



FEED THE FUTURE

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



Innovation Lab for Nutrition- Asia Johns Hopkins University Annual Report October 1st, 2014- September 30th, 2015

**Lessons learned from programs
in Nepal that integrate
agriculture and nutrition actions**

**Award
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**Feed the Future Innovation Lab
for Nutrition-Asia**

U.S. Government Partners



Partners in Nepal



Friedman School of Nutrition Science and Policy



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CORE & RFA Activities: Nutrition Innovation Lab-Asia
Johns Hopkins University Bloomberg School of Public Health (JHSPH)
Annual Report
Year 5 (2014-2015)

Principal Investigator: Dr. Keith West

Co-Principal Investigators: Dr. Rolf Klemm, Ramesh Adhikari & Devendra Gauchan

Co- Investigators: Swetha Manohar, Sudeep Shrestha, Ruchita Rajbhandary & Raman Shrestha

JHSPH Technical Advisory Committee Members: Dr. Rolf Klemm & Dr. Keith West

List of Countries in which JHSPH operates: Nepal

Program/In-Country Partners in Nepal:

- 1) Nepali Technical Assistance Group (NTAG)
- 2) New ERA Pvt. Ltd.
- 3) Nepal Agriculture Research Council (NARC)
- 4) Community Medicine and Public Health Department, Institute of Medicine (IOM)
- 5) Helen Keller International (HKI)
- 6) Nepal Nutrition Intervention Project-Sarlahi (NNIPS)
- 7) Child Health Division, Department of Health Services, Ministry of Health and Population (MoHP)

Overall Objective:

To conduct and promote, nationally, research to reveal social, economic and nutrition-sensitive intervention pathways by which agriculture can lead to improved food security and nutrition in rural Nepal.

I) Program Activities and Highlights: 2014-2015

Fiscal Year 2014-2015 ended having completed: (1) a third partial-panel survey in the aftermath of the earthquake (7.8 in magnitude) that hit Nepal on April 25, 2015; (2) the second round of seasonal data collection in sentinel sites in the mountains, hills and Terai; (3) conducting data analysis and compiling findings from surveys carried out to date; and (4) a third annual scientific symposium linking agriculture to nutrition.

II) Key Accomplishments

- Trained 90+ data collectors, quality control and research assistant staff to conduct the third annual panel survey in nine districts, between March and June 2015. The extended training period and limited sample was due to the earthquake that struck Nepal during the training sessions.
- Completed data collection for the third annual panel assessment in nine districts (approximately 3,600 households interviewed), June-August 2015.
- Completed data entry for the third annual panel survey. Analytic datasets creation (underway) to be shared among co-investigators for data analysis between October-November 2015.
- Completed data collection for the two rounds of seasonal sentinel site assessments in three districts in September-October 2014 and January-February 2014 (approximately 580 and 485 households in sentinel seasonal Round 3 and Round 4, respectively).
- Completed data cleaning and entry of the data collected from the two rounds of seasonal sentinel site assessments. Seasonal Round 3: November-December 2014; Seasonal Round 4: March-April 2015.
- Conducted extensive analysis of data from the first (2013) and second (2014) panel surveys and are in the process of drafting manuscripts on:
 - Patterns of wasting, stunting and overweight among children and women in rural Nepal
 - Risk factors for prevalent and incident stunting in children under five years of age
 - Risk factor for prevalent and incident wasting in children under five years of age
 - Influences of home food production, SES and market prices on dietary intakes of women and children
 - Linkages between antenatal and postnatal care, maternal health knowledge and dietary behavior among women
 - The cost of improving household diets in Nepal (Using the Cost of the Diet method to model lowest-cost dietary changes)
 - Agriculture-to-nutrition: design and implementation of a multiyear national surveillance system in rural Nepal

- Served as member of the Emergency Nutrition Cluster, providing assessment, data management and analyses support following the earthquake, in April-June 2015.
- Provided technical input for the development of national-level policies and strategies supporting maternal and child nutrition and delivered guest lectures at national academic institutions.
- Conceived, organized and successfully executed the 3rd annual Scientific Symposium in November 2014, which was attended by 300 participants, including representatives and scientists from government, international agencies, INGOs, NGOs, universities across Nepal, and 55 Nepali graduate students. The Symposium included a half-day student session on Day 3. The Symposium is the largest annual scientific meeting in Nepal.

