



Living Standards Measurement Study – Integrated Surveys on Agriculture

**Kristen Himelein
Development Research Group
World Bank**

Motivation

Importance of agriculture for poverty reduction, yet:

- Poor data: low quality, inadequate periodicity and comparability, lack of policy relevance
- Failure to address high levels of diversification, linkages to non-farm, poverty, health, ...
- Lack of panel data
- Institutional constraints in agricultural data production and analysis
- Lack of analytical capacity
- Poor dissemination of data and findings
- Overall, too little attention to agriculture and agricultural statistics

LSMS – ISA Project

- Started in early 2009
- Initial funding from the Bill and Melinda Gates Foundation, with additional resources from USAID, DFID and a number of other sources, including national governments.
- Working on four fronts:
 - Household survey data collection
 - Dissemination
 - Capacity Building
 - Methodological validation/research/tool development

Main Features (1)

- Currently 6+ year program (2009-2015)
- **Panel** household surveys with emphasis on agriculture in 7 Sub-Saharan African countries
- Sample: 3,000 - 5,000 households
 - Usually includes both urban and rural household
 - Population-based frame (Global Strategy)
 - Representative at national- and few sub-national levels (such as major agro-ecological zones)
- Tracking
 - Movers
 - Subsample of individual split-offs

Main Features (2)

- Multi-faceted “integration”
 - Multi-topic survey instrument
 - Farm plus nonfarm, consumption, nutrition, *inter alia*
 - Build on existing/planned surveys
 - Country ownership/Sustainability... but large trade-offs
 - Link to major initiatives
 - National Strategy for the Development of Statistics (NSDS)
 - Global Strategy to Improve Agricultural and Rural Statistics
 - Improved links to other data sources
 - GIS, censuses, surveys, etc.

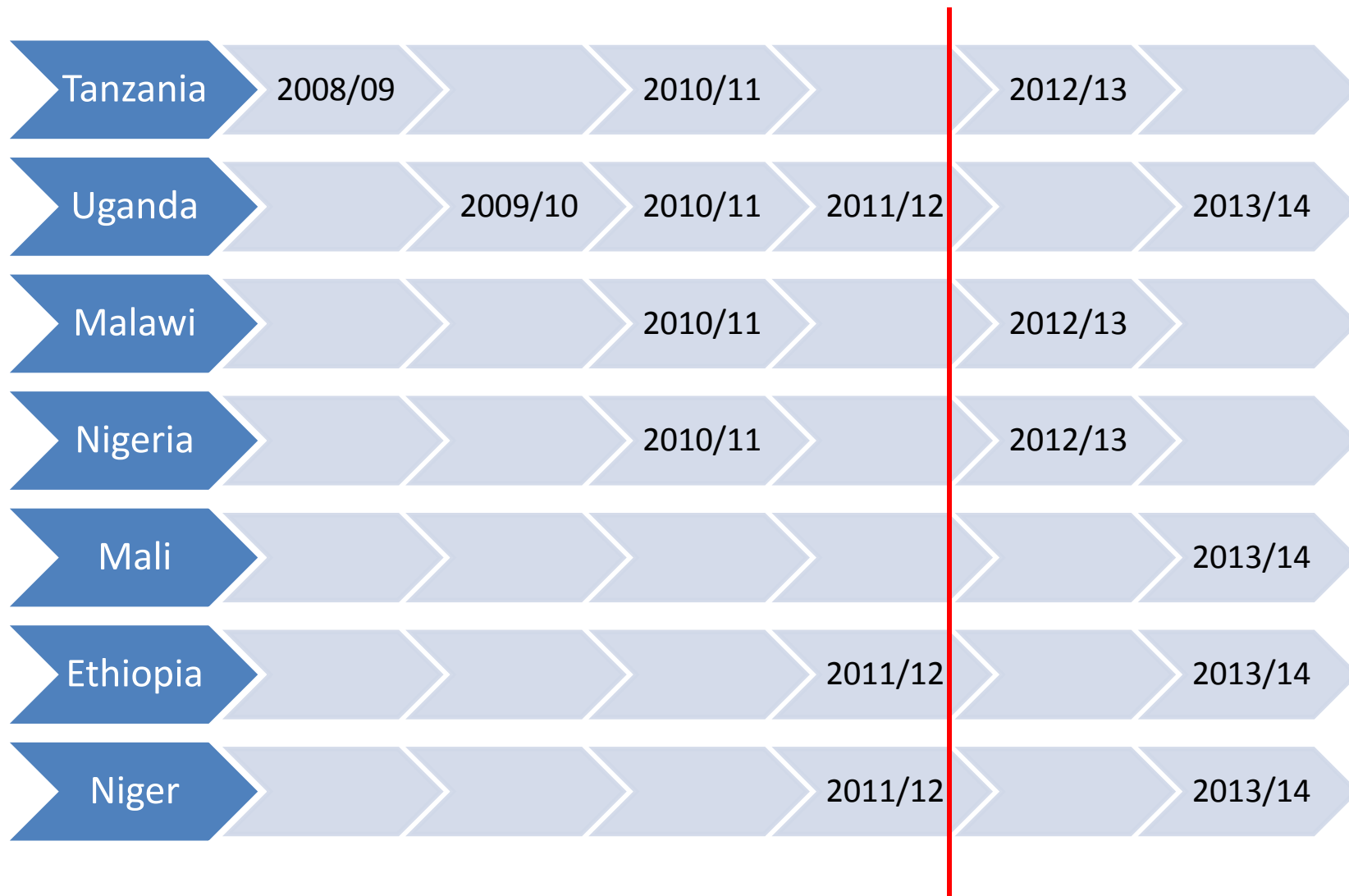
Main Features (3)

