

Voice and Choice in Translational Research: A case for the "new" community of practice model

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Outline

- Why choice and voice
- Lessons from science & translational research with smallholder farmers
- The translational research process and the "new" community of practice

Take away message

Outline

Why choice and voice

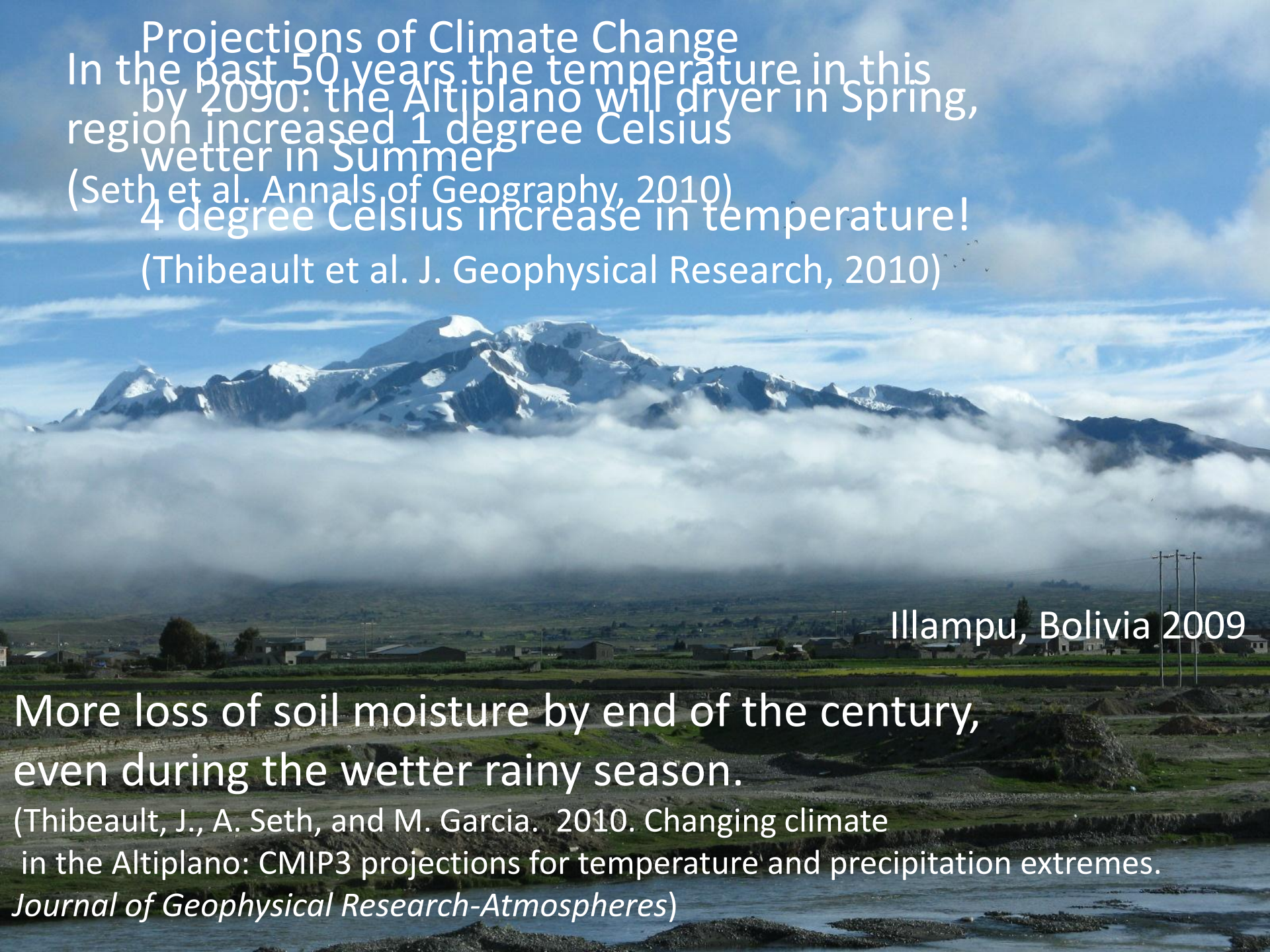
Women and men farmers make decisions every day that impact the livelihoods and wellbeing of their families in rural communities.

