This presentation is part of the

Agriculture and Nutrition Global Learning and Evidence Exchange

(AgN-GLEE)

held in Guatemala City, Guatemala from March 5-7, 2013.

For additional presentations and related event materials, visit: http://spring-nutrition.org/agnglee-lac
Changing Behaviors for promoting sustainable outcomes in Agriculture and Nutrition

Presentation AgN-Glee conference, March 2013
Guatemala
Use of IMEP in general

1. Meaning-making: what are we doing? Is it making a difference? How can we improve?

2. Evidence: for the Board and BMGF (and others) that the CCRP is a good thing

This presentation:
- Some preliminary data analysis

This week:
- Preliminary interpretation

The CCRP Response

The "CCRPR approach" refers to how we work with our grantees, the "R+D systems focus" is how our grantees work and the "AG systems focus" is how our grantees effect change on the ground.

**CCRPR APPROACH:** Contributing to capacity strengthening and innovation development through regionally-based Communities of Practice

- Convening
  - Collaboration
  - Intensive learning and planning
  - Collective action
- Strategic grantmaking
  - Based on AEI informed and context sensitive program-level analysis
  - Based on a regional strategy supported by a regional team that integrates and informs the program analysis
  - Inter-sectoral teams
  - Diverse portfolio that reflects a systems approach
- Integrated Monitoring, Evaluation and Planning
- Non-grant support for capacity strengthening and technical assistance
- Documenting and communicating our work in dialogue with diverse audiences

**R+D SYSTEMS FOCUS:** Increasing the relevance and impact of agriculture research and development efforts through support for research that:

- Supports improved performance of agricultural systems through integration of ecological principles into farm & system management
- Recognizes and responds to existing social and biophysical contexts
- Enables institutions as sustainable sources of innovation over time
- Is embedded in a process of leveraging and adopting global knowledge to local contexts
- Is effective and efficient
- Provides solid evidence for development initiatives

**AG SYSTEMS FOCUS:** Improving the performance of agricultural systems through:

- AEI principles and tactics
- Recognizing the multi-functionality of agriculture landscapes and addressing trade-offs at various scales
- Using diversification of crops, diets and markets as a means of increasing resilience
- Providing multiple options that can be fitted to specific contexts
- Empowering stakeholders to meaningfully participate in the research process
- Supporting technical and social innovations
- Providing evidence for expanded impact across systems

The change to which we contribute

- Improved productivity, livelihoods, equity and nutrition as impacts expand within specific contexts
- Stronger R+D systems, links global and local knowledge and action, in terms of capacity, approach, resources and networks to effect term long term sustainable change
- Improved performance, resilience and sustainability of agro-ecosystems
- Increased capacity and agency in people and communities
- Funding models for supporting R+D institutions with an AEI approach

These impacts expand as the results influence others through multiple pathways including adaptation, inspiration, and changes in institutions and policies.
<table>
<thead>
<tr>
<th>Simple Problems</th>
<th>Complicated Problems</th>
<th>Complex Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baking a Cake</td>
<td>Sending a Rocket to the Moon</td>
<td>Raising a Child</td>
</tr>
<tr>
<td>The recipe is essential</td>
<td>Rigid protocols or formulas are needed</td>
<td>Raising one child provides experience but is not guarantee of success with the next</td>
</tr>
<tr>
<td>A good recipe produces nearly the same cake every time</td>
<td>Sending one rocket increases the likelihood that the next will also be a success</td>
<td>Expertise helps but only when balanced with responsiveness to the particular child</td>
</tr>
<tr>
<td></td>
<td>High levels of expertise and training in a variety of fields are necessary for success</td>
<td>Uncertainty of outcome remains</td>
</tr>
<tr>
<td></td>
<td>The is a high degree of certainty of outcome</td>
<td>Can’t separate the parts from the whole; essence exists in the relationships between different people, different experiences, different moments in time</td>
</tr>
</tbody>
</table>