- Open data access policy
 - Micro-data publicly available within 12 months of data collection
 - GPS data dissemination
- Use of technology
 - GPS for households and plots (area)
 - Concurrent field-based data entry
 - Computer Assisted Personal Interviews (CAPI)
- Gender disaggregated data

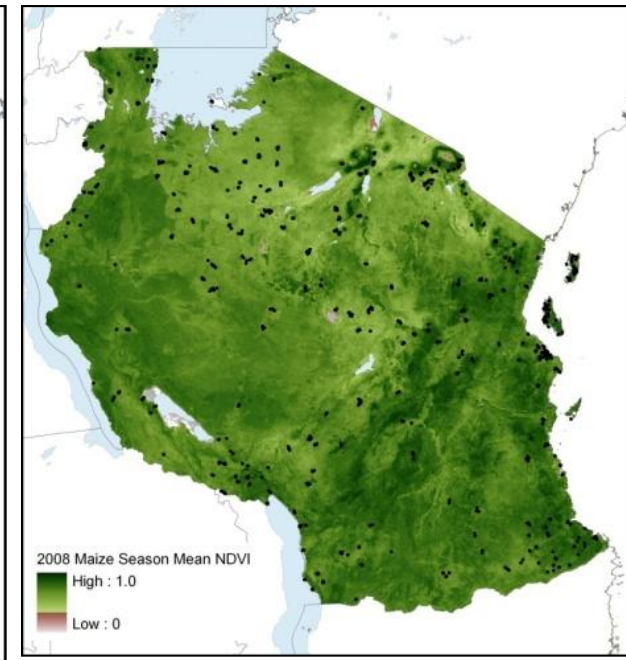
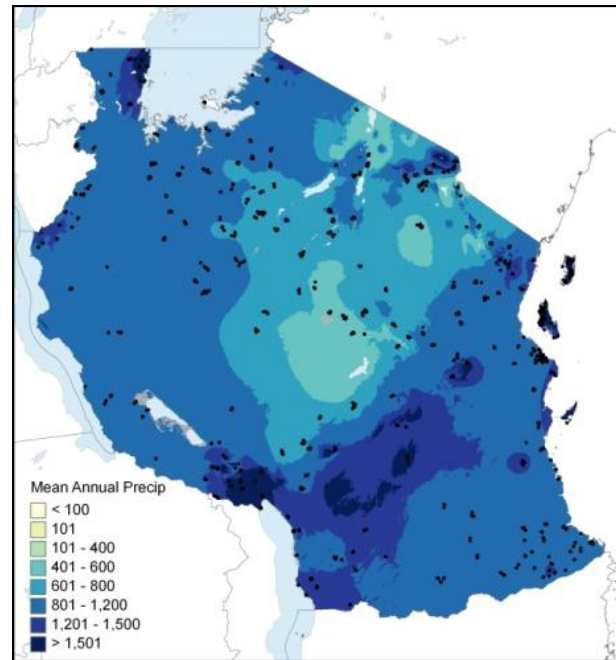
Survey Data Collection