Meaningful knowledge: relevant, in the language and context of the decision maker, and from a trusted source. A necessary condition, but is it sufficient?

Rosita & Corinne: learning about the biophysical indicators in Puno, Peru

So what: why do we care?

Project: Climate Variability and Household Welfare In the Andes


Projections of Climate Change
In the past 50 years the temperature in this region increased 1 degree Celsius
(Seth et al. Annals of Geography, 2010)
by 2090: the Altiplano will dryer in Spring, wetter in Summer
4 degree Celsius increase in temperature!
(Thibeault et al. J. Geophysical Research, 2010)
Illampu, Bolivia 2009
More loss of soil moisture by end of the century, even during the wetter rainy season.
(Thibeault, J., A. Seth, and M. Garcia. 2010. Changing climate in the Altiplano: CMIP3 projections for temperature and precipitation extremes. *Journal of Geophysical Research-Atmospheres*)

Why it matters

It matters because there are a lot of changes going on that are creating new conditions that can't be dealt solely with local or scientific knowledge

Context: Transformational changes affecting rural communities that create uncertainty and risks

- Climate
- Global Markets
- Environment
- Population Growth
- Government Policies

Outline

How science informs translational research with smallholder farmers

Example: forecasts in agriculture

- Scientists and farmers knowledge systems are very different. Scientists using rules based systems, farmers association based systems (experiential).
- When the results of associational and rules based systems conflict, the decision maker reverts to his or her own experience, more so when insecure (Slovic and Weber, 2002).
- In the case of farmers, Rosita, when the results of traditional/local knowledge system and probabilistic forecasts conflict, they will tend to rely on her own assessment, her local knowledge.

Families with low income & many risks that threaten their livelihoods have very high feelings of dread

North Altiplano Communities Family Income: Ag & Non Ag	Average
Total Income (cash & in-kind)	$627
Edu	
Far	

The likelihood of taking chances with new knowledge is very low when living in a context of uncertainty and food insecurity.

Perc 1 n 2 a 4 a very strong threat 5 an extreme threat	Index
Impact of frosts	4.06
Impact of pests	4.11
Loss of soil fertility	4.00

80% of families lost crops to pests

50% lost animals because of diseases

Valdivia C., E. Jiménez and A. Romero. 2007. El Impacto de los Cambios Climáticos y de Mercado en Comunidades Campesinas del Altiplano de La Paz. *Umbrales*. 16 (December): 233-262