III) Research Program Overview and Structure: PoSHAN Community Studies

Improvements in agriculture can potentially enhance food security, adequacy of dietary intake, nutritional status and health. Yet, limited empirical evidence exists on the kinds of actions in agriculture that support nutrition and health for poor populations. There is a need to better understand, measure and define causal pathways leading from agriculture to nutrition among vulnerable groups. Modifiable components require testing in order to reduce food insecurity and undernutrition and guide programs and policies that can improve nutrition through agriculture. The PoSHAN Community Studies' goal is to assess and monitor household food security, dietary intake and nutritional status of preschool-aged children and their mothers and examine the extent to which they vary by concurrent and prospectively collected indicators of agricultural production, diversity, local market food prices, and participation in agricultural and microeconomic extension, nutrition and health programs in the three agro-ecological zones of Nepal.

The PoSHAN Community Studies was conceptualized, designed and implemented by JHU and co-Principal Investigators (Co-PIs) from NARC and IOM, in collaboration with Tufts investigators. This national survey has been fielded and data entered each year by New ERA Pvt. Ltd and the seasonal assessment has been conducted by NTAG. Data entry, archiving, QC, management and analysis is overseen or conducted by JHU.

Collaborators: New ERA Pvt. Ltd, NTAG, NNIPS, IOM, NARC, Government of Nepal (Child Health Division, Department of Health Services); all partners are from Nepal.

Achievements on proposed and actual activities based on Year 5 Work Plans and Lessons Learned

Section I: Research Activities

Objective 1. Disseminate research findings from PoSHAN Community Studies to USAID-DC and other stakeholders in Washington, DC.	
PROPOSED	ACTUAL
<ul style="list-style-type: none"> • Work in collaboration with Tufts University to organize and host, a dissemination event in Washington, DC to disseminate the PoSHAN 	<ul style="list-style-type: none"> • Analyses conducted on risk factors for undernutrition in children under five and market price influences on dietary intake among women, and presented at a Nutrition Innovation Lab dissemination event at USAID/W on September 30, 2015.
Lessons Learned	
<ul style="list-style-type: none"> • There is a high demand for data generated from the PoSHAN Study and the presentations were well-received across a wide range of stakeholders. • An interdisciplinary approach has been useful when conducting analyses across the ag-nutrition continuum using a mixture of economic, dietary and biological data. 	
Solutions/Resolutions	
<ul style="list-style-type: none"> • Continue to enhance the analytic and writing teams (in-country and in the US) to accelerate completion of analyses and publications in peer-reviewed scientific journals. 	

Objective 2. Participate in the Nutrition Innovation Board of Directors (BOD) meetings	
PROPOSED	ACTUAL
<ul style="list-style-type: none"> • Participate in the annual BOD meeting 	<ul style="list-style-type: none"> • BOD was not scheduled for this past fiscal year
Lessons Learned	
<ul style="list-style-type: none"> • N/A 	
Solutions/ Resolutions	
<ul style="list-style-type: none"> • N/A 	

Objective 3. Continue to identify new research questions that might be addressed using the Nutrition Innovation Lab surveillance site infrastructure, and define, prioritize and identify research questions for analysis and publication with other collaborating partners and the Management Entity (ME) of the Nutrition Innovation Lab

