (Lab-to-Lab)

During the last part of year one, we discussed a strategy to engage our HESN partners directly. We are planning to define specific team members in GCFSI to spearhead the collaboration with each of the labs. In preparation for the GCFSI Technical Convening, we are also identifying specific students who will lead the connections with students from each partner.

Specific teams worked with various HESN partners. As mentioned above, the ICT4D team worked with the UC Berkeley HESN lab to plan and submit a new workshop proposal, "M-Agriculture: Opportunities and Challenges for Using Technology to Reach Rural Farmers in the Developing World," submitted to Association for Computing Machinery, Conference on Human Factors in Computing Systems (CHI '14). The co-authors include Susan Wyche and Charles Steinfield from GCFSI, along with Tapin Parikh and Elisa Oreglia from UC Berkeley.

Finally, as will be detailed in the next section, Pouyan Nejadhashemi and Charles McKeown participated in the HESN Data Working Group (DWG) on behalf of MSU, which is comprised of representatives of HESN Development Labs and USAID staff.

3.1. Data

DSI team members attended the first monthly DWG meeting. The group discussed the purpose of the DWG, and agreed to jointly to develop recommendations and provide guidance to the members and partners of the HESN on the collection, sharing, and analysis of data to improve USAID's ability to leverage the work of the Network and to maximize collective impact on international development. To improve coordination and collaboration between USAID and HESN partners on data-related issues, DWG will help develop recommendations and provide support for:

- Improving the collection, management, and sharing of data, including new opportunities for real-time monitoring.
- Making data more open, including improving partner access to Agency data and Agency use and application of data generated by partners.
- Improving data analysis capabilities for USAID and the Network.
- Increasing opportunities for USAID to apply HESN-generated and other data to strategic and programmatic decision making.

3.2. Solutions (Creation, Testing, Scaling)

GCFSI engaged HESN partners in the area of solution creation via the Student Innovation Grants mentioned in section 2.2 above. In the first quarter of year two, we will complete the process to award grants to UC Berkeley (Designing Innovative Public Health Solutions – Food Systems Focus) and Makerere (Evaluation of Simple Biogas Technologies for Domestic Use in Urban and Peri-Urban Areas of Kampala, Uganda).

3.3 Student Engagement

See above concerning HSN partner student innovation grants.

Partner	Completed / Ongoing Activity [Indicate tie to activity number]	Outcome(s)
Makerere	IR2.2In4 – Student Innovation Grants	Awarded
UC Berkeley	IR2.2In4 – Student Innovation Grants	Awarded

3.4. Co-Location of Resources

GCFSI Directors conducted various visits to African universities to determine their suitability and interest to become a GCFSI hub. Among these, the team visited Makerere University and discussed future collaboration that will be expanded during the Technical Convening.

Partner	Completed / Ongoing Activity [Indicate tie to activity number]	Location (City and Country)	Outcome(s)
Makerere	IR3.4in2 / IR3.4in3	Kampala, Uganda	More discussion needed

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Part 4: Intra-Development Lab/ University Engagement

4.1. Interdisciplinary Collaboration

Internally, the GCFSI team worked hard this year to jell a varied group of different personalities, expertise, nationalities, languages and interests. Connected via numerous events and ongoing meetings, the GCFSI team worked this year to define strategies together, solve process problems and to address the normal growing pains of a new institution. In the end, we came together in the symposium held in August which activity served as a great place for all team members to share research and discuss results and strategies moving forward.

We have been working extensively with MSU Global and the college of Communication Arts and Sciences to develop a knowledge sharing platform that will allow for broad connections to the GCFSI and will create an environment in which the complex and interlinked nature of our work can be understood. In this regard, the DSI infrastructure and the knowledge sharing platform will create an across the board communication and data dissemination environment for researchers and practitioners. We plan to begin integration and development next quarter.

MT1 engaged many faculty and students who had not worked together before. Five colleges and nine distinct units are represented among the group in MT1. During the fourth quarter and through year one, students and interns working for MT1 remained active in the TSC. Finally, the population sub-theme actively participates with the ICT4D group.