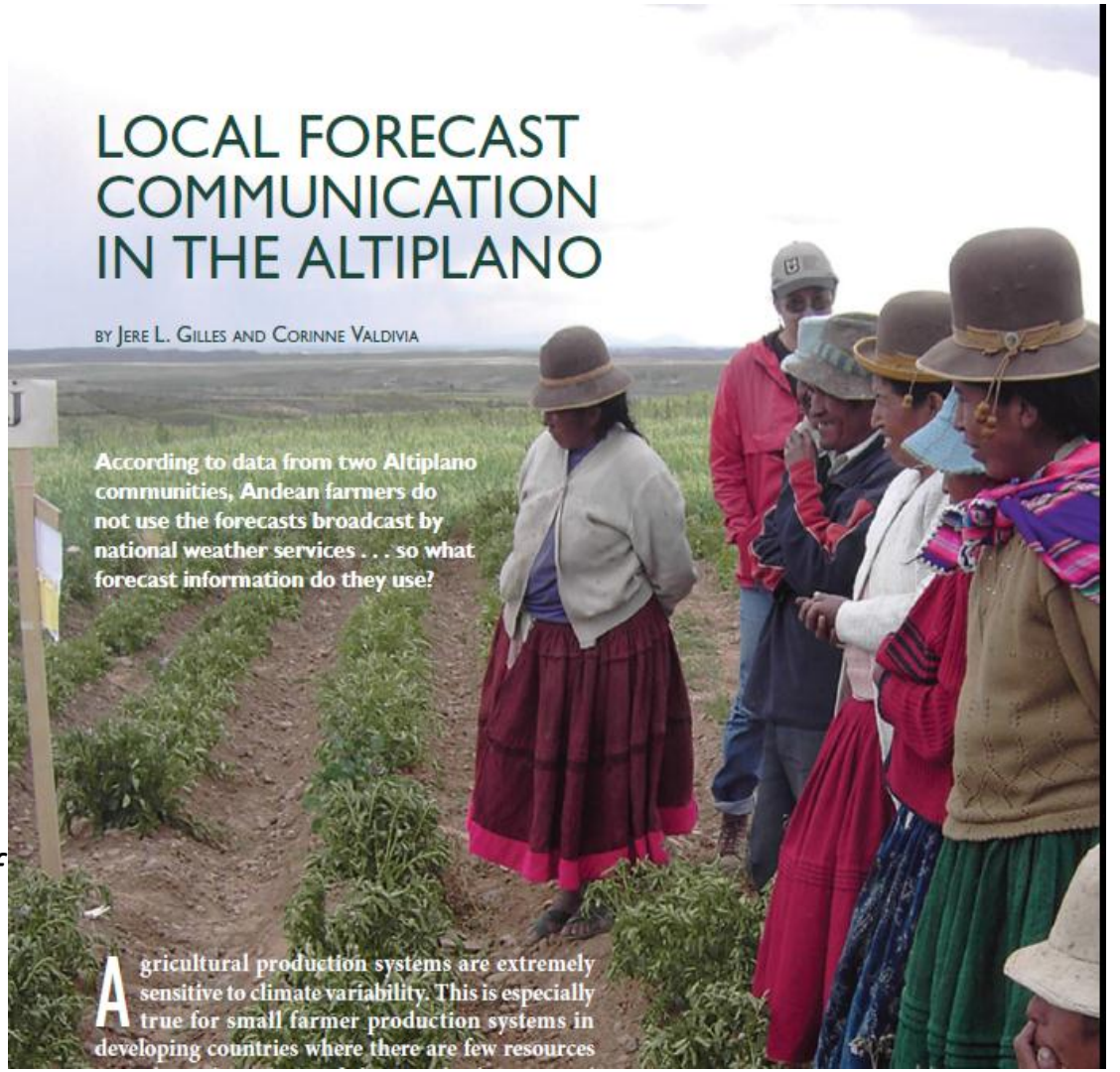
Two-way participatory communication can enhance trust (Wilkins, 2001). Participatory workshops can be effective in communicating forecasts (Patt et al, 2005, Zimbabwe).

How to engage in meaningful knowledge

Valdivia, C., A. Seth, J. Gilles, M. García, E. Jiménez, E. Yucra, J. Cusicanqui and F. Navia. 2010. Adapting to Climate Change in Andean Ecosystems: Landscapes, Capitals, and Perceptions Linking Rural Livelihood Strategies and Linking Knowledge Systems. *Annals of the Association of American Geographers.* DOI: 10.1080/00045608.2010.500198

Monitoring climatic conditions in the Andes is a challenge for public institutions, but a local network can support the process.

How?



Gilles, J. and C. Valdivia. 2009. *Bulletin of the American Meteorological Society (BAMS)*. 90 (January 1): 85-91.

Annual meeting of all stakeholders in the collaborative research Support Program in Puno Peru

How to engage?

A process that engages farmers, researchers, public officials, universities & other stakeholders that building capacities and networks of collaboration

Developing formal agreements with communities that include the most vulnerable.

How to engage

Why & how?

Pachamama

Soils are a key resource, the natural capital, Pachamama

Aguilera, J., P. P. Motavalli, et al. 2012. Initial and Residual Effects of Organic and Inorganic Amendments on Soil Properties. *American Journal of Experimental Agriculture* 2(4):641-666.

Motavalli, P., J. Aguilera, *et al.* (In press) *Communications in Soil Science and Plant Analysis*

Gomez- Montano, L., A. Jumpponen, M. A. Gonzales, J. Cusicanqui, C. Valdivia, P. Motavalli, M. Herman, K. Garrett. 2013. *Soil Biology and Biochemistry*

Outline

The translational research process
&
the “new” community of practice

Choice and Voice: Creating a New Community of Practice (Meyers, Gilles, Hendrickson, Dandala, Schneeberger & Folk)

People talk about how GM can benefit farmers but the talk voice never comes from the farmers themselves.

Involved farmer research and the involvement of research and extension decision makers.

Allowed farmers to try the technology under their own conditions, after training session.

Made stakeholder decision makers aware of the constraints of farmers. They were concerned with labor constraints and weeds rather than yields.