PROPOSED	ACTUAL
<ul style="list-style-type: none"> • Participate in and prepare for an analysis retreat to be held with Tufts University and other collaborating partners. • Organize quarterly analysis meetings with local PIs and Baltimore PIs to review progress on analyses. • Prepare 1-2 research protocols for follow-on studies to be conducted in collaboration with the PoSHAN community studies sites. 	<ul style="list-style-type: none"> • Co-organized analyses meeting held on November 21, 2015 in Nepal with Tufts, Purdue and in-country Nutrition Innovation Lab analyst team. • Participated in Proceedings of the National Academy of Sciences (PNAS) supplement planning meeting on June 5, 2015. • Organized analyses meeting at JHU with Tufts on August 28, 2015. • Participated in several conference calls with multiple partners to work towards joint analyses on PoSHAN data—on March 28, April 8, September 22, 2015. • Not accomplished on a quarterly basis due to scheduling issues. • Borlaug fellow and JHU PhD student Elena Broaddus developed a research protocol with the plan of implementing this substudy during the 2015-2016 fiscal year, to examine effects of gardens/small animal husbandry on children’s diets, and determine roles of geographic area, season, market access and prices as well as mediators (income, maternal empowerment/decision-making) on associations of gardens/small animal husbandry with children’s diets.

Lessons Learned

- Establishing and continually building in-country capacity to conduct data analyses is critical to achieve the Nutrition Innovation Lab’s commitments and allows for timely interactions about findings within and outside of PoSHAN. This year, the JHU team had two long-term staff trained in advanced statistical methods, one of whom earned an MPH at JHU, but who left the team to take up other opportunities.
- The Community Studies has a wide range of aims requiring complex cross-sectional and longitudinal data to be generated, mixed analytic methods, and a trans-disciplinary team to take full advantage of this rich and informative database.

Solutions/Resolutions

- While maintaining rigor in field operations, JHU hired two new in-country data analysts, with econometric and population data analysis skills, in March 2015. A recent graduate from JHU's MHSPH program, and a previous intern with the Nutrition Innovation Lab in Nepal, was hired to work on risk factor analyses. JHU has also begun negotiating with a biostatistician in international health to work with the team, pending available funding and the statistician's availability. JHU investigators have also increased effort and attention to completing planned papers.

Objective 4. Conduct data collection in identified sentinel sites to provide seasonal and detailed information about agriculture-program-household dynamics that may affect diet and nutritional status of families.

PROPOSED	ACTUAL
<ul style="list-style-type: none">• Initiate and complete data cleaning, checking and entry process for sentinel Round 3• Conduct one round of seasonal data collection in selected surveillance sites.• Initiate and complete data cleaning, checking and entry process for sentinel Round 4• Conduct analysis for data collected during seasonal assessments conducted in August 2013–February 2015.• Conduct qualitative study on determining reasons for program participation and uptake.	<ul style="list-style-type: none">• Completed in October 2014 and released to the research team• Completed sentinel seasonal Round 4 between January–February 2015 in the three seasonal sites.• Completed in June 2015 and released to the research team• Analyses have been conducted and are being evaluated that display changes in nutritional status, diet, HHFS and food production by season across the three sentinel sites for individual years of operation and across both years.• Not completed given time limitations post-earthquake

Lessons Learned

- The sentinel sites provide a rich resource of seasonal data across the agro-ecological zones which need timely analysis and interpretation. Further, local capacity building to conduct data collection and implement quality control procedures has been an achieved benchmark among data-collection teams who are mostly permanent residents of these rural/semi-rural study sites.
- The sentinel site infrastructure took considerable effort by the central investigative team and field supervisors (liaising with district officials and the community, different stakeholders, transportation of equipment, etc) to build; from the physical offices to their oversight, but the sites were not fully utilized to their potential.
- Transportation within Kathmandu and to study sites continued to be a challenge which required considerable resources (i.e. time, human resources and money).

Solutions/Resolutions

- May need to discuss the possibility of assigning sentinel sites to an analyst within the team, with a major portion of his/her time dedicated to these seasonal analyses. Expertise in longitudinal data analyses would be a clear asset.

- The USAID vehicle available in at the Mission was unable to be attained and discussions continue with the ME to procure a vehicle, perhaps one to be shared between the Tufts and JHU team.
- Sentinel site field supervisors regularly touch base with district officials as do the Kathmandu central staff whenever quality control visits or site visits are made to maintain relationships. Dissemination briefs featuring results from the first panel survey have been sent to the district health, agriculture and livestock offices as well as the District Development Committee office. In September 2014, monitoring visits were conducted which were comprised of representatives from the District Health Office and the Central District Office making field visits to observe how and what type of data is collected by the PoSHAN Community Studies.
- Given funding restrictions, the seasonal data collection activities have ceased for now and thus sentinel site field offices have been closed.

