



FEED THE FUTURE

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

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The Informal Seed Sector: A Behind the Seeds Look

Speakers

Karl Zimmerer, *The Pennsylvania State University*

Victor Afari-Sefa, *AVRDC - The World Vegetable Center*

Md. Mehedi Hasan, *Swisscontact – Katalyst*

Tashfiq Ahsan, *Swisscontact - Katalyst*

Facilitators

Julie MacCartee, *USAID Bureau for Food Security*

Mark Huisenga, *USAID Bureau for Food Security*

September 16, 2015



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Karl Zimmerer



Karl Zimmerer is a geographer and environmental scientist at the Pennsylvania State University. His research and teaching is focused on global human-environmental change, with an emphasis on landscape-based cultural and social-ecological analysis of sustainability, food security, and agrobiodiversity. Karl is currently a visiting scholar at the David Rockefeller Center for Latin American Studies at Harvard University where he is examining political and environmental planning mechanisms in contexts of social uprising and knowledge systems in Peru.



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Victor Afari-Sefa



Victor Afari-Sefa is an Agricultural Economist and the Global Theme Leader for Consumption at AVRDC - The World Vegetable Center. Victor leads and coordinates vegetable socioeconomic research in sub-Saharan Africa and globally by assessing opportunities and challenges in production systems, analyzing constraints in value chains, and analyzing policy in an interdisciplinary context. He also has expertise in developing agribusiness initiatives by thriving on collaborative and participatory processes. He holds a Ph.D. in Agricultural Economics from the Justus-Liebig University Giessen.



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Md. Mehedi Hasan



Md. Mehedi Hasan is a business consultant at Katalyst. He has experience working in vegetable and seed value chains and has developed more than 10 market system-focused interventions with partners ranging from small local actors to multi-million dollar business organizations to central government organizations. He specializes in inclusive business model development, market systems development, value chain analysis and monitoring.

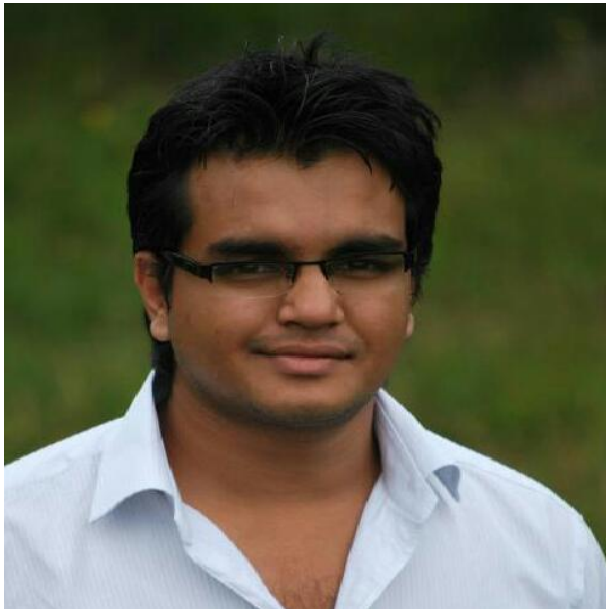


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Tashfiq Ahsan



Tashfiq Ahsan is a private sector development specialist with five years of experience in poverty reduction, inclusive markets and agricultural markets. His expertise lies in analyzing and developing feasible interventions in the market development approach. He currently manages a portfolio at the Katalyst project. Tashfiq has a proven track record of harnessing feasible ideas to combat poverty through inclusive growth interventions in the agriculture sector.

USAID Ag Sector Seminar, Bureau for Food Security (November 12)

The Informal Seed Sector: A Behind-the-Seeds View from SIBER Science

Karl Zimmerer

Department of Geography, Earth and Environmental Systems Institute,
Pennsylvania State University

Director, **G**eographic **S**yntheses for **S**ocial-**E**cological **S**ustainability
(**GeoSyntheSES**) Laboratory

ksz2@psu.edu; <http://www.geog.psu.edu/people/zimmerer-karl>;
https://www.researchgate.net/profile/Karl_Zimmerer

Points for the Seminar

- What is SIBER science?
- What are applications of SIBER science to the informal seed sector?
- What are the top takeaways?

What is SIBER Science?

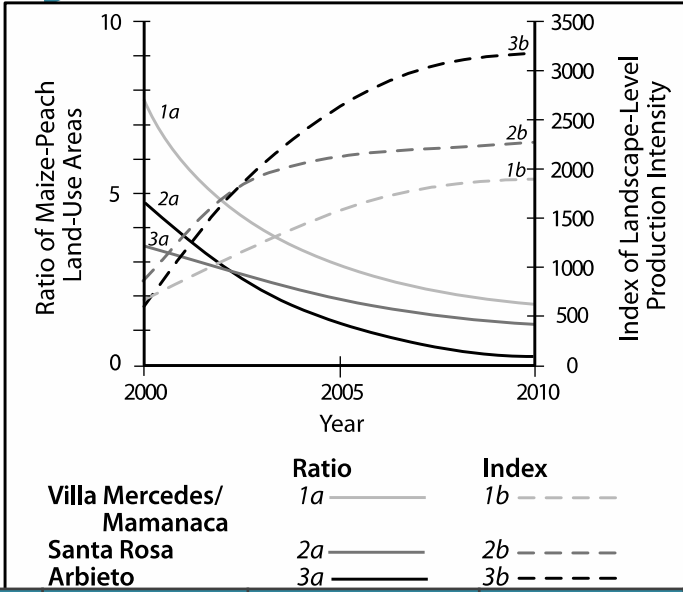
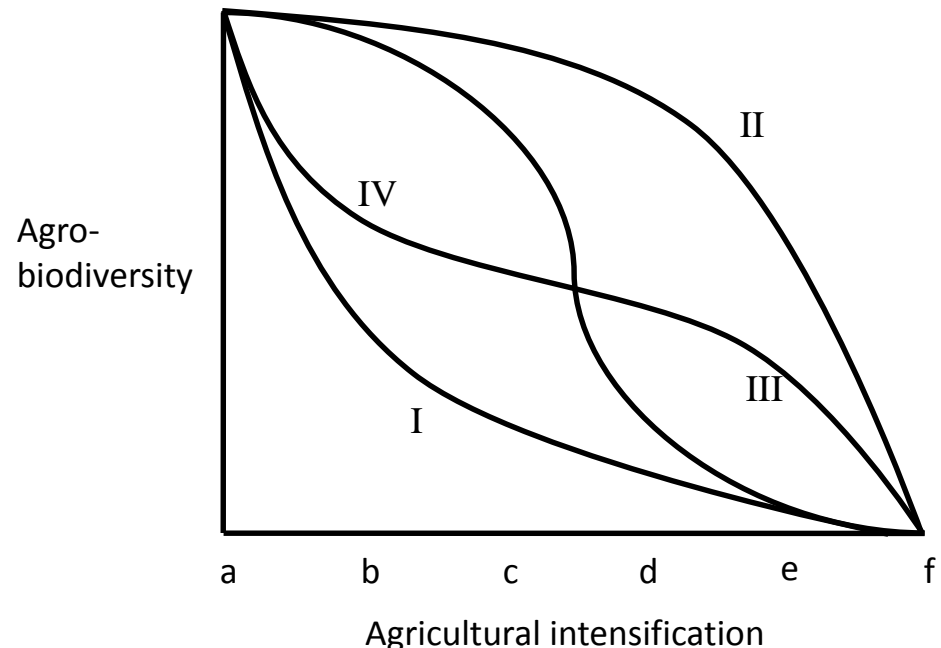
A Science of Human-Environment Interactions with Emphasis on:

- S** Smallholders
- I** Intensification (Sustainable)
- B** Biodiversity
- ER** Enhancing Resilience

Science - Evidentiary Knowledge Systems

Intensification and Local Seed Systems: Strengthening Sustainability

General Hypotheses



Village	Ecological Richness (Landraces /Area)	Ecological Evenness	Ecological Richness (Landraces /Househol d)
Mamana ca	7	1.28	1.35
Santa Rosa	9	1.34	1.37
Arbieto	8	1.33	1.43

2013, “The compatibility of agricultural intensification in a global hotspot of smallholder agrobiodiversity (Bolivia).” Proceedings of the National Academy of Sciences (PNAS) 110, 2769-2774,

Biodiversity: Andean Potatoes

Scientific taxonomies (5 cultivated spp.),
local landraces (3-4,000), and related wild taxa

(off-diagonal=between-variety differences)

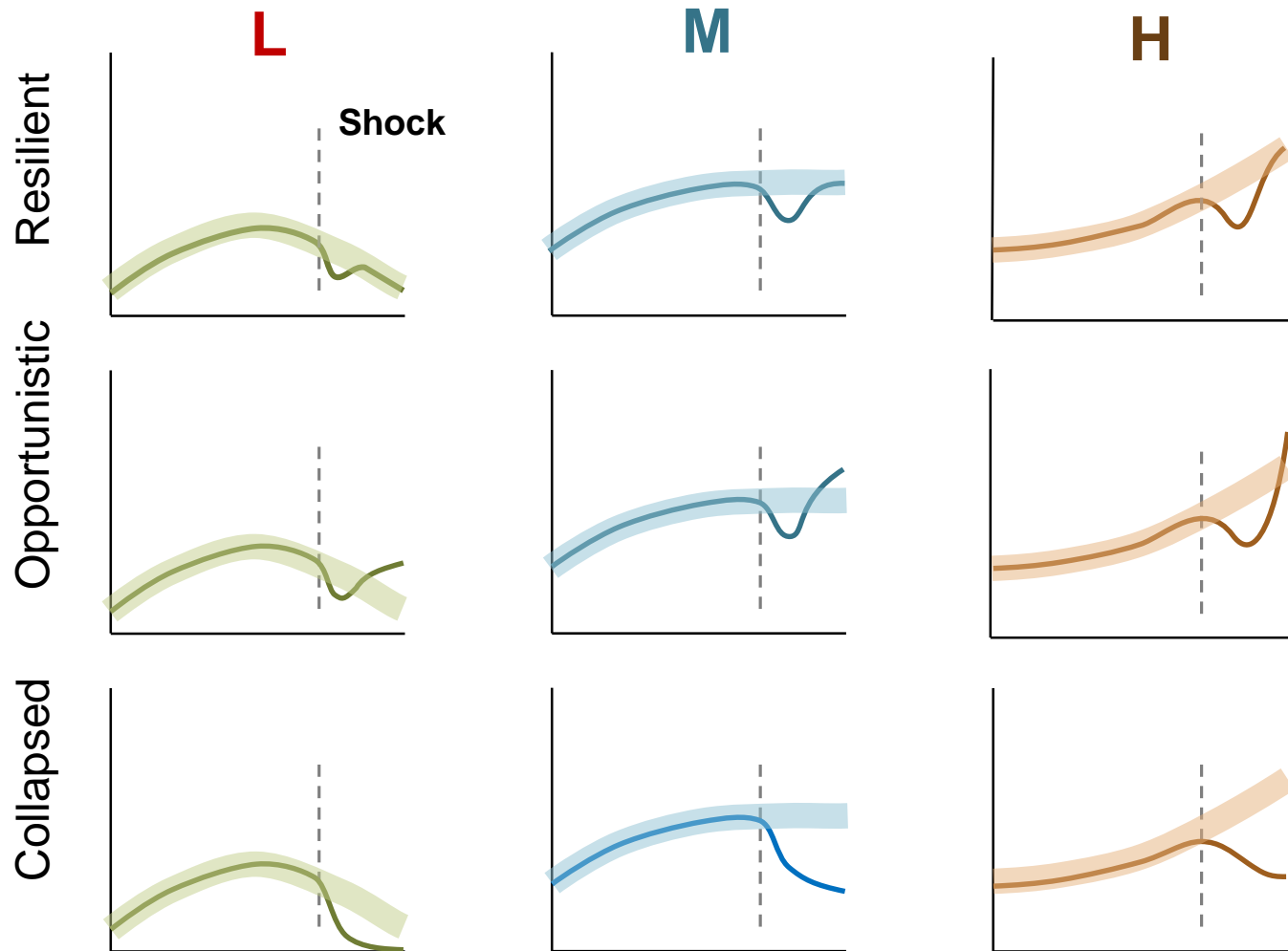
(on-diagonal=within-variety heterozygosity)

	1	2	3	4	5	6
1. Kusi	0.303	0.024	0.084	0.022	0.031	0.023
2. Pitikina		0.188	0.092	0.027	0.017	0.022
3. Puka mama			0.297	0.060	0.085	0.046
4. Qompis				0.294	0.042	0.017
5. Suyt'u					0.267	0.026
6. Wakoth'u						0.268



Enhancing Resilience: Responses of Agrobiodiversity To Shocks in Varied Intensity Agricultural Systems

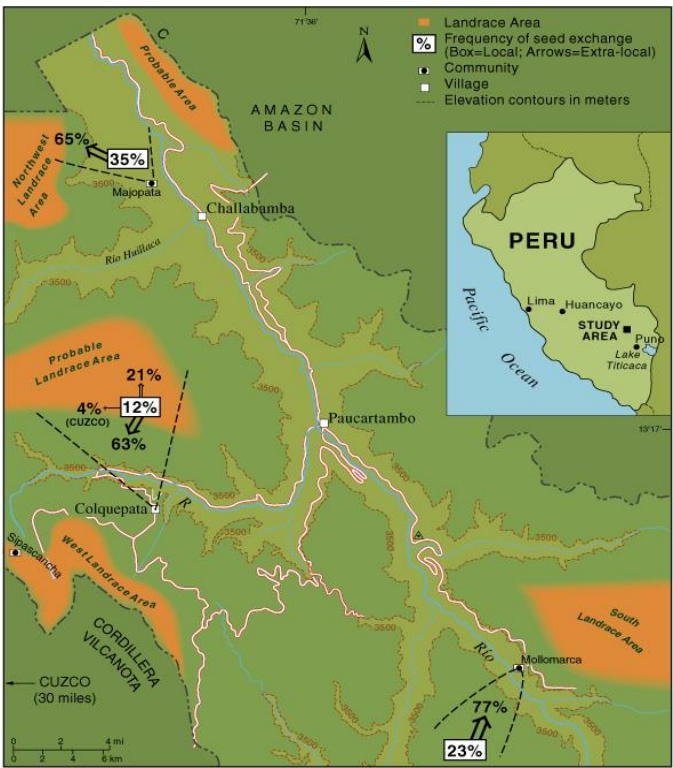
2015,
 “Sustainable
 smallholder
 intensification in
 global change?
 Pivotal spatial
 interactions,
 gendered
 livelihoods, and
 agrobiodiversity”
*Current Opinions
 in Environmental
 Sustainability*
 14: 49-60.
 (Zimmerer, Karl;
 Carney, Judith;
 and Vanek,
 Steven)