MT2 drew directly from four departments across campus to develop the white paper and related material: Food Science and Human Nutrition (FSHN); Packaging; Community Sustainability; and Agricultural, Food, and Resource Economics (AFRE). They also interacted extensively with Telecommunications on ICT4D. Beyond campus, they defined topics of work for individuals from Food Science and Agricultural Economics at SUA , though this work in the end was not realized.

MT3 actively participated in various conferences, workshops and sessions that brought together many people from various units and also outside of MSU.

Presentations at conferences and workshops:

- Dirkx, J. M. (2013). All roads lead through the self: The individual and the collective in transformative learning, Presented at the 7th Conference of the European Society for Research in Education of Adults, Humboldt University, Berlin, Germany: Sept 4-7.

- Dirkx, J. M. Re-imagining adult education: The role of emotion-laden experiences. A keynote address for the Western Region of Research on Education of Adults, University of Seattle, Seattle, WA: Oct. 4.

- Dirkx, J. M. Experiential education at MSU: A panel presentation for MSUglobal "Igniting the flame." Michigan State University, East Lansing, MI: Sept 25.
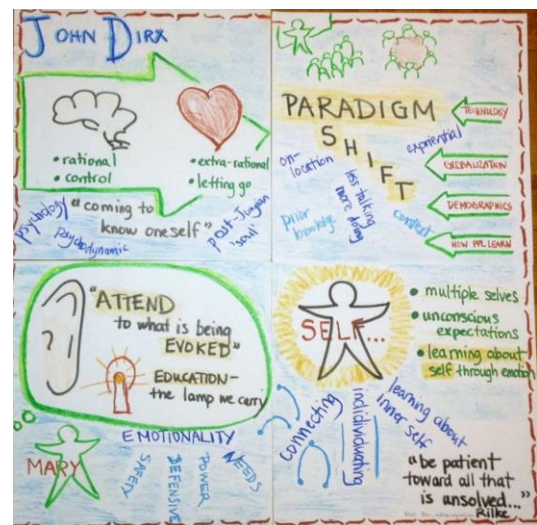
- Dirkx, J.M., Smith, T.M. (2013). MT 3 report to the GCFSI symposium, Michigan State University, East Lansing, MI: Aug 22-23.

Conferences attended by team members – Both MT3 and TSC:

- Youth Economic Opportunities Conference, Washington, DC: Sept. 10-12.

- International symposium on Building Capacity for Agricultural Training and Education in Developing Countries, George Mason University, Fairfax, VA, Sept 18-20.

- MSU Center for Gender in Global Context Colloquia Series: Understanding the Persistent Under-Investment in Girls' Education in India, Asking Newer Questions, and Searching for More Solutions, Michigan State University, East Lansing, MI: Sept. 20

Webinars/online discussions attended – Both MT3 and TSC:

- Office of Community College Research and Leadership - Scaling Transformative Change: July 18.
- AgriLinks Webinar - Scaling Agricultural Technologies: Bringing Research to Farmers and the Market: July 24.
- Association of Public and Land-Grant Universities (APLU)- Attracting & Retaining Women in long-term training: September 12.

Picture and Drawing by Student Mali Bain from University of British Columbia in Vancouver

- Engineers Without Borders Canada and Microlinks USAID - Building Blocks of Learning Organizations, Enabling Flexible, Adaptive Development Programming: September 17.

Proposals submitted – Both MT3 and TSC:

- Multi-Sector Collaboration for Capacity Building in Developing Countries: A Context for Theorizing Transformative Learning at a Systems Level (L. Hill, J. Bonnell, J. Dirkx, and T. Smith), Submitted to the 55th Annual Adult Education Research Conference, Harrisburg, PA: Penn State, June 5-7, 2014.

- Illuminating the Tension Between the Personal and the Social in Workforce Development: A Critical Review of Entrepreneurial Training in Developing Countries, (S. Boyers, J. Dirkx, and T. Smith), Submitted to the 55th Annual Adult Education Research Conference, Harrisburg, PA: Penn State, June 5-7, 2014.

- Translational Scholar Corps: An Innovative Curricular Model for Professional Preparation and Continuing Professional Development (B. Corbin, E. Doyle, M. Flanders, S. A. Hussain, J. Dirkx, and T. Smith), Submitted to 2014 AHRD International Conference in the Americas, Huston, TX: Feb 19-24. Manuscript accepted.