Continued…

The context:

Government policies that promote black commercial agriculture

A welfare system that both facilitates and constraints investment in agriculture

The ability to market significant surpluses was a big challenge

More but still limited knowledge of improved maize practices

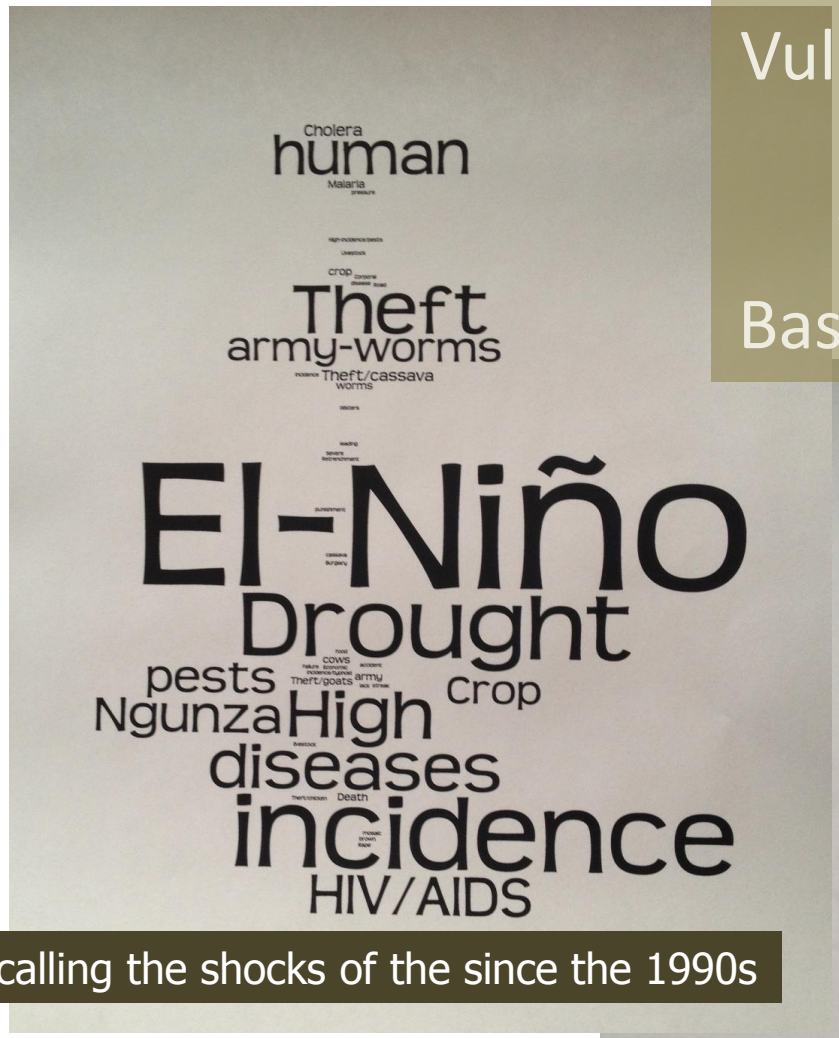
Storage issues as well as access to markets