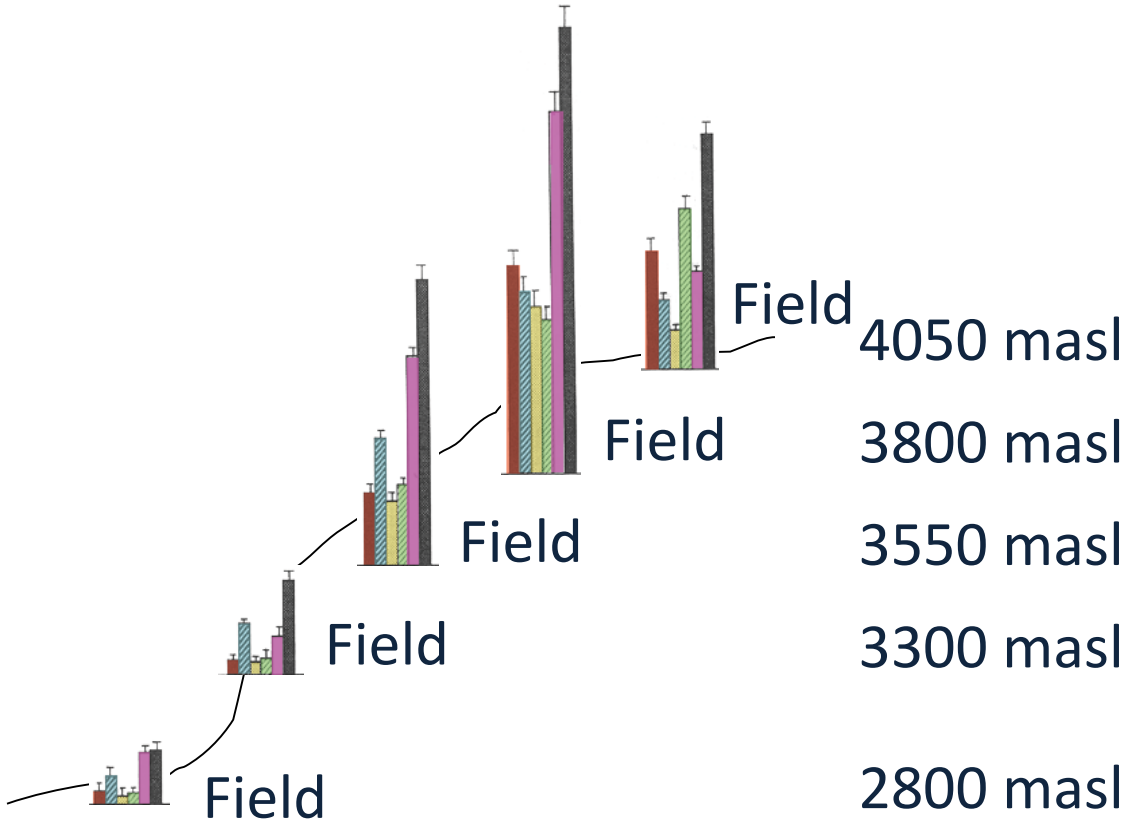
What are applications of SIBER science to the informal seed sector?