- Multi-Sector Collaboration: An Innovative Approach to Capacity Building and Workforce Development in Countries with Emerging Economies (L. Hill, J. Bonnell, J. Dirkx, and T. Smith), Submitted to 2014 AHRD International Conference in the Americas, Huston, TX: Feb 19-24. Manuscript accepted.

The ICT4D team also worked hard to engage others during this year. In particular, during the last part of the project year they performed the following activities:

- Susan Wyche met with John Dirkx to discuss how to evaluate learning to prepare assessment strategies related to the potential use of edutainment approaches for improving rural farmer use of mobile phones for agricultural information.
- Charles Steinfield and Sustan Wyche of the ICT4D team also met with Maria Porter from Agriculture, Food, and Resource Economics (AFRE) department (and also a MT2 participant) to understand economic approaches to women's empowerment.
- ICT4D team members met with Nathalie Me-Nsope and attend the Gender team's meetings to insure our team's work incorporates a gender perspective.
- Jennifer Olson from the MT1 team attends ICT4D team meetings to help integrate ICTs into potential solutions to climate change and population growth problems identified by MT1.
- Susan Wyche and Charles Steinfield continue to interact directly with Dave Tschirley of the MT2 team to insure harmonization of our work.
- Syed Ali Hussain, communication student, also supported the student efforts in the TSC, bringing ICT4D perspective to the students across all teams. Charles Steinfield presented the findings from their field work in Kenya at a TSC meeting.

Finally, DSI worked extensively with the megatrend teams to establish datasets for analysis and to build understanding of trends. In this regard, they worked closely with MT3 leaders to provide required information for development of the work plan and presentations on several occasions.

4.2. Partner Engagement

GCFSI has been growing in numbers and in connections to our consortium and internal team. During year one, we actively engaged Wageningen University who delivered excellent monthly student engagement reports, lists of stakeholders engagements and contributed significantly to the MT2 research and white paper. Domenico Dentoni was very effective in keeping in touch with the team, participating in conference calls, the IFAMA conference in 2013 and coming to MSU for the launch event.

The Energy Resources Institute of India (TERI) was also well connected to GCFSI, with Dr. Nutan Kaushik leading a team of excellent researchers, who participated in the launch event in March 2013, and called

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into the GCFSI and the student meetings on a regular basis. The ICT4D team engaged with TERI to identify work being done there in the area of ICTs in Agriculture in the India region. Through Nutan Kaushik, GCFSI connected with work by TERI researchers including Dr. Pradeep Dahiya, who have developed on an ICT-enabled farmer information sharing system aimed at helping farmers cope with climate change. We were also put into contact with Dr. P.D. Kaushik, a fellow at RGCIS who has completed reviews of ICT for development work in the South Asian Association for Regional Cooperation region. He attended and contributed commentary at the GCFSI Symposium in August.

On the other hand, the engagement with SUA was not as effective. While we were able to connect one on one with a few researchers we were not able to engage SUA significantly after their trip to the launch event. We tried to connect with SUA administration via trips done by the GCFSI directors in March, the MT3 and ICT4D teams trips, and via our former Dean Jeff Riedinger's frequent trips to Tanzania. Regardless of these efforts, the SUA administration was not responsive to our request for contracting documents, and we were not able to effectively work with SUA as an institution. We did manage to work with a few researchers directly, such as Dr.
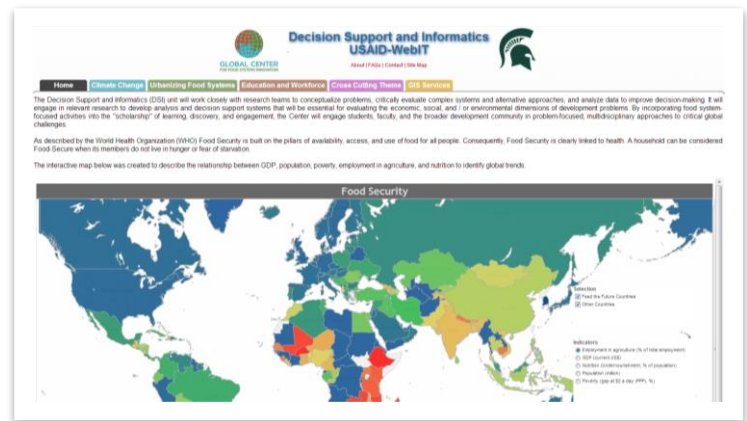
DSI USAID WebIT

Camilius Sanga, who worked with ICT4D to continue learning more about their efforts to design mobile services to help augment the work of agricultural extension officers in Tanzania, as well as to develop participatory farmer radio programs. Through our interactions, SUA researchers submitted responses to the first year RFA process by the GCFSI.