- **Tanzania National Panel Survey:** Wave 3 to begin in September; wave 2 completed; wave 1 data available
- **Uganda National Panel Survey:** Wave 3 in the field; wave 2 completed, wave 1 linked to 2005/06 UNHS and data available
- **Malawi Integrated Panel Household Survey:** Wave 1 data available
- **Nigeria General Household Survey Panel:** Wave 1 data available
- **Niger Enquête National sur les Conditions de Vie Des Ménages:** Wave 1 completed
- **Ethiopia Agriculture Sample Survey:** Wave 1 completed
- **Mali Integrated Agricultural Survey:** On hold (with light technical assistance activities continuing)

Implementation & Dissemination



Dissemination : Geo variables



Distance

HH to Plot

HH to Market

HH to Major Road

Environmental

Climatology

Landscape typology

Soil

Elevation

Terrain

Time Series

Rainfall

Vegetation Indices

Capacity Building

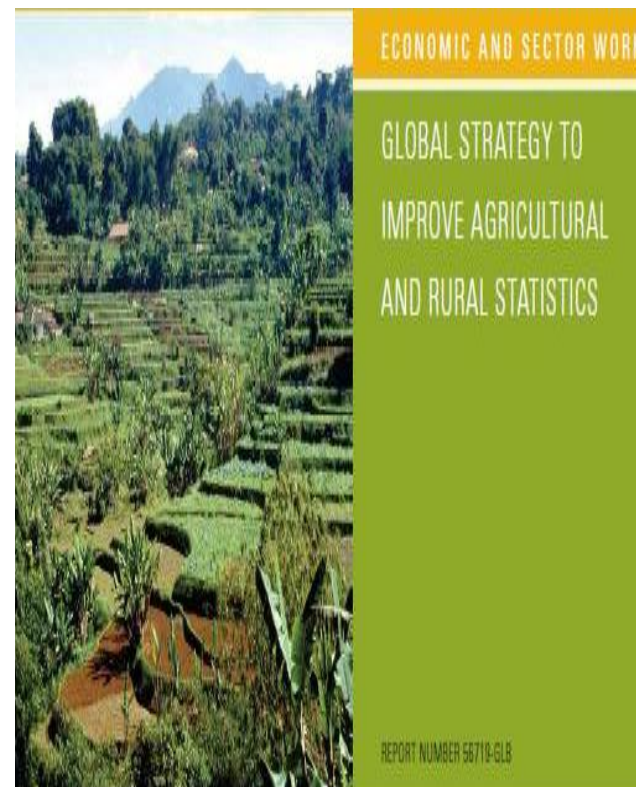
- Capacity building and sustainability are integral components of the LSMS-ISA project.
 - All surveys are implemented in partnership with national government statistical or agriculture statistics organizations.
 - Training to staff counterparts is provided through :
 - Collaboration and “learning-by-doing” during the survey planning, implementation, and dissemination processes
 - More formal trainings and short-courses in technical aspects, such as sampling, data entry (CS-Pro) program design, and data analysis (Stata)
 - Annual workshops for ISA country teams to share experiences

Methodological validation / research / tool development

- Many different areas of work make up this aspect of the LSMS-ISA program, including :
 - Collaborations within the World Bank to develop new software (CAPI) and analysis tools (ADePT), address specific issues (livestock, climate change, gender, etc), and inform country assistance strategies.
 - Strategic partnerships outside of the WB including FAO (GPS and crop production, gender statistics action plan, livestock, agricultural income), ILRI (livestock), IFAD (empowerment), WorldFish Center (fisheries and fishing income).