1. Seed System Structure and Function
2. Social Participation and Crowdsourcing
3. Markets and Mixed Approaches

Seed System Structure and Function

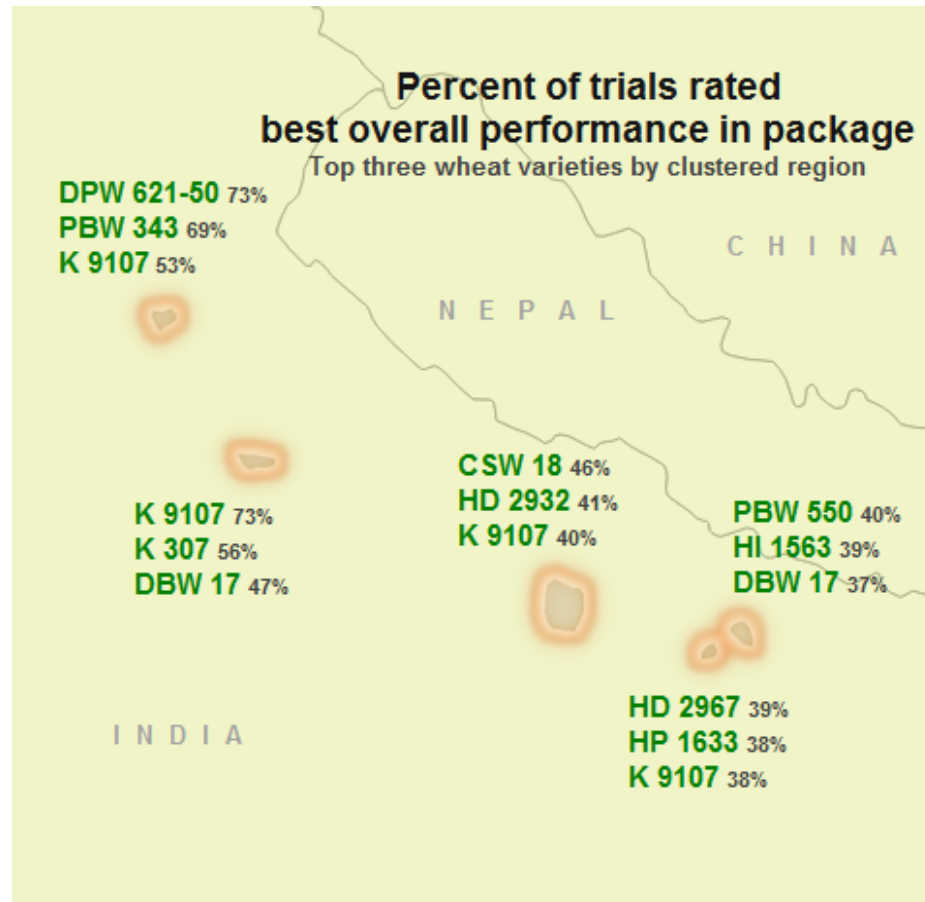


Seed Networks within and Between Communities



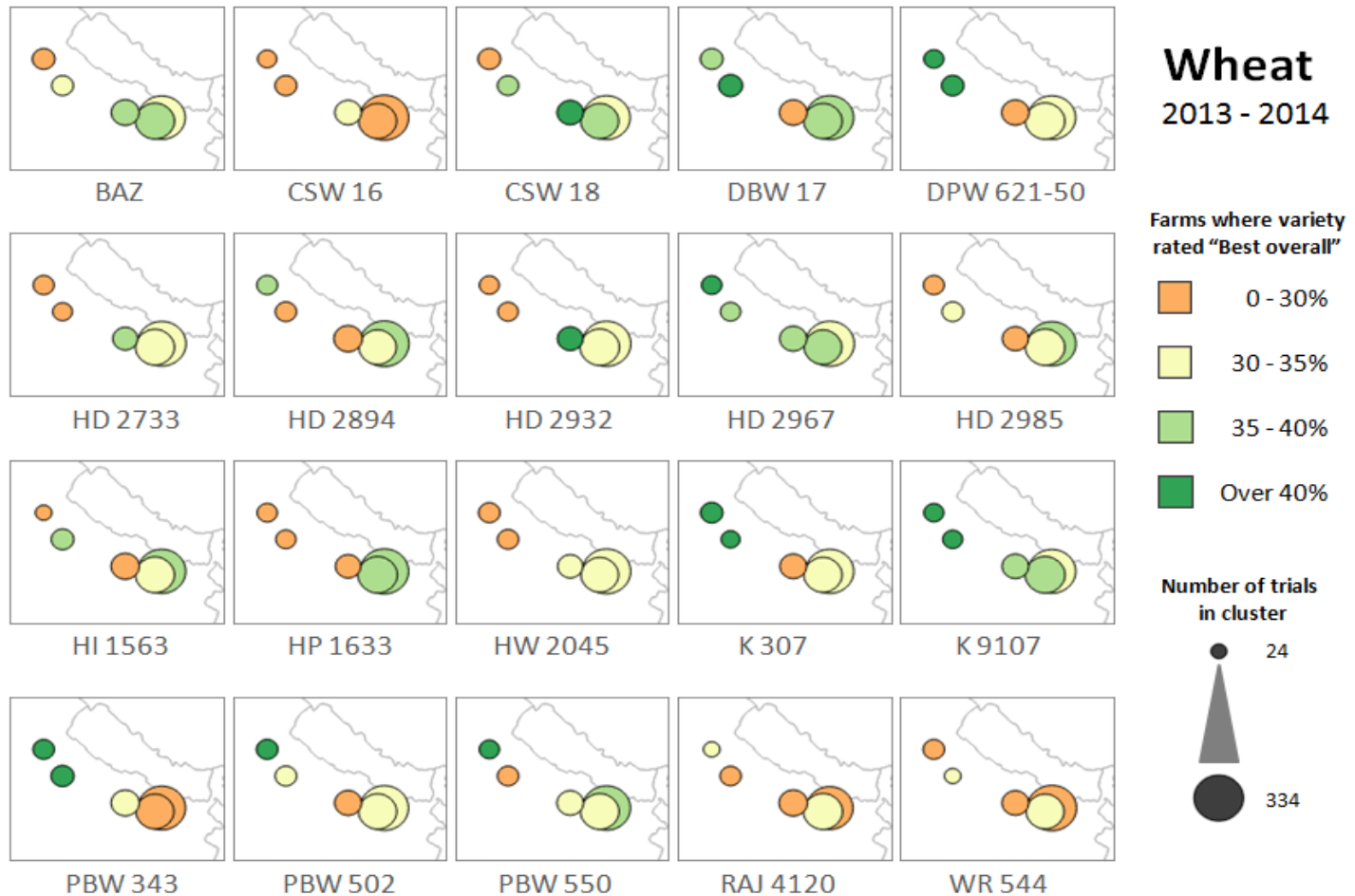
Adaptive Capacity across Range of Elevations

Social Participation and Crowdsourcing: Amassing and Sharing Information on Seeds

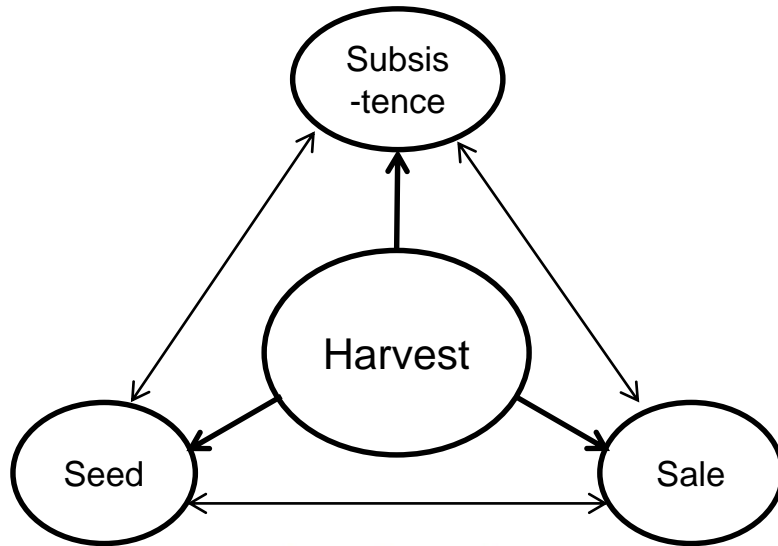


Collaboration with 1500 wheat farmers to-date (2014-15) through Bioversity International;
Penn State research includes visualization of results for use by farmers and scientists

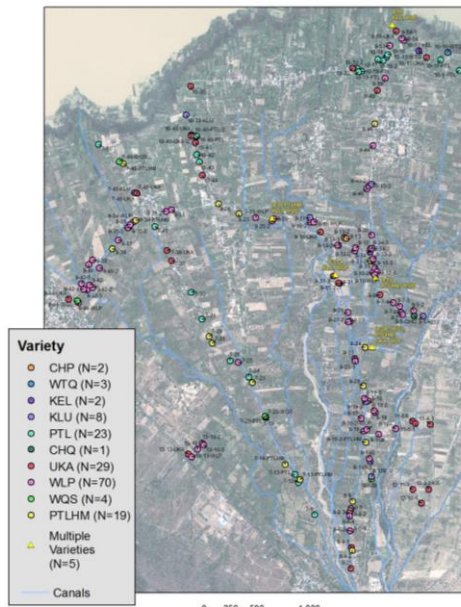
Strategy: Visualization Tools for Knowledge Management of Seed Crowdsourcing



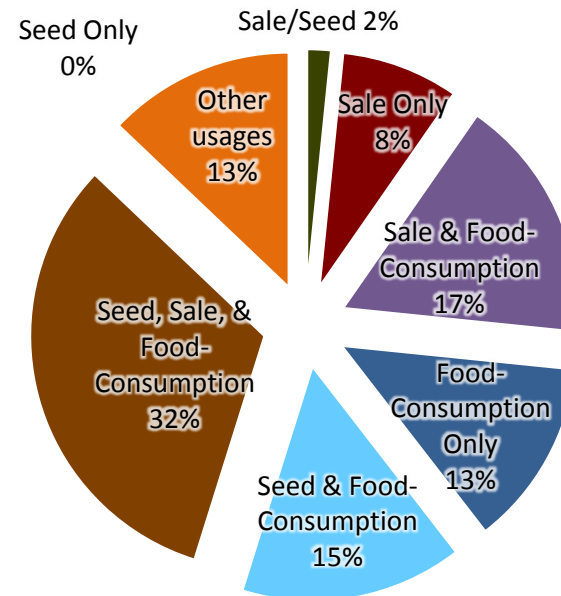
Markets and Mixed Approaches in the Informal Seed Sector: Multiple Uses in Smallholder Farming



April 2012 Maize Varieties



Household-Level Allocation of Maize Seed (Seed, Food-Consumption, Sale)



What are the top takeaways?