Credit issues /

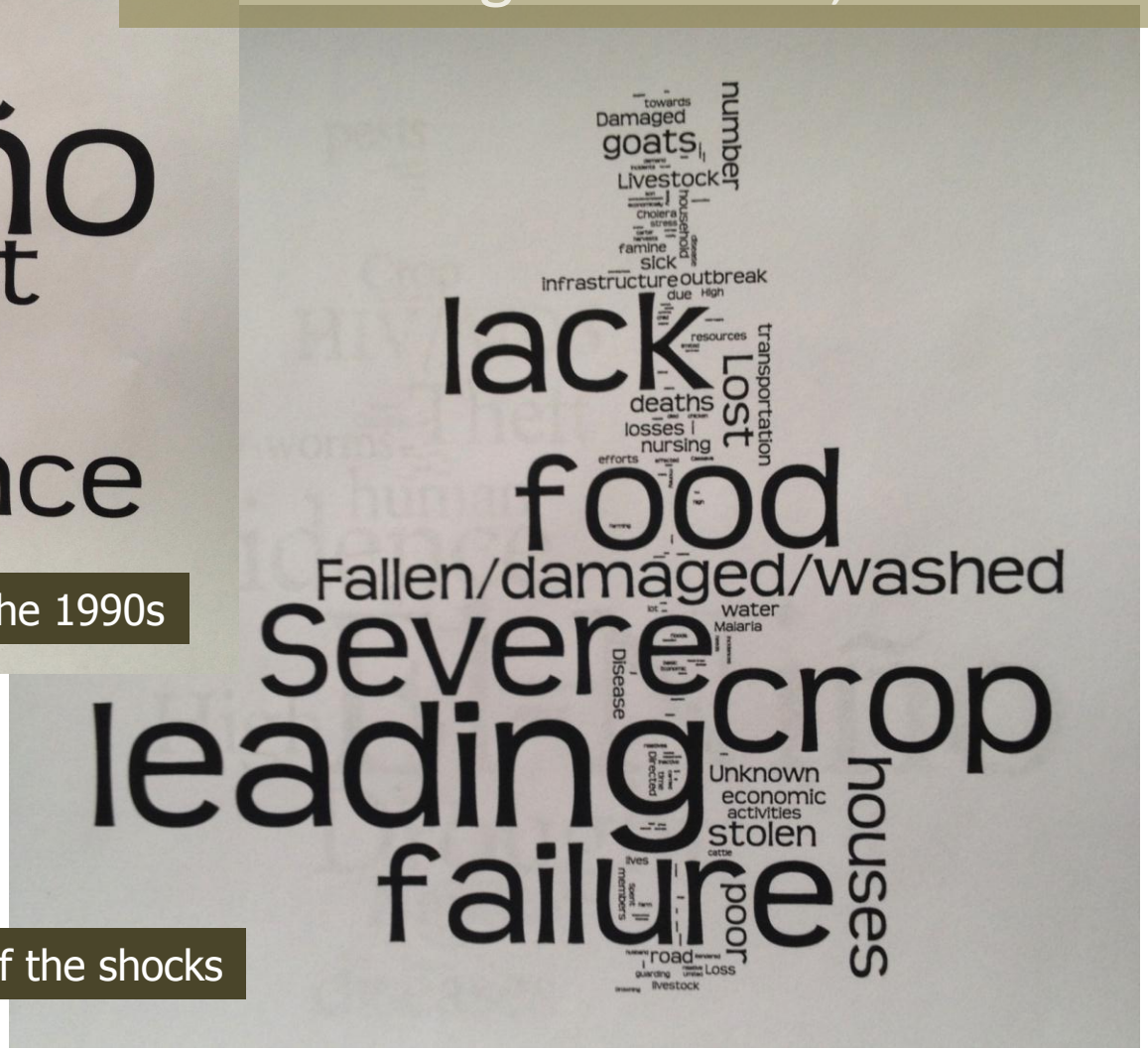
Access to finance

Developing Meaningful Knowledge: Benefits Risks and Unintended Consequences of GM Cassava for Food Security in Kenya (James, Valdivia, Folk, Murithi)

Vulnerability assessment with the group of women farmers in Basi-Mwangaza in Kilifi, The Coast