In similar fashion, we had a few complications engaging Lincoln University, who did not seem to align with the needs of GCFSI. However, after some negotiation, we were able to contract with them towards the end of year one, to have them conduct research in the West Africa context.

A relationship with CRDF Global was not feasible in 2013. We did not receive a service offer that aligned with GCFSI needs. However, with some negotiation, we were able to come to agreements that will allow us to engage them in year two. Also, we met with QED in Washington in mid-2013, and discussed our potential work with them. We discovered that they would be most efficient helping us build the connection to AgriLinks. We will develop this in year two.

Outside of our proposed consortium, we engaged Dr. Joseph Maitima from EcoDym Africa (Nairobi), who became a MT1 partner in the white paper development and review process. MT1 also initiated contacts with Dr. Barry Haack (SERVIR (East Africa)), Dr. Pariwate Varnakovida (Bangkok, Thailand), and Dr. Jim Jones (AgMIP) as potential future collaborators and reviewers. They also added Dr. Tanita Suepa (Thailand) an expert on agricultural remote sensing of South East Asia to the team.

MT2 engaged with colleagues from University of Pretoria, partners with MSU contributing to the chapter in the white paper on the nutrition transition.

MT3 worked with the University of Rwanda (formerly the National University of Rwanda) Faculty of Agriculture to develop a partnership and build network for the future work of MT3/GCFSI in East Africa. We are looking forward to working with them on faculty engagement, gender in the classroom and pedagogy of experiential learning, as well as workshops that focused on grant funding of research for agriculture.

Partner	Partner Type (Funded/ Unfunded)	Location (City and Country)	Outcome(s)
WUR	Funded	Netherlands	Positive
SUA	Unfunded (as an institution)	Tanzania	Negative
LIN	Funded	Pennsylvania	Positive
TERI	Funded	India	Positive
QED	Unfunded	Washington, DC	Positive for Y2
CRDF Global	Unfunded (partial small payment)	Washington, DC	Positive for Y2

4.3. Student Engagement

In the fourth Quarter, MT1 had three post-doctoral researchers, five doctoral students, one MA student, two interns, and one undergraduate. All had active roles in the production of the white paper and variously through literature reviews, data collection, and analysis.

MT2 worked with student Stephanie White, Chris Wilson and intern Christina O'Sullivan, through the year. All were actively engaged in literature reviews and other work contributing to the white paper.

Undergraduate and graduate students were also embedded in the MT3 team throughout the year. These students have a very active and empowering role in the MT3 team as researchers and thought leaders. They are active members of the 'solutions teams' and contributed to researching and writing the white paper. MT3 also explored student collaboration and engagement opportunities with students funded through BHEARD and MasterCard Foundation.

TSC student Dominic Nangea, an undergraduate studying Agribusiness, worked this year as an ICT4D intern, and traveled to Kenya and Tanzania with the team, providing excellent support and research services. After accompanying Professors Steinfield and Wyche in June for field work, Dominic continued to work with the ICT4D team, helping to collect information on ICT in Agriculture projects around the world.

In addition, the ICT4D team added 4 new students to the team in August, including:

- Tian Cai – a new PhD student in Telecommunication, Information Studies and Media
- Linlin Liang – a master's student in Telecommunication, Information Studies and Media interested in ICT4D

- Daniel Ninsiima – a BHEARD fellowship winner and master's student in Telecommunication, Information Studies and Media.

The students are all participating with the TSC meetings, and connecting with students working with other teams in the GCFSI. Tian Cai and Linlin Liang also attend meetings held by the Gender team.

Finally, the DSI team worked with an intern from TERI University to collect relevant geospatial data for Asia. He provided a series of online visualizations for various food security issues. Through the year, three MSU graduate students supported the work of the DSI unit working in several capacities including data collection, visualization, and programming.