Experiments on Survey Methodology

- Identification process
 - Alignment with Global Strategy
 - Field experience
 - Consultation
 - Peer review
- Research topics
 - Land area measurement
 - Continuous/extended harvest crops
 - Livestock
 - Soil fertility
 - Water resources
 - Labor input in agriculture
 - Non-standard units
 - Post-harvest losses



Non-Standard Units (1)



Non-Standard Units (2)

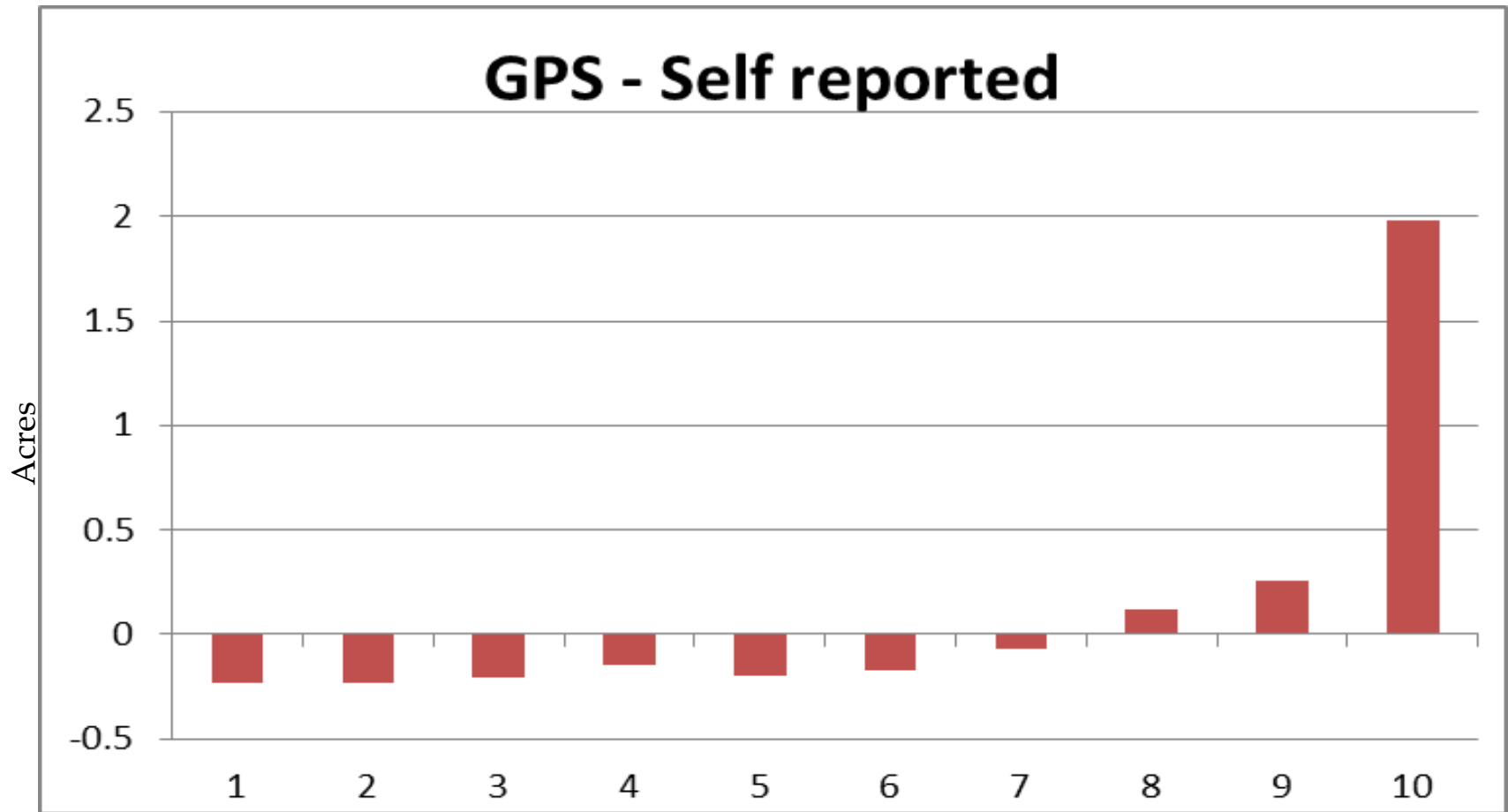
Maize	50.0
Cassava	41.7
Sweet potato	36.2
Irish potato	42.6
Groundnut	44.2
Ground bean	43.2
Rice	56.2
Finger millet	50.5
Sorghum	49.6
Pearl millet	50.5
Bean	77.6
Soyabean	53.1
Pigeon pea	57.1