Objective 5. Conduct third annual panel survey for PoSHAN (Policy and Science for Health, Agriculture and Nutrition) Community Studies

PROPOSED	ACTUAL
<ul style="list-style-type: none"> • Initiate modification to subcontract with New ERA to complete third annual panel survey • Inventory equipment New ERA has in stock, specifically HemoCue machines and cell phones, to ascertain working condition for anemia testing and quality control monitoring respectively. • Purchase and complete maintenance of equipment required for annual survey (height boards, HemoCue machines, tape measures, scales) • Discuss and implement updates to New ERA database to improve data entry processes • Conduct master training of trainers New ERA- JHU • Conduct training for data collection teams with New ERA • Conduct second annual panel survey data collection in 21 PoSHAN Community Studies sites 	<ul style="list-style-type: none"> • Completed on February 27, 2015 • Completed by February 25, 2015 by Nutrition Innovation Lab/ JHU team in collaboration with New ERA. • Completed by March 30, 2015, equipment was purchased and repaired as necessary. • Frequent and engaged discussions were held with New ERA's data management team to ensure all checks were in place for their data entry system and were compatible with the structure of the JHU database. • A two-week long Master Training of Trainers was conducted at the New ERA premises with a 30-person team from New ERA between March 13-25, 2015 and led by the JHU team in Nepal. • 5+ weeks training (in total) and standardization of 90+ data collectors in collaboration with New ERA. • Data collection started in June 2015 for the third annual panel survey in a

<ul style="list-style-type: none"> • Initiate and complete data cleaning, checking and entry process • Create analytic datasets from third round of panel data • Analyze data across three rounds of annual panel data 	<p>reduced sample of nine districts due to the April 2015 earthquake that hit Nepal. Data collection was completed in August 2015.</p> <ul style="list-style-type: none"> • Initiated in June 2015 as data was being entered at New ERA and will be completed by October 30, 2015 once the entire dataset is received from New ERA. • To be completed by October 30, 2015 once the entire dataset is received from New ERA. • To be initiated on October 30, 2015 once the entire dataset is received from New ERA.
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Lessons Learned

- Evaluating use of tablets for quality control measures was useful, teaching us that the length and formats of questionnaires will require considerable resources.
- The annual panel survey questions are long and given that ~75% of the sample has been followed for three years, respondents may now be anticipating, to some extent, forthcoming questions which could affect some aspects of data validity in the future, without special attention to this matter. Further, it is necessary to build in attractive yet inexpensive incentives for respondents (e.g., currently, nail cutters and towels), considering the time they have donated each year to this study, while refraining from being coercive in any way.
- Despite the use of iceboxes, further resources are needed to ensure that HemoCue machines are held at valid temperature ranges, as the extreme temperatures this year in the Terai had an impact on some machines.
- The DHS 2016 survey is to be conducted next year (scheduled for February 2016) and will use the same data collection firm, New ERA, for their operation. Collaborations with New ERA and the Nepali Technical Assistance Group (NTAG) continue to be productive and valuable. The logistics required to deploy large data collection teams and upkeep equipment while ensuring quality are immense and both groups continue to strive with JHU to manage their workload.
- Due to the earthquake that hit Nepal in April 2015, three of each of the seven PoSHAN mountain and hill districts were affected. Of these districts' total population, 95.9% in Sindhupalchowk, 72.3% in Rasuwa, 60.9% in Ramechhapp, 18.9% in Lamjung, 10.5% in Solukhumbu and 8.5% of their homes in Kathmandu were damaged or destroyed. Damage within VDCs was variable. This caused the sample for the third annual panel survey to change since entering the affected districts for the purpose of conducting a survey may have had negative effects on the surviving population and could have led to substantial cost overruns as well as changes in the study's protocol.
- Early evidence in the new data shows there were fluxes in the study sample sizes in some wards (final numbers not yet received) in the 2015 survey, attributed to migration in and out of the area.
- The earthquake and the existence of the ongoing PoSHAN Communities Studies infrastructure, sampling frame and presence across selected sites for the two years prior to this natural disaster presents an opportunity to assess damage, health, survival and social, economic and productivity conditions in those sites and further, to investigate concepts of resilience in directly and indirectly

affected areas.