- A.** Identifying and Connecting Seed Networks Across Scales
- B.** Crowdsourcing Seed Knowledge and Activities
- C.** Visualizing Informal Seed Systems
- D.** Framework of 'Seed System X Environment X Farmer'

Acknowledgments: SIBER Science and Seed Systems

- NSF Human Social Dimensions (HSD) program (2009-2011), co-PIs Brad Barham, Dave Lewis, Jim Burt, and Amy Burnicki
- Drs. Steven Vanek, Martha Bell, and graduate and undergraduate students in the GeoSyntheSES Lab, Pennsylvania State University
- Indigenous, peasant, and smallholder communities in Peru, Bolivia, Colombia, Brazil, and Mexico, and farming communities in Wisconsin and Pennsylvania
- Field-based collaborations with Hector Luis Rojas Vaca and Maria Teresa Hosse Sahonero and their teams (UNMSS, Bolivia)
- Stef de Haan (CIAT), and collaborators in Peru, Colombia, and Vietnam (CIP, CIAT, PUCP)
- Jacob van Etten (Bioversity International), Sterling Quinn (Penn State), and collaborators on seed systems and crowdsourcing projects (Bioversity and Penn State)
- Claudia Bieling, Tobias Plieninger, and the agri-food sub-group collaborators of the Cultural Landscapes project (HERCULES)
- Medora Ebersole and Maurie Kelly and the GAPS network project on integrated citizen science and pollinator-seed geographies

Improving the quality of informal vegetable seed supply and distribution systems

Dr. Victor Afari-Sefa

AVRDC – The World Vegetable Center

Email:<victor.afari-sefa@worldveg.org>

*12 November 2015, USAID Agrilinks Webinar,
Washington, DC, USA*

Overview of informal seed sector



- **Comprises a multitude of individual private farmers who select and save their own seed or exchange seed with others through:**
 - traditional means such as gift, barter, labor exchange, cash transactions or social obligations
 - a diversity of local level seed production initiatives organized by farmer groups working under no legal norms and certification schemes
 - by far the most important source of seed for most farmers
- **Community seed production systems**
 - farmer recognized community seed producers and seed sellers from various actors of the value chain (i.e., traders, NGOs, CBOs etc.)
- **In the context of this presentation, we will emphasize farmer led seed enterprises (FLSEs) to represent both systems.**
 - on average account for 75-80% of seed supplies in SSA

Why farmer based seed enterprises



(FLSEs)



- **Public seed sector: inefficient in operations (1970s & 80s)**
 - Less market oriented
 - Less access to remote areas
 - High volume, low value crops (?)
- **Private seed sector: selective of business**
 - Profit maximization motive
 - High value / cash crops, low volume
 - Hybrid seeds (mostly, imported & not locally adapted)
 - Challenges with seed adulteration
 - **Small farmers: flexibility and diversity**
 - Diverse agro-ecology, many varieties
 - Small quantity, relevant quality
 - Place/time of delivery, less cost



Characteristics of FLSEs?



- **FLSEs describe seed production and supply with or by farmers, although differ in objective, scope and ownership**
 - Genetic resources conservation
 - Participatory crop improvement
 - Contractual seed production
 - Local seed production and supply
- **Key characteristics**
 - Operates at local level
 - Deals with small seed quantities
 - Wide range of exchange mechanism
 - Informal with no/limited regulatory control
 - Directly addresses farmer immediate needs
(i.e., spatial, time, value and information gaps)
- **Certification**
 - Except for “semi-formal systems”, mainly,
“social certification” based on mutual trust



Farmer-led seed enterprises



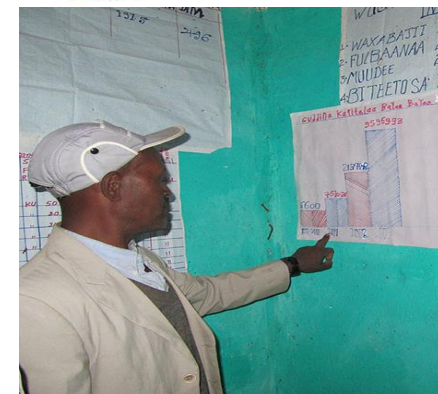
AVRDC

The World Vegetable Center

- **Contribute to addressing notable gaps in seed supply and distribution systems locally given:**
 - Technically well equipped
 - Well organized to cater for regionally specific varietal preferences
 - Market-driven and innovative
 - Autonomous in their seed business
 - Decentralization of seed distribution
 - Possibilities for establishing linkages to formal institutions to enhance seed quality



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Quality declared seed (QDS)



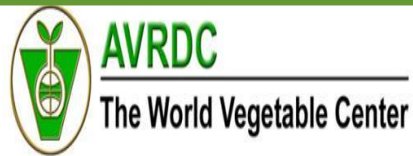
- Recognized and certified community seed producers and seed sellers system as outlined by FAO (2004) e.g., Tanzania and Madagascar
- See FAO (2004): 'Quality declared planting material: protocols and standards for vegetatively-propagated crops.' FAO Plant Production and Protection Paper 195. Rome, Italy

Challenges

- Manual seed extraction for some crops e.g., tomato seed is laborious and time-consuming; use of labor-saving technologies such as mechanical seed extractor.
- Seeds can mainly be sold only within the agro-ecological zone where DUS testing, given no NPTs conducted



Case study of comparison of private contracting versus QDS in Tanzania



- Scaling up FLSEs for sustained productivity and livelihoods in East and Central Africa funded by ASARECA & later *Irish Aid* sought to address TAV seed constraints and help growers improve their livelihoods
- Project aimed at maximizing the participation of both men and women in the seed supply chain for 4 TAVs in Tanzania and Kenya
- In Tanzania, 2 study regions, collaboration between:
 - Researchers (CABI, AVRDC, HORTI-Tengeru)
 - Agricultural extension agents
 - Private seed companies
 - Regulatory bodies (TOSCI)
 - Farmer groups and NGOs



Amaranth



African eggplant



Case Study of comparison of private contracting versus QDS in Tanzania...



- Beneficiaries for both FLSE models were based on **purposive selection criterion** to meet project goals and aspirations
- **Baseline survey** conducted to establish the pre-adoption socioeconomic situation and production practices of participating farmers
- Strong **capacity-strengthening** element and **model evaluation** aspects imbedded in the project

Case Study of comparison of private contracting versus QDS in Tanzania....



- **ToT** workshops were conducted in the 2 study regions. Direct beneficiaries were trained in seed regulation, certification, production and marketing and management skills
- **Monitoring visits** to the various communities undertaken on a regular basis to track progress of interventions
- Comparison of 2 FLSEs was based on **representative farm agrono-mic and socioeconomic and detailed household surveys**
- Results show that farmers obtain higher incomes (**CBA \geq 2.27**) for vegetable seed than for produce (**Afari-Sefa et al., 2013**)
- Revenues from TAV seed sales can be increased by **2.3 times** if certified seed access for farmers can be increased along with more frequent contact with village extension (**Rajendran et al., forthcoming**)

Case Study of comparison of private contracting versus QDS in Tanzania..



Tanzania..



