

# **SIAC Program Highlights: Objectives 1 and 2**

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**Organized by the Standing Panel on Impact Assessment  
(SPIA) of the Independent Science and Partnership  
Council (ISPC) of the CGIAR**

# Activities Led by Michigan State

MSU works in close collaboration and consultation with SPIA and the Program Steering Committee (PSC) in the implementation of SIAC program Objective 1 and some sub-activities under Objective 2

- **Objective 1 (Methods):** Develop, pilot and verify innovative methods for collection and assembly of diffusion data
- **Objective 2 (Outcomes):** Institutionalize the collection of the diffusion data needed to conduct critical CGIAR impact evaluations

# Scope of Activities: Objective 1

1.1 Advance methodologies for tracking the uptake and adoption by farmers of improved varieties

1.2 Advance methodologies for tracking the uptake and adoption of management technologies in the areas of crops, livestock, aquatic systems and natural resources

1.3 Explore new institutional approaches to collecting technology diffusion data

1.4 Develop and disseminate best practices for collecting diffusion data

## Scope of Activities: Objective 2

2.1 Organize the collection of crop germplasm improvement research related direct outcomes

2.2 Organize the collection of natural resource management (NRM) research outcomes

2.3 Organize the collection of policy oriented research outcomes

2.4 Long-term Institutionalization of collection of adoption data

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2.3 Organize the collection of policy oriented research outcomes

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**Highlights of Objective 1: Methods**  
**Focus: Activity 1.1 and 1.2**

## Activity 1.1 (adoption of IVs)

- Rationale: Previous estimates of adoption of improved varieties (at individual variety level) have relied either on “expert opinion” or on elicited responses from farmers in farmer-level surveys
- Collecting adoption data directly from the adopters should give more accurate estimates than data from ‘experts.’
- But getting adoption estimates from farmer survey is a high cost method and the estimates are not free from errors and biases
- Question: what methods can be used to collect varietal adoption data at the adopter level that are cost effective and provide the most accurate results



## Activity 1.1 (adoption of IVs) (cont'd)

- In this Activity we address this question by pilot testing and validate alternate approaches to collect variety-specific adoption data against a reliable benchmark (i.e. DNA fingerprinting)
  - to determine which method/approach is the most cost-effective in giving accurate results; and
  - to come up with 'lessons learned' and recommendations on methods / approaches that can be scaled up

## Activity 1.1 (adoption of IVs) (cont'd)

- Covers three crop-country combinations (CCCs)
  - Cassava in Ghana (**CRI, AIC, IITA**)
  - Beans in Zambia (**ZARI, CIAT**)
  - Maize in Uganda (**CIMMYT, NaCCRI-NARO**)

### Status:

- Field activities completed in all 3 CCCs
- DNA analysis of samples collected from farmers is currently undergoing

## Activity 1.1: Scope of Pilot Studies

Details	Country		
	Zambia	Ghana	Uganda
	(Beans)	(Cassava)	(Maize)
Number of farmers surveyed	407	495	407
Number of samples:			
Collected from farmers/farm	843	890	416
Collected from markets	34	n.a.	n.a.
Number of adoption estimates (data points) for DNA analysis	877	890	~208
DNA "Library"	53	62	40-45
Number of replicas	1	1	12
% of samples collected from farmers/farm identified by farmers			
By name	54%	98%	86%
As improved varieties	14%	7%	NYA
% of unique varieties identified by farmers as improved varieties	47%	13%	NYA

## Activity 1.1 (adoption of IVs) (cont'd)

Methods being tested against the benchmark of DNA analysis include:

- Farmer elicitation + some basic seed source data (all CCCs)
- Farmer elicitation based on series of photographs of plants and/or seeds (cassava and beans)
- Trained enumerators/experts recording observations on varietal characteristics (phenotyping) by visiting the field (cassava and maize)
- Trained expert identifying the variety based on his/her observation of varietal characteristics (phenotyping) during the field visit (cassava)
- Taking photos of the plant in the field or harvested seeds for latter identification by experts (i.e., breeders) (beans and cassava)

## Activity 1.2 (adoption of NRM)

- Rationale: In addition to the tradeoff between ‘accuracy’ and ‘cost’ of tracking agricultural technology adoption, the nature of adoption of NRM technologies further adds to the challenges. These include:
  - Location specificity of research outputs
  - Changes in practices at the farm level evolve over time-  
- difficult to come up with a universal definition of an NRM technology
  - Many times these types of technologies come as a ‘package of practices’ and farmers pick-and-choose its sub-components, which makes it difficult to define and measure ‘adoption.’