- Incentives for respondents to participate in the survey may need to be rethought to provide more valued tokens of appreciation (other than soap, toothbrushes and toothpaste, for example) but without being considered coercive and remaining within budget.
- Innovative approaches to dissemination of annual survey findings may be needed at district levels (beyond existing District Dissemination Briefs).

Solutions/Resolutions

- Discussions on the cost-effectiveness of mobile data collection for the fourth annual panel survey plan to be held with the ME.
- Re-visit questionnaires to delete less-useful questions or modules (e.g., nearly uniformly not answered or answered the same ways) and modify to capture the effects of the earthquake, and other new aims that may be discussed.
- Budget for further maintenance of study equipment.
- Upon reviewing the extent of damage in our study sample, we initially considered doing an abbreviated assessment in affected areas and the full instruments in unaffected areas. After extensive deliberation and ongoing relief efforts and finances with our partners, the decision was made that for this year alone, PoSHAN would be carried out in a smaller sample—the seven PoSHAN terai sites and two hill and mountain sentinel sites (Arghakhanchi & Jumla). Other unaffected hill and mountain sites were excluded because their inclusion would not have provided a basis for generalizing survey findings to a national or ecozonal level. The current sample will enable PoSHAN to generate data that are representative of the Terai zone. Maintaining data collection in the smaller sample of three sentinel sites will allow fuller use of seasonal data across the years of its operation. We propose modifying certain questions or modules for the 2016 panel survey to assess damage, loss of life and coping abilities following the earthquake, especially shifts in food production, expenditure and security, diet and nutritional status.
- Continue working with New ERA to carry out the annual surveys for the PoSHAN Community Studies.
- The Nutrition Innovation Lab/JHU dedicated one month of its project’s time and resources to assisting the Emergency Nutrition Cluster where needed (data collection and analyses predominantly) in the month that followed the April 25, 2015 earthquake.

Section 2: Capacity Building

Objective I. Help build capacity to conduct population-based nutrition research.

PROPOSED	ACTUAL
<ul style="list-style-type: none"> • Train Nutrition Innovation Lab staff on GIS software and technology for applied use in national surveillance systems. 	<ul style="list-style-type: none"> • Dev Raj Gautam completed an online training entitled ‘GIS and Epidemiology’ https://www.popdata.bc.ca/etu/onlinecourses/HGEO101 and met with Rajiv Paudel (GIS