Weight in
kgs of a 50
kg sack

Non-Standard Units (3)

Zone Specific Conversion Factors into Hectares (Nigeria)			
Zone	Conversion Factor		
	Heaps	Ridges	Stands
1	0.00012	0.00270	0.00006
2	0.00016	0.00400	0.00016
3	0.00011	0.00494	0.00004
4	0.00019	0.00230	0.00004
5	0.00021	0.00230	0.00013
6	0.00012	0.00001	0.00041

Bias in Self-Reported Land Size (1)



Land Deciles (GPS)

Bias in Self-Reported Land Size (2)

	Landholding	Average land areas	Yield (GPS)	Yield (Self Reported)	Bias in yield (GPS-Self Reported)
	Acres	Acres	Kg/acres	Kg/acres	%
Small Farms	0.01-1.45	0.7	236	170	28%
Medium Farms	1.46-3.57	2.4	208	193	7%
Large Farms	3.58- 600	10.3	77	100	-30%

Diary vs Recall in Frequencies of Crops Harvested (1)

- Why is it important?
 - Continuously / extended harvest crops are major staple crops in many African countries
 - Particularly imprecise using longer recall
- What are the different methods available?
 - Recall (6 month or 12 month)
 - Crop cards (with crop card monitors)
 - Ongoing work with the Uganda Bureau of Statistics
 - CATI (data transmission / supervision)



Diary vs Recall in Frequencies of Crops Harvested (2)

	Recall	Diary
	%	%
Coffee	31.9	21.7
Maize	76.8	73.8
Cassava	58.8	82.1
Tomatoes	3.4	22.2
Avocado	2.8	25.8

Summary

- LSMS-ISA project is a research-focused project – rather than one designed for national / regional estimates of crop yields.
- There is a width breadth of work included in the LSMS-ISA, many of which correspond to the pillars of the Global Strategy. Many of the research products will hopefully be able to improve precision for other large scale data collection efforts.
- In addition to the research agenda, the LSMS-ISA will also produce a number of “public goods,” such as open access datasets (including geospatial data) and a platform for collecting Computer Assisted Personal Interview data.

www.worldbank.org/lsms-isa



A New Generation of Household Surveys on Agriculture
The LSMS-ISA project supports multiple rounds of a nationally representative multi-topic panel household survey in each partner country.

About LSMS-ISA

Country Programs

Tools

Data

Training


Publications

Who We Are

LATEST NEWS

FEATURED STORY


Living Standards Measurement Study: When Data Collection is Intrepid



For two to three weeks at a time, Kathleen Beegle disappears into the wide open spaces of rural Africa. She often lands in a plane on a dirt runway, rents a pick-up truck and drives with a colleague for four to six hours to her destinations.
[Read More →](#)

RECENT EVENTS

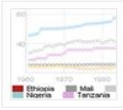
Economic Analysis Using Stata: Manzini, Swaziland, October 5 - 7, 2011



In partnership with CMAAE, the LSMS-ISA team organized a workshop on conducting economic analysis using Stata, during which students reproduced the analysis of a published research paper. The workshop included sessions on data preparation and merging, as well as OLS regressions and probit analysis.
[Read More →](#)

NEW DATA

Nigeria 2010-2011 General Household Survey - Panel




The data for the first visit of Wave 1 of the multi-topic nationally representative Nigeria General Household Survey - Panel, conducted from August to October 2010 by the Nigeria National Bureau of Statistics, is now available for free download.
[Read More →](#)


COUNTRY PROGRAMS

Where We Work

Learn more about our work in each of our partner countries.




