



### **SPIA Objective 3:**

Improving and institutionalizing collection of data on diffusion and use of CGIAR innovations in national data systems

**James Stevenson**

SPIA Senior Researcher

MELIA CoP, Amsterdam, 4<sup>th</sup> Oct 2019



Standing  
Panel on  
Impact  
Assessment



# Outline

- Rationale
- Collaboration with LSMS-ISA
- Team
- Current work program
  - Ethiopia
  - Uganda
- Research agenda on measurement
  - New approaches to data collection
  - Measurement error and causal inference

# Rationale

- Rigor revolution in impact assessment (Stevenson, Macours and Gollin, 2018) has raised evidentiary standards
  - Causal inference
  - Valid measurement
  - Representative scales
- Objective 3 in our work program: “Improving and institutionalizing collection of data on diffusion and use of CGIAR innovations in national data systems”, speaks to these last two points



# Rationale

- CGIAR research effort is not randomly distributed around the world – relatively small number of countries represent majority of effort
- Country focus in “One CGIAR”, SDG reporting, 50 x 2030 initiative etc
- Build from strong partnership with World Bank LSMS-ISA team established over past 5 years
- Take the CGIAR to well-institutionalized surveys which could, at the margin, displace some standalone CGIAR-run surveys



# Rationale

Four core principles:

- Integrate a prioritized set of CGIAR innovations into nationally-representative household surveys in priority countries
- Collect complementary data at other scales (community, landscape, program, policy)
- Data collection will be repeated regularly
- New methods will be trialed whenever feasible

Priority countries:

2019 – 2021 phase:	Ethiopia, Uganda
2021 – 2024 phase:	Bangladesh, Vietnam
	(proposed, for discussion)

# Collaboration with LSMS-ISA

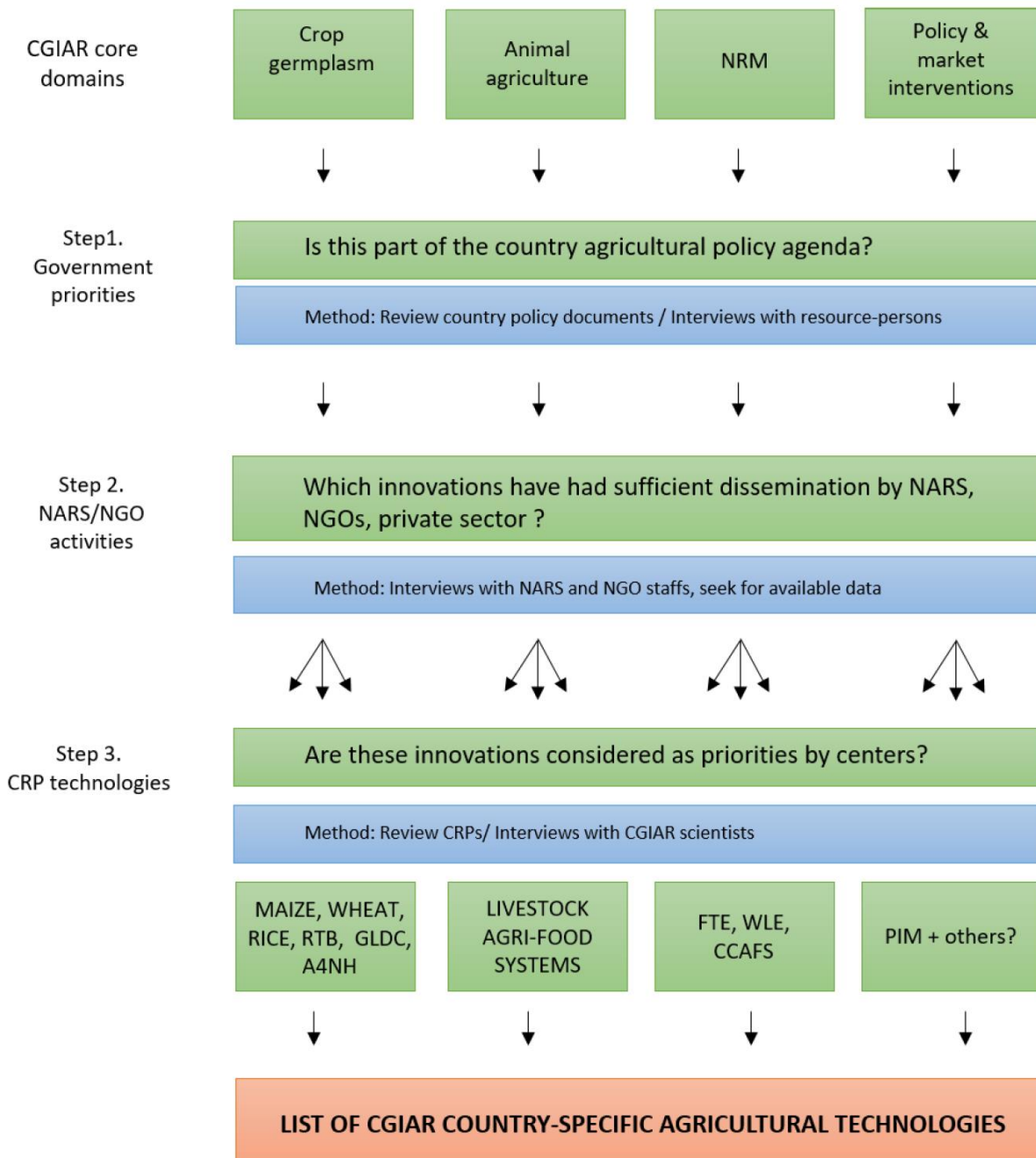
- LSMS-ISA (Living Standards Measurement Study – Integrated Surveys of Agriculture) working with statistical agencies in Africa
- SPIA hired four post-docs, one for each of:
  - Ethiopia:** Frederic Kosmowski, since 2015, now ILRI-hosted SPIA Researcher
  - Uganda:** John Ilukor, since 2015, now World Bank staff
  - Tanzania:** Stella Wambugu, 2017-18
  - Nigeria:** Haruna Sekabira, 2017-18