Recalling the shocks of the since the 1990s



Recalling the impacts of the shocks

Translational Research

6. Information in the context of the decision makers: vulnerable, secure, women and men

5. Information sharing with scientists for feedback to farmers

1. Understanding the vulnerability context and insecurity

Participatory feedback process with farmers and local scientists

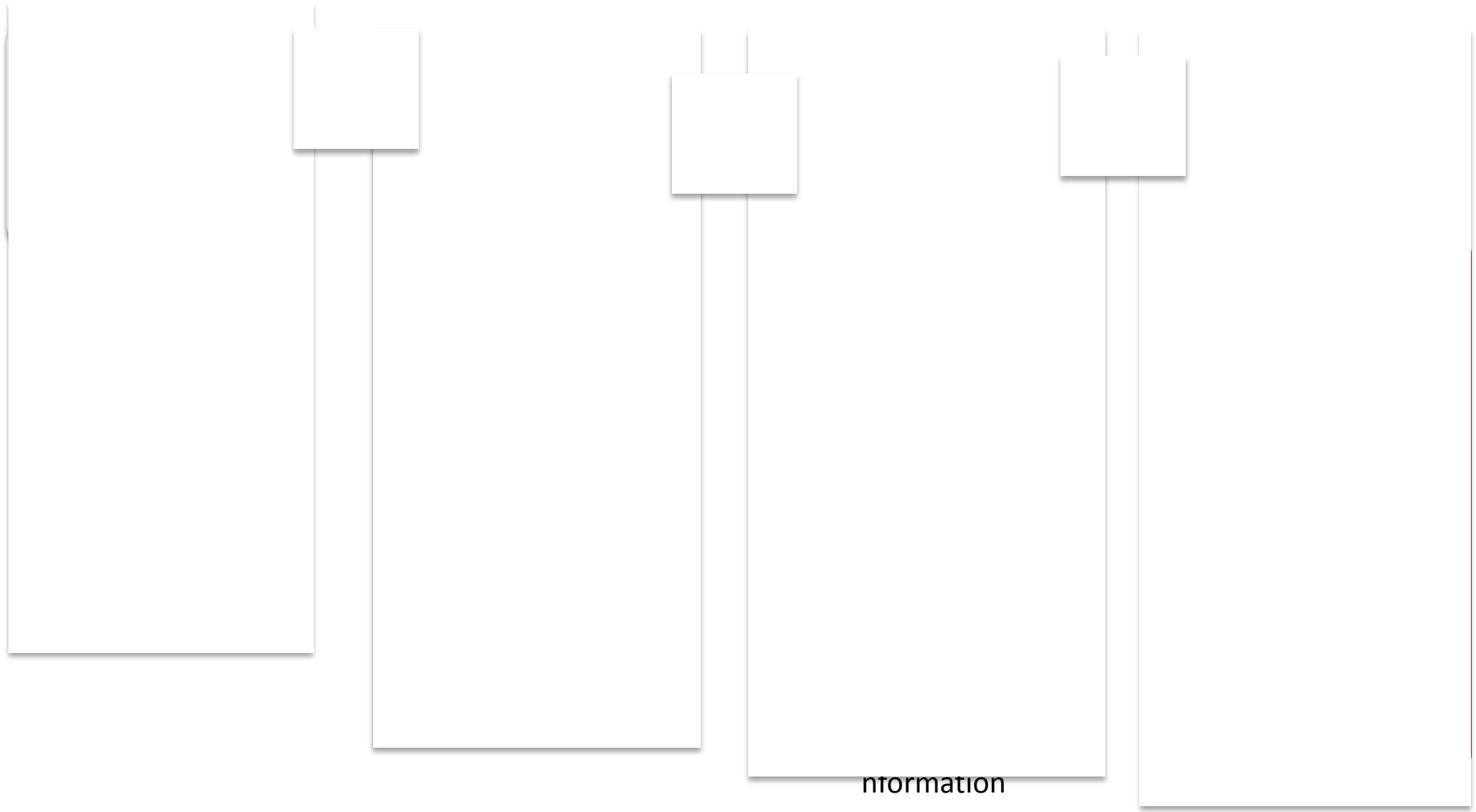
Participatory research with farmer groups

3. Access to information, trusted sources & technologies

2. Livelihood Strategies the role of cassava varieties

The process of developing knowledge in the context of the smallholder farmers

The translational research process with farmers in Kenya



This is what we mean by a new community of practice: institutionalizing these relationships of trust.

Using translational research to enhance farmers' voice in Kenya's GM conversation

- An opportunity to learn about contexts, farmers fragmentation, shocks, vulnerabilities, livelihood strategies, and cassava, from the perspectives of women and men.
- Facilitated mutual learning between farmers and local cassava expert scientists.
- Developed trust by responding to farmers information needs.
- Farmer representatives, local officials, scientists, stakeholders, met to learn about GM cassava, farmers needs, and how to communicate.

Caveats

- Simplifying assumptions, such as institutions exist, or that farmers objective is to maximize yield
- Information, individual and short term biases in research (Stone & Flack, (2014)
- Context matters – the political economy of Mexico and GM maize (Carro-Ripalda & Astier 2014) in contrast to South Africa (Hendrickson at al, 2014)
- Many forms of participatory research, often extractive (Valdivia et al, 2010); listening rather than hearing farmers voices (Schnurr & Mujabi-Mujuzi 2014).

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Some lessons learned

- Creating meaningful knowledge in a context of uncertainty and vulnerability requires engagement and collaboration through participatory processes and institutions.

- The **new** community of practice is not a one project activity. To support innovation that responds to smallholder farmers needs it has to be a program that systematically engages local scientists and institutions.