- Difficulties encountered by some QDS farmers to access viable markets within the geographical sphere for which seeds can officially be sold. *Need for differentiation via branding*
- Successful PPPs to empower FLSEs require prior assessment of trade-offs of participating partners to ensure a win-win situation for all
- An enabling seed policy and regulatory environment is critical for the successful uptake and sustainability of FLSEs
- Continuous support of FLSEs through capacity building is necessary to ensure efficiency and high profitability of FLSEs
- Strong collaborative links need to be fostered between actors and seed sector stakeholders



Integrated seed sector development (ISSD)



<http://www.issdseed.org/issd-africa>



- Funded by the BMGF & Dutch government.
- **Recognizes** the overwhelming **importance** of the informal system
- Aims to better links **informal** & **formal** seed systems; balance public & private sector involvement
- Explores variation among seed value chains, by trying to make seed **programs and policies** more **coherent with farmers' practices** while attaining food and nutritional security goals
- **Pluralistic** approach (both seed systems & actors)
- **Evolving and enabling policy** environment created



Village-based seed enterprises



(VBSEs)



VBSEs are seed production and marketing enterprises that produce and market seed and involved in combination of operations as implemented in the middle East by **ICARDA**

They are group of farmers (or individuals) who undertake seed business and organize production with view to make profit.

It implies farmers' ownership and responsibility for operating an enterprise independently with commercial intent.



In SSA, already many powerful voices to bridge gap

[Africa Seed Program - Impact Hub](#)

africaseed.impacthub.net/

Impact Hub's **Africa Seed** program is an incubation program focused on helping local entrepreneurs open Impact Hubs across Africa.

[AGRA | Program for Africa's Seed Systems | What we do](#)

agra-alliance.org/what-we-do/program-for-africas-seed-systems/

The Program for **Africa's Seed** Systems (PASS) provides the higher-yielding seeds farmers need to not only avoid such a crisis but also improve their own lives ...

[West Africa Seed Alliance - CNFA - CNFA](#)

www.cnfa.org › Programs

Overview. CNFA's Seeds Project, part of the West **Africa Seed** Alliance (WASA), was created to enable the transformation of West African agriculture from mostly ...

[Africa Seed Grants Program - Cleveland Metroparks](#)

www.clevelandmetroparks.com/Zoo/.../Africa-Seed-Grants-Program-3.as...

With generous support from the Cleveland Zoological Society , the **Africa Seed** Grants Program provides funds to support field conservation and research ...

Conclusions



- With few exceptions, FLSE interventions depend on **donor support & encourage 'dependency'**
- **Institutionalizing and establishment of business-oriented FLSEs via PPPs** will ensure sustainability
- Technical, economic and institutional considerations are integral part of FLSEs for their successful implementation
- FLSEs must have appropriate **linkages with formal sector institutions** (research, seed sector, etc.) to ensure sustainability
- No “**one-size fits all FLSE**”; albeit with common challenges with different systems
- Critical is that approaches are **demand driven**



Improving poor farmers' access to quality vegetable seeds



**Tashfiq Ahsan, Manager, Sectors
Md Mehedi Hasan, Business Consultant,
Sectors**

In partnership with



Swiss Agency for Development
and Cooperation SDC



PRESENTATION AGENDA

- About Katalyst
- Approach
- The intervention
 - Intervention idea
 - Implementation
 - Evidence of impact
- Way forward & Key Takeaways



Introduction to Katalyst

INTRODUCTION TO ATC-P*/KATALYST

- A **Market Development Project** that aims to contribute to increasing the income of poor men and women in rural areas
- Facilitating changes in services, inputs and product markets, increases the **competitiveness of farmers and small enterprises**
- Under Ministry of Commerce (in partnership with BPC)
- Phase 3 co-funded by the Swiss (SDC), the UK (DFID), and the Danish (DANIDA) govt.

PHASE 2 (2008- 2013)

benefited 2.4 mil
farmers and SMEs[^]

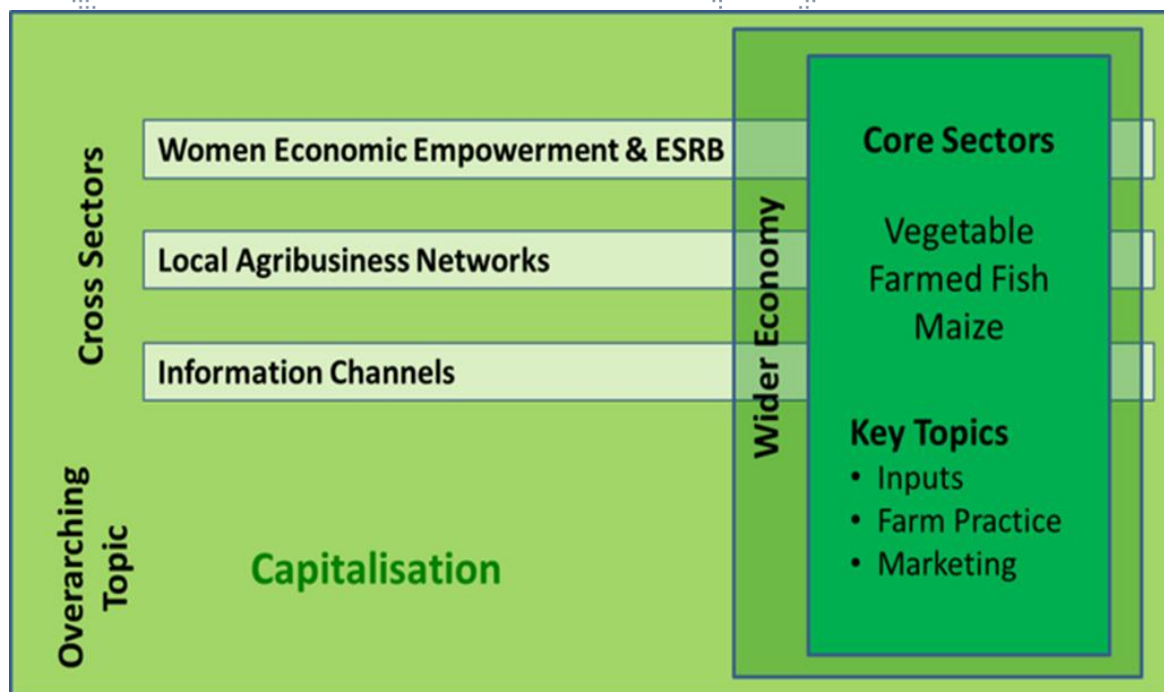
Income increase by
USD 295 mil[^]

PHASE 3 (Mar 2014- Mar 2017)