FEATURED TOOLS



Climate Change: Water Resources

Read our guidance note on improving household survey instruments for assessing agricultural household adaptation responses to weather and water variability.

MULTIMEDIA



LSMS Today

Learn more about the work of the Living Standards Measurement Study team on the ground.

Download our brochure to find out more about the LSMS-ISA project.

Research (1)

Thematic Domain	Research Topic	On-going or planned work under LSMS-ISA
Data Collection Methods	Improving methods for estimation of crop area, yield and production ... including continuous crops and root crops	<p>* Fact or Artefact: the Impact of Measurement Errors on the Farm Size - Productivity Relationship</p> <p>*Selectivity Bias in Area measurement using Global Positioning System</p> <p>*Reliability of recall in Agricultural Data</p> <p>*Can diaries help improving agricultural production statistics? Evidence from Uganda</p> <p>*Validation of area measurement methods: Traversing, GPS, P²/A and Self-reporting.</p> <p>*Correcting GPS area measurement (of small plots) using Differential GPS (DGPS).</p> <p>*Comparing Direct and Self-reported Measures of Slope and Assessing the Effect of Slope on GPS Area Measurement</p>

Research (2)

Thematic Domain	Research Topic	On-going or planned work under LSMS-ISA
Data Collection Methods	Improving methodology for enumerating nomadic livestock and livestock products	<p>Milking the Data: Measuring Income from Milk Production in Extensive Livestock Systems</p> <p>Measuring Livestock and Development Indicators for Pastoralist Populations: a Dual-Frame Sample Approach</p> <p>Livestock module</p> <p>Identification of Breeds Milk Experiment 2 Pastoralist module</p>
	Research on Adopting New Technologies	<p>Computer Assisted Personal Interviewing (CAPI) in Uganda, Ethiopia and Nigeria</p> <p>Comparative Assessment of Computer Assisted Personal Interview Software Packages</p> <p>Global Positioning System</p>

Research (3)

Thematic Domain	Research Topic	On-going or planned work under LSMS-ISA
Food Security	Improving methodology for estimation of FS statistics	<p>*Integration of CFSVA indicators in LSMS-ISA</p> <p>*Improving Food Consumption Estimates from Household Surveys through Research and Methodological Validation</p> <ul style="list-style-type: none"> - Food consumed away from home - Seasonality and bulk purchases - Non-standard measurement units
Gender Related Data and Indicators	Identifying Appropriate Indicators and data to be Collected and Survey Design	<p>*Questionnaire design: gender disaggregated information at plot level</p> <p>*Gender Differentials in Productivity and Technology Adoption in Agriculture</p>
Remote Sensing	Developing more Efficient Methods for Using remote Sensing	<p>*Georeferencing of hh and plots, including plot area measurement</p> <p>*Ground-truthing of remote sensing data</p> <ul style="list-style-type: none"> - Land coverage - Soil fertility

Research (4)

Thematic Domain	Research Topic	On-going or planned work under LSMS-ISA
Agri-Environment	Identifying Data to be Collected and Survey Design for Analyzing Interactions between Climate Change, Environment and Agriculture	<p>*A Guidance Note on Improving Household Survey Instruments for Understanding Agricultural Households' Adaptation to Climate Change: Water Stress and Availability</p> <p>*Understanding Agricultural Households' Adaptation to Climate Change and Implications for Mitigation: Land Management and Investment Options</p> <p>*Collecting rainfall data at community level</p>
Small Scale Fisheries	Developing Methods for Appropriate data Collection	*Guidebook for the design of fishery modules as part of integrated household surveys in developing countries

Other Research

Thematic Domain	Research Topic	On-going or planned work under LSMS-ISA
Data Collection Methods	Soil fertility	Validating Spectral Analysis vs. Wet Chemistry vs. Self-reported measures of soil fertility
	Labor Inputs	Comparing Methodologies to Measure Labor Inputs in Agriculture
	Skill Testing	Developing skill tests for multi-purpose household surveys