The newly formed Gender team engaged student Danielle Ami-Narh and formed a working group that included students and faculty from across GCFSI.

4.4. Student Highlights

The MT1 team actively engaged student collaborators. This is highlighted by their co-author credit on the primary deliverable of the 4th Quarter – the white paper. Students and post-docs are bolded in the reference: Messina, J., **Adhikari, U., Carroll, J., Chikowo, R., DeVisser, M., Dodge, L.,** Fan, P., **Langley, S., Lin, S., Me-nsope, N.,** Moore, N., **Murray, S.,** Nawyn, S., Nejadhashemi, A. Olson, J., **Smith, A.,** Snapp, S. 2013. Population Growth, Climate Change and Pressure on the Land. Global Center for Food Systems Innovation – White paper Series. 95 pp.

Six students made major contributions to the MT2 white paper: One PhD student from AFRE was instrumental in working with the MT2 leader to complete the spreadsheet-based projection model that was used a central pillar of the white paper; another AFRE PhD student assembled data and conducted analysis on urbanization and on food imports, which entered directly into the white paper; an M.S. student from AFRE assisted in the urbanization work; and one intern from Packaging (with one student assisting her) conducted a major review of the literature on food loss and waste, which was condensed into a box in the white paper. A sixth student, a PhD student in Community Sustainability, wrote a literature review on urban agriculture that will be incorporated into the final, February 2014 version of the white paper.

Daniel Ninsiima has been working on a web and SMS system in Uganda called L3Farmer that lets farmers send text questions in their native language to a central database. Extension agents can see questions directed to them through a web form, and can respond via the web, which automatically sends the text response to the farmer.

Syed Ali Hussain is developing an approach to improve farmer training via interactive video, which could be viewed on handheld devices. Interactive video offers some improvements over traditional linear video in that different information can be presented based on the choices that the farmer makes as he or she views the material and responds to stimuli (e.g. questions). He plans to present his ideas at the HESN Technical Convening.

Tian Cai has also been studying use of videos for field-based training and will present her research findings at the HESN Technical Convening. She and Linlin Liang are also gathering literature to support our year 2 assessment in Cambodia.

Dominic Nangea is reviewing ICT for Agriculture projects around the world, contributing information to an evolving online database of projects.

Pouyan Nejadhashemi and three graduate students (Georgina Sanchez, Dennis Ross, and Ronald Nussbaum) from MSU presented the USAID-WebIT website at the First Food Systems Innovation Symposium at MSU. They talked about how DSI can help academics, USAID, policy makers and other key development stakeholders with reliable information to make informed decisions. The DSI involves creation of a dynamic and interactive platform in which different hypotheses can be tested. Visualizations are shown spatially, graphically and can be filtered based on Feed the Future (FtF) and non-FtF countries, time-slice and Indicators. Data is drawn from different sources such as the World Bank, the United Nations, USAID, academia, and others to provide a robust information platform that includes tabular as well as geo-spatial data. Capabilities in DSI include GIS, data mining, advanced vector and raster analysis, integration and custom tool development. This will result in improving integrative and analytical capacities at several levels to support decision-making by researchers, practitioners and institutional stakeholders (http://dsiweb.cse.msu.edu/).

4.5. Private Sector Engagement

Led by MSU's corporate relation team, in project year one Rolf Dietrich and his group focused on disseminating information about GCFSI to various private sector groups. In particular:

- **Land O'Lakes:** In-person conversations have been held with three Vice Presidents at Land O'Lakes about MSU's activities in international development, cross-cultural education and workforce enhancements. All are interested in finding new ways to tie these to our foundational relationships in agricultural and food production, business management, and public policy issues. Visits with faculty active and interested in GCFSI, as well as faculty and staff involved with MasterCard Foundation Scholars are being planned for the coming months.
- **BASF Shanghai:** We introduced the GCFSI concept to BASF Singapore/Shanghai by electronic communications and we are meeting with the Packaging/Food Safety team in Shanghai on July 19th and were requested to provide an overview with regard to the three trends (outline the problem statements) and we will share engagement opportunities for this global agricultural and food conglomerate. Call report will follow after the meeting.
- **Visit to IFAMA:** Multiple new corporate contacts were made at the recent annual IFAMA conference in Atlanta, with nearly universal interest in how MSU can help companies expand and strengthen their global business. VP-level or higher conversations were begun or advanced with Land O'Lakes, Coca-Cola, Syngenta, Tyson Foods, McDonald's and Novus International. Some of these talks involved GCFSI partners from Wageningen in addition to MSU.