to scope out approach at country-level...

- And work on methods experiments for testing new metrics / data collection approaches

## Collaboration with LSMS-ISA

	Ethiopia	Tanzania	Uganda	Nigeria
A4NH	0.50	0.56	1.80	2.79
CCAFS	0.80	0.40	0.30	-
Fish	-	0.11	-	0.35
FTA	3.30	1.00	0.50	-
Livestock	2.05	1.44	0.31	0.76
Maize	2.50	1.10	0.30	1.00
PIM	1.00	0.50	-	1.00
Rice	-	0.09	-	0.24
RTB	-	0.30	0.80	1.20
Wheat	2.00	0.01	-	-
WLE	1.00	0.55	-	-
Country total (M HHs)	13.15	6.06	4.01	7.34
Approximate % share of rural HHs	76	80	61	39



## Prioritization process

as applied in Ethiopia and Uganda  
(Kosmowski et al, 2019)



# Collaboration with LSMS-ISA

## Example of output: Data on conservation agriculture

### Nationally-representative data on joint adoption of core practices

		ESS 3 (2015-16)		ESS 4 (2018-19)	
	Questions introduced by SPIA	N	%	N	%
A. Crop rotation with legume	During the last three years, have you planted a legume on this [FIELD]?	5840	21	3660	19
B. $\geq 30\%$ residue cover after planting	After planting of this agricultural season, what did the [FIELD] look like?	2176	7.7	3638	19
C. Minimum tillage	How many times was [FIELD] tilled in this agricultural season?	10329	36	2151	11
Conservation Agriculture adoption (A,B,C)		491	1.7	138	1