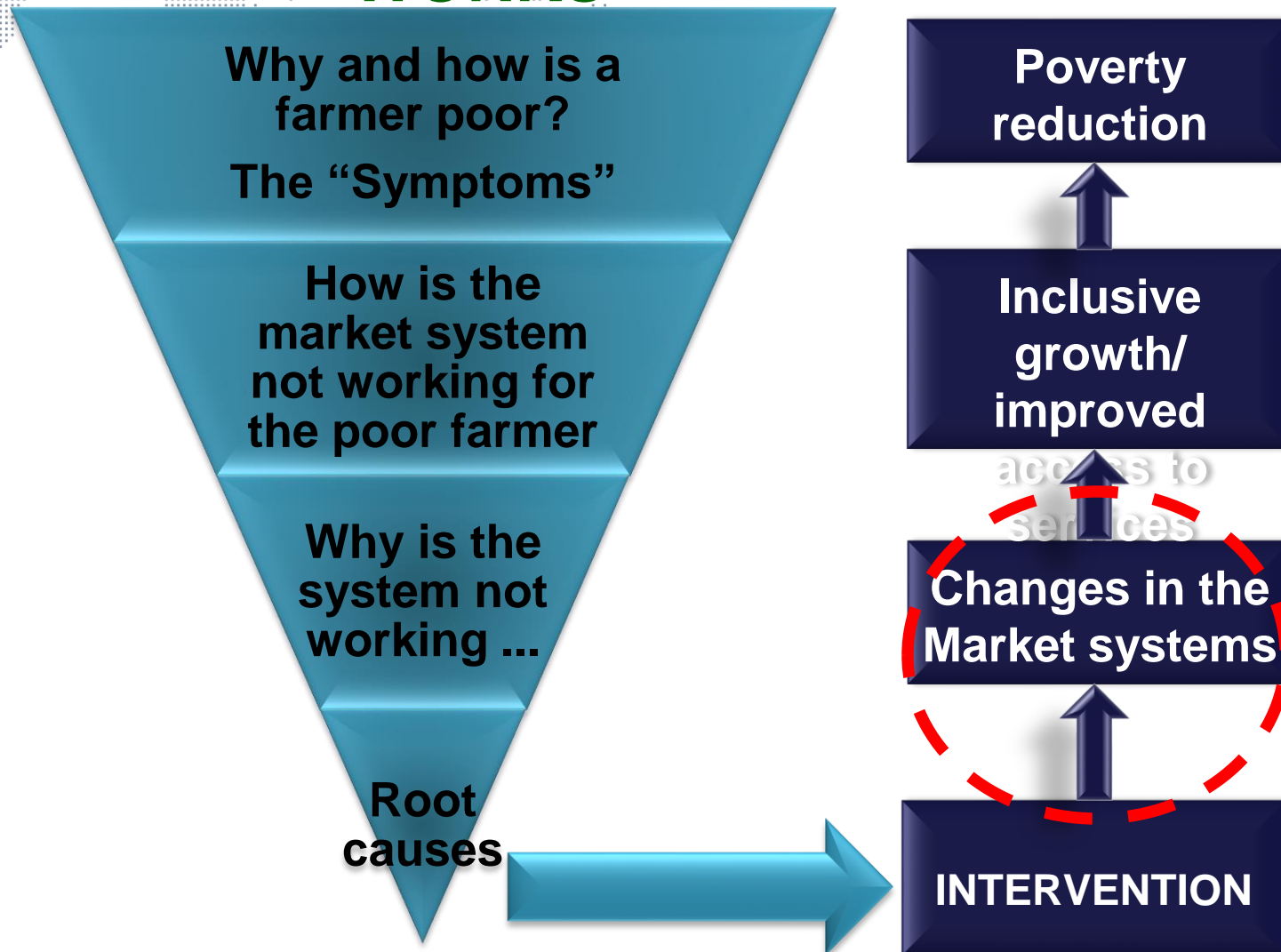
aims to benefit 1.4 mil
farmers and SMEs[#]

aims to increase
income USD 250 mil[#]

SECTORS/THEMES KATALYST WORKS IN



HOW KATALYST WORKS

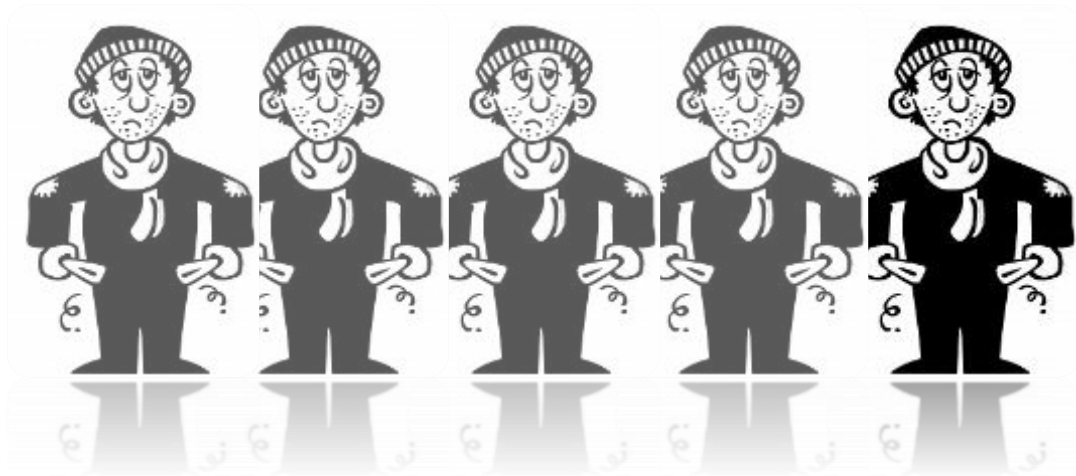


Quality vegetable seeds in mini-packs



CONTEXT OF THE VEGETABLE SEED MARKET IN BANGLADESH

Quality
Seeds



Farmer
s

CONTEXT OF THE VEGETABLE SEED MARKET IN BANGLADESH



		<p>Seeds</p>
		<p>Land size</p>
		

Identified intervention area

Availability of quality vegetable seeds catering to the needs of poor small and homestead farmers

INTERVENTION: MSVs (MOBILE SEED VENDORS)



- One partner company
- Targeting the clients of the MSVs
- Incorporating MSVs in the Distribution Channel: Commission System
- Other companies start using them

Outcome

Learning

Concept

Inclusion
Information transfer
Increase usage

Small needs
Inappropriate pack
size
Adulteration

Reinforcing the idea
of Mini-packets!

INTERVENTION: MINI-PACKETS OF QUALITY VEGETABLE SEEDS

Mini packets of quality vegetable seeds catering to the needs of small holder farmers