- **Coca-Cola Company:** MSU has a strong relationship with the company in several areas including international studies, packaging and HR, but we have recently made efforts to engage the company in the field of sustainable agriculture. Ernesto Brovelli leads this area for Coca-Cola and also serves as the current President of the Sustainable Agriculture Initiative ("SAI"), a multi-stakeholder industry group celebrating its 11th year. Dr. Brovelli is very interested in continuing the conversations with MSU and Wageningen about multiple elements of GCFSI.
- **Novus International:** Thad Simons has been CEO of Novus since 2001 and is the current President of IFAMA. He has longstanding relationships with several MSU faculty and would like to know more about GCFSI and consider how Novus can participate. The animal feed and production company has customers in 90 countries.
- **World Food Prize Event 2014:** GCFSI completed the final details and invitees for a corporate engagement event at the World Food Prize in Des Moines on the morning of Wednesday, October 16th.

Part 5: USAID Engagement and Travel

5.1. USAID/Washington Interactions

Through year one, GCFSI interacted significantly with Ken Scheffler and Susan Owens, who have helped to shape the GCFSI. We also worked with Ticora Jones and Alex Dehgan, both of whom participated in the GCFSI launch event in March 2013. Ticora Jones also participated via teleconference in the August 2013 symposium, which included visits from Susan Owens, Ken Scheffler, Clare Ignatowski and Dr. Ngugi.

In the course of meetings in Washington DC to begin developing the workplan for MSU's Food Security Policy Innovation Lab (funding by BFS to the Food Security Group of AFRE), the MT2 leader interacted with BFS and OST personnel regarding the possibility of collaboration between FSP and GCFSI in an anticipated foresighting conference on food security. This conference and related activities are to be funded under FSP, but the strong synergies between these topics and the work being done under GCFSI and MAFS, meant that collaboration across labs makes sense. The MT2 leader then helped organize a conference call with participation of personnel from BFS (including Susan Owens), OST, and FSG.

Clara Cohen, Susan Owens and Ken Scheffler participated in various megatrend meetings. MT3 directly interfaced with Clara Cohen and Susan Owens at the InnovATE Conference, and they met with Ticora Jones, Ken Scheffler, Susan Owens, and on September 19, 2013 in Washington, DC. Karen Duca joined the MT3 team as a regular participant. Student Sandra Boyers actively engaged with Genevieve Croft in helping with the HESN TechCon. Finally, the Gender team worked extensively with Krista Isaac and the ICT4D team worked with Judy Payne.

5.2. USAID Mission Interactions

We engaged the USAID Missions in India, Tanzania, Kenya, Cambodia, Uganda and Malawi during project year one.

In particular, during the fourth quarter, during the white paper review trip to Malawi, the MT1 team met with the USAID mission in Malawi to discuss the establishment of a local hub and to assess Mission interest in our research and development directions.

5.3. Travel

Travel during the fourth quarter:

Location (City and Country)	Number of Travelers	Partner(s) Engaged (If applicable)	USAID Engagement (If applicable)	Outcome(s) & Next Steps
Malawi	7	LUANAR, Government of Malawi	Malawi USAID Mission	Testing of the white paper concluded
Washington, DC - Youth Economic Opportunity Conference	2	N/A	Clare Ignatowski	
Fairfax, VA - International symposium on Building Capacity for Agricultural Training and Education in Developing Countries	3	N/A	Clara Cohen & Susan Owens	Collaboration with InnovATE
Noordwijkerhout, The Netherlands	6	TERI	N/A	Three students present at the First International Conference on Global Food Security
East Lansing, USA	1	TERI		One summer intern student from TERI attended the Food Systems Innovation Symposium at MSU and presented his work
San Jose, USA	1			One student from DSI unit attended the Computing for Geospatial Research and Application. Conference. She presented a poster tittle: "Evaluating a Socio-Ecological Indicator-Based System for Decision-Making Support in Watershed Management."