# Changing Behaviors for promoting sustainable outcomes in Agriculture and Nutrition

<table>
<thead>
<tr>
<th>Simple</th>
<th>Complicated</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase access to food</td>
<td>Food diversity, nutrition education, large baseline and endline surveys</td>
<td>1. Understand local context 2. Interventions based on evidence, combining local and global knowledge 3. Choose appropriate measurement tools with an emphasis on learning</td>
</tr>
</tbody>
</table>
1. Understanding Behaviors and Contexts

2. Influencing change in behaviors

3. Measuring, understanding and learning about change in behaviors
1. We can’t change behaviors if we don’t know what they are, need to understand context for barriers and opportunities

- Agro-ecological factors (limited production, diversity, seasonality)
- Institutional (grain dumping, fertilizer subsidies, supplements)
- Cultural (nursing, complementary feeding, perceptions)
- Social (role of men, women, young, old)
- Economic (limited time, migration, off farm work)
- Individual (perceptions, knowledge, time)
2. How can we change/nudge behaviors?

- Include important stakeholders (men, mother in law, health post workers, schools)
- Focus on local solutions that take advantage of global knowledge
- Develop options x contexts
3. How can we learn from our interventions? Know when change is occurring and why? Practice evidence based development?

- Only measure what your intervention is trying to address
- Be able to think critically about the tools necessary to measure change and their costs and benefits.
- Be aware of the existing evidence around agriculture and nutrition interventions to better guide interventions.
Some lessons learned from 3 case studies:

**Malawi:** Soil, Food & Healthy Communities Project (SFHC)
Farmer Research Team, Ekwendeni Hospital, The University of Western Ontario, HealthBridge Canada, Bunda College, Michigan State University

2000-2013; ($100,000-200,000/year); 8 person team; lots of volunteers; 400 new farmers per yr

**Peru:** Agrobiodiversity and Nutrition
Chopccas communities, Yanapai, IIN, CIP

2004-2008 biodiversity phase 1; 2008-2012 biodiversity and nutrition phase 2 ($80,000/year); 500 farmers

**Bolivia:** Learning-action on food sovereignty and nutrition in Northern Potosi
World Neighbors, (HealthBridge, Cornell)

2005-2009 Phase 1
2009 -2010 Phase 2
2010-2012 Phase 3
$50-80,000/year; 80 families
Malawi

Photo: RBK
1. Agriculture & Food in Malawi

- Over 80% smallholder farmers rely on own-farm production;
- Rainy season high period of diseases (e.g. malaria) and labor needs;
- High levels of seasonal food shortages
- Maize makes up over 60% of area cultivated & dietary energy;
- High N requirements.
1. Unequal Gender Relations

- Lower education, literacy and employment rates for women;
- Unequal division of labour and decision-making in agriculture;
- Men inherit and own the land in northern Malawi;
- High levels of domestic violence: 1 in 3 women experienced physical violence in lifetime, most often by husband.
2. Linking Agriculture & Nutrition

- Participatory workshops with grandmothers and husbands
- Livestock awareness and legume residue promotion days
- Dramas & presentations during field days & seed distribution
- Recipe days to involve men in early child care

Slide: RBK
Agriculture & Nutrition Discussion Groups

Problem-solving, transformational approach

Inter-generational monthly meetings

Community facilitators trained in participatory facilitation methods

Topics chosen by FRT & based on agricultural calendar e.g. crop residue

Slide: RBK
3. Research Methods

- 200 semi-structured interviews
- 50 focus groups
- 9 anthropometric surveys (2001-2007)
- Annual agricultural data from 100+ farmers
- *Iterative process*: changes to research and activities changed based on results.

Measuring Change
3. Project Results: Increased Crop Residue Incorporation

**Graph:**

- **Legume Residue Incorporation 2009 (n=231)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial or Complete Burial</td>
<td>11</td>
<td>72</td>
</tr>
<tr>
<td>Burnt</td>
<td>57</td>
<td>7</td>
</tr>
</tbody>
</table>
Child growth after 3 years in participating villages, participating vs non-participating households (n=372)
Measuring Change

24 out of 33 respondents in 2009 said that they used at least 2 new recipes from SFHC.