Questions?



Thank you!

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AND TO MIZZOU ADVANTAGE

KARI

JOHN TEMPLETON FOUNDATION

SUPPORTING SCIENCE~INVESTING IN THE BIG QUESTIONS

Selected Journal Articles

- Gilles, J. and C. Valdivia. 2009. Local Forecast Communication in the Altiplano. *Bulletin of the American Meteorological Society (BAMS)*. 90 (January 1): 85-91.
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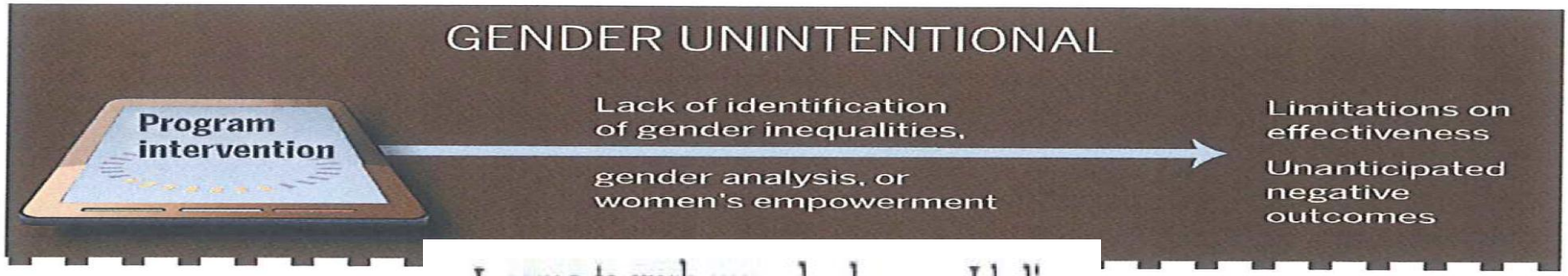
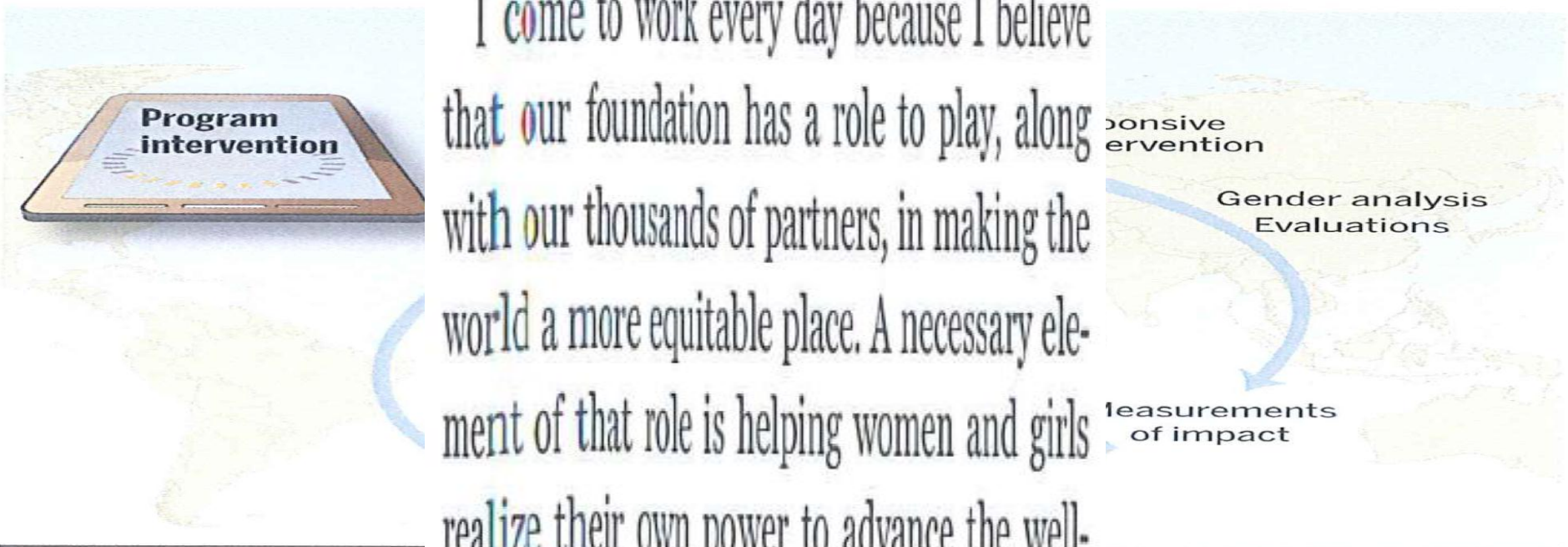
- Garrett, K. A., G. A. Forbes, S. Savary, P. Skelsey, A. H. Sparks, C. Valdivia, A. H. C. van Bruggen, L. Willocquet, A. Djurle, E. Duveiller, H. Eckersten, S. Pande, C. Vera Cruz, and J. Yuen. 2011. Complexity in Climate Change Impacts: An Analytical Framework for Effects Mediated by Plant Disease. *Plant Pathology. 60: 15-30.*
- Motavalli, P., J. Aguilera, M. Gonzales and C. Valdivia. (accepted) Evaluation of a Rapid Field Test Method for Assessing N Status in Potato Plant Tissue to Improve N Fertility Management in Rural Communities in The Bolivia Andean Highlands. *Communications in Soil Science and Plant Analysis*
- Gomez- Montano, L., A. Jumpponen, M. A. Gonzales, J. Cusicanqui, C. Valdivia, P. Motavalli, M. Herman, K. Garrett. (accepted) Do bacterial and fungal communities in soils of the Bolivian Altiplano change under shorter fallow periods? *Soil Biology and Biochemistry*