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Complete list of year one travel

Trip	Dates of Travel
HESN Announcement, Washington DC Meeting	November 6-11, 2012
Lincoln University	February 12-14, 2013
Hub analysis - GCFSI Director Tanzania	March 2-6, 2013
Launch Event, MSU	March 15, 2013
MT3, Tanzania	May 5-15, 2013
Chicago Council Global Food Security Symposium, DC	May 20-25, 2013
ICT4D, Kenya and Tanzania	June 5-21, 2013
IFAMA, Atlanta	June 14-21, 2013
Esri Conference, California	July 7-13, 2013
Com Geo conference, California	July 20-24, 2013
MT1, White Paper and Hub, Malawi	July 22-August 3, 2013
Agricultural and Applied Economics Association (AAEA) conference DC	August 2-7, 2013
Symposium, MSU	August 22, 23, 2013
Canada, Stakeholder Development GCFSI Director	September 3-6, 2013
Youth Economic Opportunities Conference, DC	September 10-12, 2013
Innovate, Washington, DC	September 17-20, 2013
Uganda, Kenya - Hub Analysis	September 21-29, 2013
Netherlands, International Conference Food Security	September 29-October 3, 2013

Part 6: Monitoring & Evaluation

6.1. Progress Narrative

We are on track with our M&E progress. With the M&E plan being approved late in year one, and the project truly launching in March of 2013, we did not have a lot to report in terms of some indicators. However, we exceeded in others. In October we received the official notice of a Bill and Melinda Gates

Foundation grant for CGFSI members Sieg Snapp and Joe Messina worth $1.5m, and while the proposal work was done in year one and the award was done in year one, we are reporting a zero for Gin1 Total value of outside (non-USAID) resources utilized to the dollar value of USAID investments, since the contract and disbursements will occur in year two. We produced 9 papers, assessment or analysis documents, with a target of 5 for year one (IR2.2in1), and we also had 2641 visitors to knowledge sharing platforms created by GCFSI (IR3.2in1 – target was 300). We had 51 students participating in practica (with a goal of 45 IR3.4in1), and 131 participants in crowd-sourcing or other open challenges created with human, financial, or institutional resources contributed by GCFSI (IR3.4in4 – target was 30).

6.2. Monitoring & Evaluation Issues

None to report.

6.3. Update on Performance Indicators

None to report.

Part 7: Lessons Learned / Good Practices

1. Cross-disciplinary work takes major up-front investments in learning each other's language and conceptual approach and regular iteration of ideas to result in new and richer insights that draw on the best of both disciplines. This process was begun in a serious way during MT2 white paper preparation, delivered important initial outputs, and will be strengthened and enriched during Year 2. The work on food loss and waste and on the nutrition transition would not have been possible without cross-disciplinary collaboration. Interactions among MT2 members from Community Sustainability and AFRE were extensive and perhaps more related to fundamental approaches in MT2. The fundamental nature of these interactions meant that they required more time to fully mature than was available prior to end-September. Such interaction will be a central feature of MT2 work during 1st quarter Year 2 and beyond.
2. Students are invaluable participants in data assembly, data analysis, and writing. The white papers would not have been possible without intensive and highly interactive work by the GCFSI students.
3. The primary activity in which we were engaged in the fourth quarter was the analysis our of field work in Kenya, the preparation of the year 1 ICT4D White Paper, and the preparation of publication detailing our findings about the challenges farmers face in using mobile phone-based market information systems. A key lesson learned is that development workers cannot assume that just because farmers now own mobile phones, that these phones can be used for provision of advisory and market information to farmers. We identified many barriers that impede successful application of mobile phones to improve the work of smallholder farmers, including problems due to difficulties using the phone's features, lack of enough pre-paid credit on phones, difficulties keeping the phone's battery charged, poor condition of the phone's keys or screen that limit the utility of text-based services, language and literacy problems, and an overall lack of awareness of available services. Some of these barriers can be addressed by improved service design, while others require a much more proactive strategy to educate farmers into basic phone functions and service features by development practitioners.

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Part 8: Appendix

Wyche, S., & Steinfield, C. (2013). Why Aren't Farmers Using Cell Phones to Access Market Prices?: Uncovering Barriers to Market Information. GCFSI working paper, Michigan State University, East Lansing, MI.

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