<ul style="list-style-type: none"> • Identify analysts for further training of complex analytic methods who will apply skill sets to analytic datasets. • Conduct quarterly meetings with Nutrition Innovation Lab graduates of previous training sessions and engage them in dissemination activities, training and/or analysis activities of the PoSHAN Community Studies. • Conduct the 3rd annual Scientific Symposium to assimilate and share findings on the agriculture-nutrition pathways. • Organize and conduct lectures or workshops with local academic and/or research institutions and stakeholders 	<p>expert from Winrock International) to learn more about the use of GIS software.</p> <ul style="list-style-type: none"> • Hired two new data analysts (senior analyst Ruchita Rajbhandary left) with backgrounds in econometric analyses. • PhD fellowship has commenced (August 2015) for Nutrition Innovation Lab employee now working on PoSHAN data for her dissertation. • Not accomplished due to conflicting schedules. Amod Poudyal and Rajan Paudel were engaged in conducting the 3rd annual Scientific Symposium. • Priyanka Agrawal, a Nepali MPH student at JHSPH, won a Global Health Field Placement award to include a dental module (consisted of questions on dental hygiene, practice and missing teeth) to the PoSHAN Community Studies' third annual panel survey. She engaged in the development of the module and training of data collectors, but the module has not been implemented. • Organized and implemented the 3rd annual Scientific Symposium consisting of 300 participants, including 55 students with a higher quality of work presented this year compared to last. The Symposium included a half-day student session this year, November 2014. • Talk on PoSHAN Community Studies' research (Cost of Diet analyses and association between agricultural production diversity score and women's dietary diversity score) given at NARC, organized by the NARC Society of Agricultural Scientists on Nov 4, 2014. • Pre-symposia intensive feedback was provided with students and young researchers presenting their research at the 3rd annual Scientific Symposium on presentation format and provide guidance for revisions of abstracts. • During the Scientific Symposium, the Nutrition Innovation Lab team, specifically from Tufts, Purdue and JHU, gave detailed
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<ul style="list-style-type: none"> • Dissemination meetings with district-level officials in sentinel sites. • Short research findings briefs provided to PoSHAN community. 	<p>feedback on student research projects—strengths, weaknesses and considerations. This was done in a small group setting of three Nepali students to one to two faculty members.</p> <ul style="list-style-type: none"> • Two talks were delivered at the USAID/Nepal Mission by Dr. Rolf Klemm and Dr. Keith West on updates on PoSHAN research. • Attended stakeholder consultation meeting for Suahaara follow-on on January 9, 2015 in Kathmandu. • Participated in a meeting on the design of the Suahaara follow-on on January 9, 2015 in Kathmandu with Mary Ann Anderson and BK Subedi, and completed a presentation on the PoSHAN Community Studies’ research and its relevance to planning interventions for Suahaara. • Participated in a meeting to provide an overview of the PoSHAN Community Studies’ research and its relevance to FFP programs to the new USAID/Nepal Mission FFP team on January 30, 2015. • Participated in a meeting to provide an overview of the PoSHAN Community Studies’ research at USAID Global Health Bureau, Washington, DC (Elaine Gray) • Dissemination briefs created and shared with all 21 PoSHAN sites. • Not yet complete
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Lessons Learned

- There remains a need to keep in contact with alumni of Nutrition Innovation Lab training programs, and to engage them on a periodic basis, as sources of local knowledge and representatives of the stakeholder community who can assist in disseminating research findings.
- There exists a limited pool of public health nutrition researchers in Nepal who can provide technical input to ongoing nutrition research activities in the country.

Solutions/Resolutions

- An addition to the Nutrition Innovation Lab/ JHU team is a Nepali professional with a PhD in Nutritional Sciences who will assume a leadership role in organizing and implementing the data collection for the PoSHAN Community Studies. He will additionally be tasked with regular alumni

meetings with previously training candidates and identifying concrete ways to collaborate.

- The Scientific Symposium continues to be a well-attended and much-anticipated event. Funds have been secured again to hold this annual event for two upcoming years. For this fiscal year, the plan is to hold the event in February/March 2016.
- Provide technical input to national working groups focused on policy and program implementation related to nutrition and food security as done in the past (National Nutrition Surveillance System of Nepal and the Maternal Health Sector Strategy Working Group).

IV) Presentations and Publications:

1. PoSHAN Community Studies Manual of Operations, Updated, Year 3
2. PoSHAN Community Studies Manual of Operations, Sentinel Sites, Year 3
3. PoSHAN Community Studies Annual Panel Survey 3 (P3) Data Management Plan
4. PoSHAN Community Studies Analytic Database in STATA for sentinel site rounds in Year 3 as well as the Annual Panel Survey 2 (P2)
5. Kemm R. Current Status and Changes: Results from the PoSHAN Community Studies second Annual Panel Survey at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 18, 2014
6. West KPW. Aflatoxin Exposure during the First 1,000 Days of Life in Rural South Asia Assessed by Aflatoxin-Lysine Albumin Biomarkers at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 18, 2014
7. Fitch C. Barriers to Collaborative Agriculture and Nutrition Research at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 18, 2014
8. Biehl E. Challenges to Turning Nutrition & Agricultural Research Findings into Action at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 18, 2014
9. Dorsey J. Poster Presentation: Linking antenatal and postnatal care, maternal health and nutrition knowledge, and behavior among women in the Policy and Science for Health, Agriculture, and Nutrition (PoSHAN) Community Studies in Nepal at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 19, 2014
10. Fitch C. Poster Presentation: Is Diversity in Agricultural Production Linked to Dietary Diversity Among Nepalese Women? Findings from the PoSHAN Community Studies at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 19, 2014
11. Biehl E. Poster Presentation: Does Amount and Kind of Food Bought by a Household Vary by Indices of Wealth in Nepal? at the 3rd Scientific Symposium: 'Agriculture, Food Systems and Nutrition: Connecting the Evidence to Action' in Kathmandu, Nepal on November 19, 2014
12. Klemm R, Manohar S. Insights on how agriculture might influence improved health and nutrition at the Graduate Nutrition Seminar at JHSPH, Baltimore, MD on December 2, 2014.
13. Manohar S. PoSHAN Community Studies: An Overview and Key Findings from 2013 and 2014 at meeting to discuss the design of the Suahaara follow-on with Mary Ann Anderson, BK Subedi and USAID/Nepal Mission on January 9, 2015.
14. Manohar S. PoSHAN Community Studies: An Overview and Key Findings from 2013 and 2014 at meeting to describe project to new USAID/Nepal Mission FFP team on January 30, 2015.
15. Manohar S, Sapkota D. Nutrition Innovation Lab & the PoSHAN Study at M&E Workshop for FFP Community Resilience Programs in Kathmandu, Nepal on February 6, 2015.

16. Fitch C. Linking Agriculture with Health and Nutrition in Nepal at US Borlaug Fellows in Global Food Security AAAS Conference, San Jose on February 13, 2015.
17. Manohar S. Findings from PoSHAN: a national study examining the linkages between agriculture, food security and undernutrition at TOPS Knowledge Sharing Event: Asia Region: Learning from the Past, Shaping the Future in Dhaka, Bangladesh on March 3, 2015.
18. Fitch C. Linking Agriculture with Health and Nutrition: Findings from the Policy for Science, Health, Agriculture, and Nutrition (PoSHAN) Community Studies and a Barriers Analysis of Interdisciplinary Research in Nepal at Johns Hopkins Center for a Livable Future Staff Meeting, Baltimore, MD on March 10, 2015.
19. Manohar S. PoSHAN Community Studies: An Overview and Key Findings from 2013 and 2014 at meeting to describe project to USAID Global Health, Washington, DC representative on March 12, 2015.
20. Fitch C. Poster Presentation: Is Diversity in Agricultural Production Linked to Dietary Diversity Among Nepalese Women? Findings from the PoSHAN Community Studies. Experimental Biology Conference in Boston, MA on March 28, 2015.
21. Dorsey I. Poster Presentation: Risk factors for child stunting in the Policy and Science for Health, Agriculture, and Nutrition (PoSHAN) Community Studies at the Borlaug Summer Institute in Indiana on June 2015.
22. West K. Nutritional Status in Mountains, Hills and Terai: PoSHAN at USAID-Nepal Mission in Kathmandu on July 23, 2015.
23. Adhikari R, Bhattarai S, Shrestha R, Manohar S, Klemm R, Gauchan D, West KP, PoSHAN Community Studies: Second Annual Panel Survey Summary Findings Brief, September 2015 (Nepali)
24. Klemm R. Farm to Fork: Insights on how agriculture might influence improved health and nutrition at the Graduate Nutrition Seminar at JHSPH, Baltimore, MD on September 22, 2015.

V) Human and Institutional Capacity Development

Number (By gender)	Purpose	Home Institution	Training Institution/ Mechanism	Date
Male: 142 (1 st day), 104 (2 nd day) Female: 88 (1 st day) , 69 (2 nd day)	3 rd Scientific Symposium	Johns Hopkins University	National audience/ Symposium presentations	Nov 18-19, 2015
Male: 27 Female: 12	3 rd Scientific Symposium–Student Session	Johns Hopkins University	National audience/ Symposium presentations	Nov 20, 2015
Male: 18 Female: 11	Dissemination of Borlaug student projects based on PoSHAN data	Johns Hopkins University	NARC/Presentations	Nov 2, 2015