Voice and Choice in Translational Research





I come to work every day because I believe that our foundation has a role to play, along with our thousands of partners, in making the world a more equitable place. A necessary element of that role is helping women and girls realize their own power to advance the well-being of their families, their communities, and their societies.

Fig. 1. Gender Unintention
program) to improve outcom
sideration of gender inequaliti
example, formation of self-hel
measured. Thus, the impact o
tiveness. Furthermore, there
contraceptives may suffer viole
are systematically identified, a
Thus, gender inequalities are

(for example, a family planning
ence rate) without explicit con-
nent (GEWE) interventions (for
ams on GEWE outcomes is not
, and could limit program effec-
or example, women who seek
ional. Here, gender inequalities
designed to close gender gaps.
ely to have positive effects.

Melinda French Gates, 2014.

Putting women and girls at the center of development.

Lessons from the Templeton Funded Projects

- From Stone and Flack, 2014 the Problem with Farmers' Voice, from lessons in India and the Philippines
- From Carro-Ripalda and Astier, 2014,Silenced voices, vital arguments: smallholder farmers in the Mexican GM maize controversy.
- Schnurr and Mujabi-Mujuzi: "No one asks for a meal they have never eaten." Or, do African farmers want genetically modified crops?" Lessons from Uganda.
- Hendrickson et al (Choice and voice: Creating a community of practice in KwaSulu-Natal, South Africa) actually develop a community of practice farming maize (GM and Hybrid) with smallholder farmers, marginalized from access to land, extension, knowledge of improved practices, and access to markets, historically, pointing to a different context. Beyond GM, storage and transport to market were issues repeatedly mentioned. [similar to Kenya, issues are not necessarily about seed]. Lack of experience, lack of access to inputs and lack of voice are reasons for limited ability to participate in the discussions about GM crops… Community of Practice lifts the voice of those most impacted by the technology - smallholder farmers…
- Contrasts with Kenya and Uganda where the assumption that farmers focus is greater yields is not necessarily true, farmers want other traits.
- Advantages of communities of practice: accessing new networks; in Peru choosing and learning about new organizations and knowledge; in Bolivia accessing funding for their experiments.
- Bringing stakeholders together in a non-hierarchical way that encourages new ways of thinking and new partnerships and thus helps scientists, better understand the concerns and needs of farmers (like in Kenya)
- Valdivia et al (Using translational research to enhance farmers' voice: a case study of the potential introduction of GM cassava in Kenya's coast)
  - Barriers include fragmentation of farmers; context of uncertainty and risk; the differences between knowledge systems of farmers and scientists;
  - Translational research focuses on the social and behavioral dimensions of technological innovations. Two-way communication through participatory processes; addresses understanding of context and building trust
  - Learning, sharing with local scientists, and building knowledge in the context of farmers; responding to farmers needs and providing new information; workshop with diverse stakeholders