## Activity 1.2 (adoption of NRM) (cont'd)

Progress to date:

- July 2013: MSU issued a Call for Concept Notes that propose the use of:
  - Innovative methods, tools and techniques to track and document the adoption of NRM technologies
  - Methods that can be routinely applied to document trends and patterns in adoption of agricultural NRM technologies at a broad geographical scale (i.e., landscape, regional, or national level)
  - Methods that can be evaluated against a 'benchmark' method to test its effectiveness (as measured by accuracy) in estimating the adoption rate

## Activity 1.2 (adoption of NRM) (cont'd)

Progress to date:

- After going through a two-stage competitive process, the following projects were funded:
  - Hyperspectral (RS images) signature analysis: a proof of concept for tracking adoption of crop management practices - Gazipur, Bangladesh (led by IRRI)
  - Innovative use of mobile phone based applications in tracking adoption of Natural Resource Management Technologies in Indian Agriculture (led by CIMMYT)
  - Tracking the adoption of rainwater harvesting structures of Integrated Watershed Development Program (IWDP) in the semi-arid tropics of India (seed money to develop a proposal) (led by ICRISAT)



# Highlights of Objective 2: Outcomes

## Focus: Activity 2.1 and 2.4



## Activity 2.1 (Adoption of IVs)

- The focus is to actually measure and document outcomes / adoption of CGIAR research on CGI
- Extends the DIIVA/TRIVSA documentation methodology / analytical framework to South, Southeast and East Asia regions and crops
- Involves close collaboration with CRPs / Centers and national programs
- Involves auditing and selective validation of adoption estimates through representative surveys

## Activity 2.1 (Adoption of IVs) (cont'd)

Scope:

- Two databases: Varietal release and varietal adoption
- 11 crops across (rice, wheat, maize, barley, groundnut, chickpea, lentils, pigeon pea, cassava, potato, sweet potato)
- 14 countries (nationally representative data)
- 2 countries (India and China) (representative at the state/province level)
- Total 136 crop-country-combinations will be covered
- Methodology: Mostly expert elicitation method (build on lessons learned from TRIVSA and DIIVA)

## Activity 2.1 (Adoption of IVs) (cont'd)

Progress to date:

- Planning/Inception meeting with Center and NARS representatives was held in January 2014
- Workplan and budget developed by Centers to implement this Activity – Contracts finalized with
  - CIMMYT (wheat and maize)
  - IRRI (rice)
  - CIAT (cassava)
  - CIP (sweet potato, potato)
  - ICRISAT (barley, groundnut, pigeon pea, lentils, chickpea)

## Activity 2.1 (Adoption of IVs) (cont'd)

Progress to date:

- Guidelines on the methodology and data collection templates shared with Centers
- Plans are underway to organize training workshop for NARS coordinators on the methodology of data collection
- Data collection by NARS (under the supervision of Center coordinators) planned over the next 9-10 months
- July 2015: Two databases to be submitted by the Centers (for most CCCs)
- Audit of EE estimates in few CCCs (external) and validation of EE in a sub-set of CCCs through representative farm surveys planned in 2015

## Activity 2.4 (long-term institutionalization of adoption data)

- Rationale: This Activity contributes to SPIA's long-term vision of involving a broader and more diverse set of institutional partners in the collection of adoption data (rather than the current sporadic, project based efforts)
- Proposed plan:
  - Explore potential for institutionalizing the collection of adoption data into planned periodic surveys.  
Examples:
    - India – Cost of cultivation, agriculture production surveys
    - Zambia and Mozambique – nationally representative agricultural surveys (e.g., TIA)
    - LSMS-IAH surveys

**Open for discussion (welcome your input)**

**Activity 1.3: New institutional arrangements to collect adoption data**

## Activity 1.3 (new institutional approaches)

### Proposed Scope:

- Explore alternative avenues to outsource the collection and validation of technology adoption data (at scale and long-term) to the private sector

### Questions:

- Are there alternative service providers to whom technology adoption data collection can be outsourced?
- Is there a market (i.e., sustainable demand and critical mass) for technology adoption data that can attract the private sector to provide data products

**Thank you**