Mini Packets

12 cents (US) and 25 cents



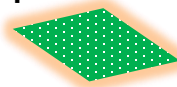
Regular Packets

USD 1 to 2



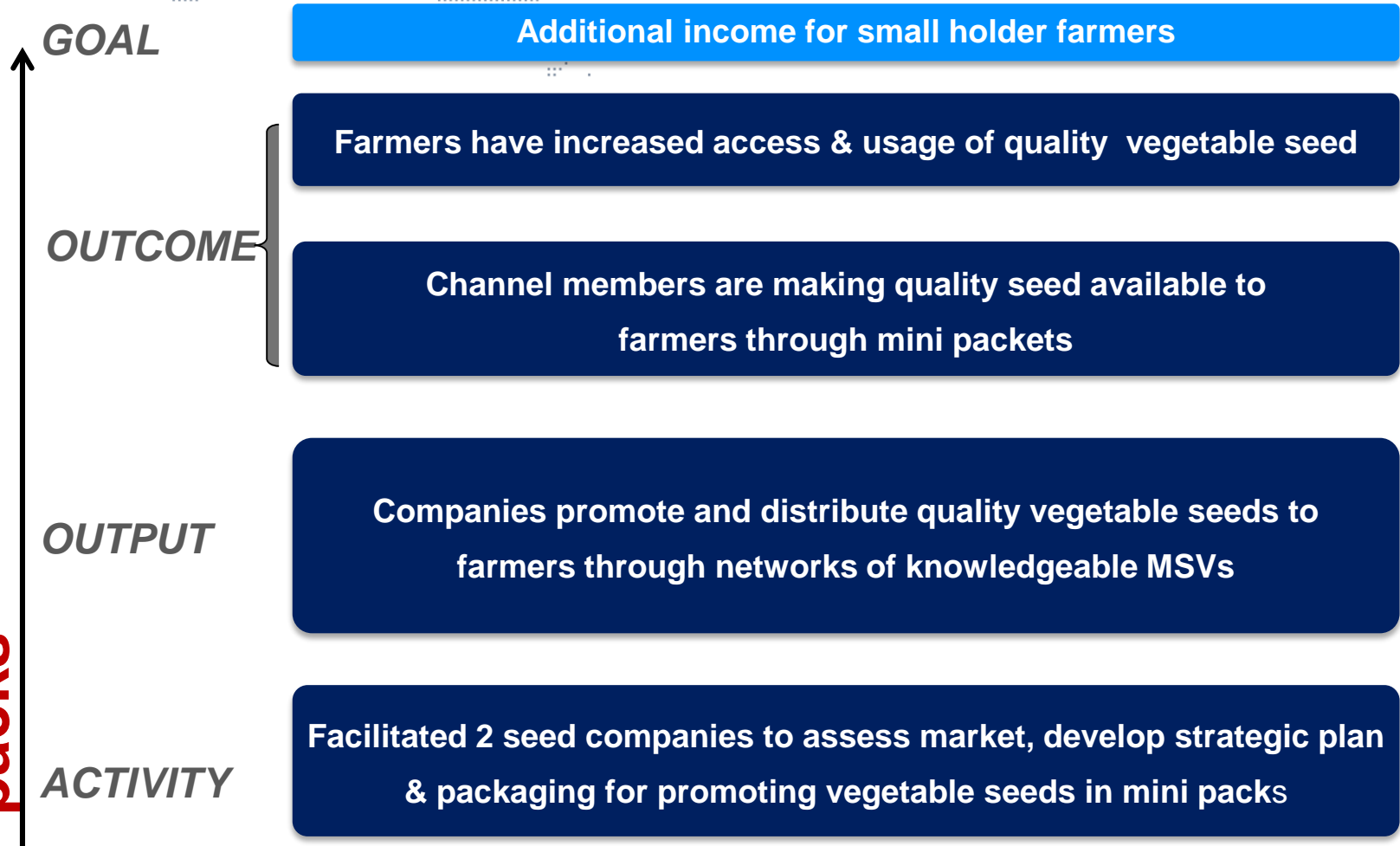
Both HYV & Hybrid Varieties for mini packets

cover 0.03-0.04 acres



INTERVENTION: MINI-PACKETS OF QUALITY VEGETABLE SEEDS

Result Chain of Mini
packs



MINI-PACKETS: FROM PILOT TO SCALE

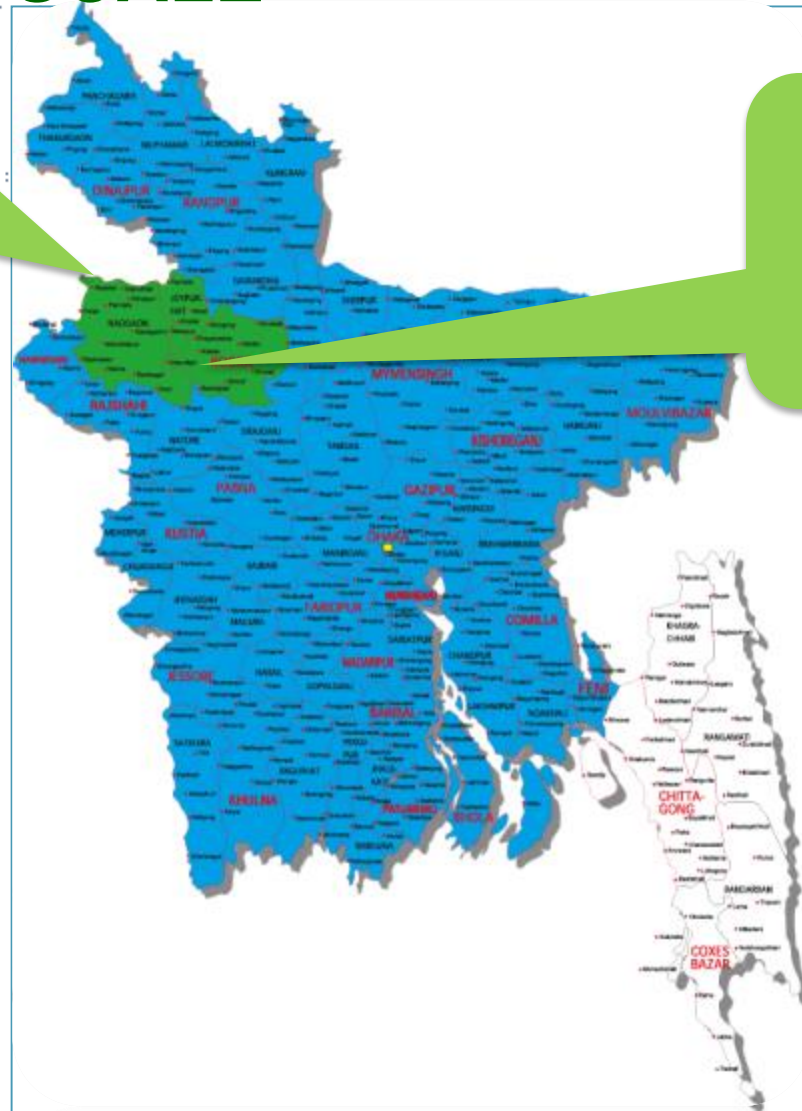
**Pilot project in
3 districts**

**Pilot: 100,000
mini-packets**

**Expanded to 55
Districts**

**10 months
1.3 million mini-
packets**

**Sold
558,000
during
pilot**



WHY A SIMPLE IDEA WAS NOT EASY TO IMPLEMENT

- Investment focus: medium to large farmers & production hubs
- No proven/guaranteed business case
- Slow & reluctant to enter into untapped market
- Perceives 'first mover advantage' as short lived

PARTNER ENGAGEMENT – KEY ISSUES

- Identify Interest of the partner to try out this idea
- Buy in (Incentive, Market share etc.) from partners
- Scalability potential of the partners
- Strength (Financial, technological etc.) of the partners to execute the intervention
- Quality of the service/ inputs offered by the partners

IMPACT ON FARMERS TILL DECEMBER 2014

Total Usage



873,203 farmers

No. of beneficiaries



579,418 farmers

40%

Homestead farmers

185,413
Female
beneficiaries



80% Beneficiaries below
\$2.50/Day



23% Beneficiaries below
\$1.25/Day

IMPACT ON FARMERS TILL DECEMBER 2014



AVERAGE IMPACT ON BENEFICIARIES



25

Million USD increased

income

USD 34 increased income per beneficiary per year

MINI-PACKETS: WAY FORWARD

Expansion

Deepening

- Partnering with other companies to scale up in more remote areas
- Facilitating changes in packaging content such as incorporating easy-to-understand knowhow on sowing and cultivation.
- Distribution channel strengthening and awareness building on quality seeds

KEY TAKEAWAYS

- Very simple business ideas can have a big impact on poor people's lives
- For an idea to be sustainable, companies need business cases
- Intervention timing is very critical, supporting pre and post interventions are required for sustainability
- Private sector can effectively reach poor farmers
- Quality product does its own promotion at farm level

To Know more about our project, please visit our website

Thank you



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Questions and Answers

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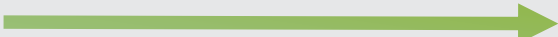


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