“The new way of cooking which we have learnt from SFHC has made our families so special because our children feel as if we have just ordered the food from somewhere because of the way the food tastes and looks and so good.”

49 year old male farmer, Evaluation Interview 18, 2009
Bolivia

Photo: WNB
The community is not only a physical place where people live, rather there is a strong union between each person and community they belong to.
1. Extreme climate

Altitude: 
2000 - 4500 m.a.s.l

Winter: 
Min 10 below C 
Max 15 degrees C

Slide WNB
1. Socio-economic-health indicators

- Poverty is above 80% (UDAPE 2003)
- Childhood chronic malnutrition is above 50% (PCD 2009)

..... economies of subsistance that satisfy basic necessities through self-provisioning are not poor in the sense of being deprived of something (Cf. Vandana Shiva 1995)
Learning from Phase 1 (2005-2009)

Activities:
- Anthropometric data collection every 6 months, 400 children
- 24 hour recall and food frequency in a week
- Recipe demonstrations, but mostly ag interventions around legume research

Learning:
- The intervention design was coherent with trying to resolve food security and nutrition problems
- The work methodology didn’t take into account either the local resources or knowledge and elevated paternalism
- The division within the team (agronomists, nutritionists and students) didn’t result in visible achievements

Source: WNB
Learning from Phase 2 (2009-2010)

Intervention communities:
- Groups workshops on ag interventions for nutrition focused on local resources, IYCF, participatory video and growth charts (5 per community n=100)
- Follow-up home visits (2) using TIPs (n=69)

Learning:
- Knowledge was not the main problem (46 barriers: time, access to diverse food)
- Adjusted to do pooling of diverse foods, shared pasturing, PV to increase social networks

Source: Andy Jones
Thesis
Phase II: Methods

Baseline and endline surveys that included 24 hour recall, food frequency of over 350 children

Anthropometric measurement once a month of 90 children in 12 communities (group workshops)

In depth interviews with women to understand barriers, 24 hour recall (home visits)

Source: Andy Jones Thesis
Results Phase II

- Improvements in breastfeeding and complementary feeding with local foods (n=69)

- An 8 month intervention is probably too short to see a change in growth scores

The mothers don’t always say what they think and feel but what they think the facilitator wants to hear

Even though the methods were participatory they did not generate confidence among the mothers

Surveys don’t always represent the reality of the families

Source: WNB, Andrew Jones, Yesmina Cruz
Phase 3 (2011-2013): Back to the drawing board
“Many surveys...no more”

- Participatory Research Action (Orlando Fals Borda, 1978) improving local fruits
- Community Video (InsightShare, Nick and Chris Lunch, 2006) positive deviance, different practices
- Visualization (Salas & Tillman 2010)
- Accompanying each family during their daily routines

- Children, adults and older people participated
- 5 communities (3)

Reflection – Learning – Action - Appropriation

Source: WNB
Roles and jobs of women

**Productive (10 tasks)**
- In agriculture:
  - Place seed during sowing
  - Animals
  - Pasturing sheep and cows on the hills
- Use of local technology
- Weaving and Spinning

**Services (14 tasks)**
- Outside the home:
  - Purchase clothes and necessities
- In the home:
  - Prepare and serve food to the family
  - Toast quinoa for pito drink
  - Clean the house
  - Wash clothes

**Acculturation**
- Raise children
- Teach our children

**Reproductive**
- Breastfeed children
- Carry children in the womb

[Sra. Serafina Mamani, Comunidad Lancaya]
Roles and jobs of men

**Productive (18 tasks)**

In agriculture:
- Work in sowing and harvesting
- Animals
- Bring cows to hill
- Temporary migration to the city
- Give money to the mothers
- Leave to earn money in the city
- Use of local technology
- Put on the yoke
- Build the house

**Services (14 tasks)**

Outside the home:
- Take sick children to the hospital or traditional healer
- Bring firewood to the house

In the home:
- Help to make bread
- Feed children

**Acculturation**

- Teach children how to work
- Educate children

**Reproductive**

- Make woman pregnant and form the family
Four main behaviors (levers) WNB is trying to influence

- Intra-family support
- Diet diversity
- Breastfeeding
- Complementary feeding

Results?
- So far much improved relationships and confidence
- More to come in 2013
Peru

Photo: Yanapai
Families manage an average of 10 different crops and 16 varieties (high diversity), 80% of children eat from at least 4 groups.