# Team

- |                        |                          |                    |
|------------------------|--------------------------|--------------------|
| • Prof. Travis Lybbert | SPIA Activity Leader     | UC Davis, USA      |
| • James Stevenson      | SPIA Senior Researcher   | IFPRI, USA         |
| • Frederic Kosmowski   | SPIA Researcher          | ILRI, Ethiopia     |
| • Solomon Alemu        | SPIA Pre-Doctoral Fellow | ILRI, Ethiopia     |
| • John Ilukor          | World Bank (50% SPIA)    | Bioversity, Uganda |
| • Wanjin Wu            | SPIA Pre-Doctoral Fellow | Bioversity, Uganda |

## Pre-Doctoral Fellows

- Solomon and Wanjin joined following global call earlier this year
- 1 – 2 years of work with SPIA and develop ideas to take to a PhD program

# Current work program

## Ethiopia

- Implementation of Ethiopian Socioeconomic Survey wave 4 (2018-19)
  - Data being processed
- DNA fingerprinting for maize, sorghum and barley incorporated in ESS 4
  - Samples with genotyping facility
- Community-level modules
  - Animal health / Community-based breeding schemes / Input markets / Irrigation and water user associations / Participatory tree nurseries / Value chain assessment
- Involvement in experiments on measuring soil quality and reference measures of maize yield
- Documenting policy influence and availability of program M&E data – interviews and gathering information

# Current work program

## Uganda

- Uganda Bureau of Statistics in 2020 will integrate two surveys that currently don't speak to each other
  - Uganda National Panel Survey
  - Annual Agricultural Survey
- Consultation workshop in Kampala next week
- Community-level modules
  - Innovation platforms / Livestock market hubs / Fodder, fruit and indigenous trees / Food safety technologies
- DNA fingerprinting
  - Integrated for maize with panel as part of crop-cutting for yield estimation
  - Looking at feasibility of separate visit for bean, sweet potato and cassava samples
  - Seed system diagnostics much needed

## Seed system diagnostics example

Reference replicates

**R1**

**R2**

0.07

0.08

**A1**

0.08

0.10

**A2**

0.31

0.30

**A3**

0.30

0.28

**A4**

0.08

0.11

**A5**

0.08

0.11

**A6**

0.07

0.09

**A7**

0.35

0.31

**A8**

0.05

0.08

**A9**

0.39

0.35

**A10**

Genetic distance from reference seed of 10  
mystery-shopped samples of LONGE 10H from  
agro-dealers in Uganda

(work in progress: Ilukor, Kilian, Kilic, Stevenson)

Purchases from  
agro-dealers



Standing  
Panel on  
Impact  
Assessment

# Research agenda on measurement

## New approaches to data collection

- DNA fingerprinting
- Soil quality measurement
- Crop-cutting
- Remote sensing
- Community surveys
- Text mining
- ...

Where's the exciting stuff happening, particularly regarding applications for impact assessment?



Standing  
Panel on  
Impact  
Assessment



# Research agenda on measurement

## Measurement error and causal inference

- Measurement error in survey data can systematically bias our inferences about important causal relationships
- Not a new concern (e.g. Bound, Brown and Mathiowetz, 2000)
- We must question farmers' ability to correctly recall and accurately report complex management decisions they made over the course of the growing season (e.g. Beegle, Carletto and Himelein, 2012)
- Literature on use of scientific or “objective” measurement of key variables in surveys - variables we previously had to rely on farmer self-report data for
- Body of evidence of non-classical measurement error (NCME) in the self-reported data now established

# Research agenda on measurement

## Measurement error and causal inference

- Well.... So what?
  - Measurement error biasing study of misallocation / productivity dispersion (Esfahani; Gollin and Udry)
  - Inferences about the contribution to productivity of new technologies (**Wossen** et al)
  - What happens when multiple correlated variables are subjected to NCME but not all are subjected to scientific measurement? (**Abay, Abate, Barrett and Bernard**)
  - Mechanisms matter: Distinction between misreporting and misperceptions (**Abay**, Bevis and Barrett)
- CGIAR researchers making **major contributions here**
- SPIA planning a small workshop to help consolidate this strong position and build the agenda for the next phase of research