81% of families have chickens, 62% cuyes, 66% sheep, 76% cows that are used for sale (only 20% of families sell products except tarwi), manure and food consumption.

Wide range of potato harvests across years and farmers (5000-20,000 T/ Ha), 80% of families indicate losses in their harvests, mostly due to pests and diseases.

Source: Yanapai
Socio-economic-health context

- 42.9% children with chronic malnutrition
- 40% of income comes from migration (more work for women)
- Over 80% of families receive supplements and food from health posts
- Marked season of abundance and scarcity
- 25% of children have had diarrhea in the last week, 40% cough (n=203)

Source: Yanapai
Research question:

If there is a relationship between agrobiodiversity and nutrition, why are there usually high levels of malnutrition in some of the most agrobiodiverse areas in the world? (intra and inter species diversity?)
Methods (census, 2x in scarcity and abundance)

- FANTA food insecurity survey (women) n=160
- 24 hour recall (women): n=185/160
- Consumption survey: animals, nutrition and health of children, access and availability of food (women) n=185
- Anthropometric measure n=220 (health posts regular control)
- Survey on agrobiodiversity and production (men) n=185
Interventions (food based approach)

- Nutrition education and awareness through mother’s groups, also discussed ag: small animal (distribute chickens) and home garden (distribute seed), IPM and PVS (n-300)

- TIPS (n=45)

Source: Yanapai
## Participative Variety Selection (PVS): Ranking of Selection Criteria (Harvest and Postharvest)

<table>
<thead>
<tr>
<th>N</th>
<th>Identified Criteria</th>
<th>Score: Men (N° corn kernels)</th>
<th>Order_of_IMPORTANCE</th>
<th>Score: Women (N° beans)</th>
<th>Score Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Tuber size (Large)</td>
<td>25</td>
<td>I</td>
<td>23</td>
<td>II</td>
</tr>
<tr>
<td>3</td>
<td>High nutritional content</td>
<td>17</td>
<td>III</td>
<td>27</td>
<td>I</td>
</tr>
<tr>
<td>4</td>
<td>Resistance to Weevil</td>
<td>12</td>
<td>IV</td>
<td>21</td>
<td>III</td>
</tr>
<tr>
<td>5</td>
<td>Resistance to disease</td>
<td>18</td>
<td>II</td>
<td>13</td>
<td>IV</td>
</tr>
<tr>
<td>1</td>
<td>Yield</td>
<td>12</td>
<td>IV</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>84</td>
<td></td>
<td>90</td>
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</tbody>
</table>

Source: Yanapai
Results

Won’t have end-line until 2014, but preliminary results suggest more malnutrition because of withdrawal of supplements

- TIPS: 49 families were visited. Around 30% had added important foods to their children's diets like fava beans, eggs, cheese and meat one week later
- Mortality rates in chickens going down
- 60% of women use vegetables from gardens for home consumptions
Methods for understanding

- We can always be deepening our understanding and adapting, not just at the beginning of a project
- Hidden practices will stay hidden without some looking (social science research, confidence and trust, heterogeneity)
- (group) reflection is necessary for learning
Interventions

*Simply growing more food or more diverse food is necessary but not sufficient.*

*Ag interventions go hand in hand with nutrition outreach.*

*Options by contexts; harnessing global knowledge and getting the fit right locally, agency.*

*Tools are essential but it is all in the application, embedding them in a cycle of learning, and they are not the end in themselves (TIPS, PV, PAR, FFS).*
Measuring change and learning

- Height and weight measure child growth, within which nutrition is a primary component, but health and disease are important factors and anthropometric data doesn’t measure behavior change or WHY
- Real costs and benefits
- Learning, reflection and change take time
GRACIAS!

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