This presentation is part of the

**Agriculture and Nutrition Global Learning and Evidence Exchange (N-GLEE)**

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For additional presentations and related event materials, visit: [http://spring-nutrition.org/nglee-africa](http://spring-nutrition.org/nglee-africa)
Linking Agriculture and Nutrition: Value Chain Analysis-Based Tools for Enhancing the Nutritional Impacts of Agricultural Interventions
Structure of the presentation

• Introduction
• The tool (paper version)
  ➢ Kenya example
  ➢ Tanzania example
• Conclusions
About GAIN

- Created in 2002 at a Special Session of the U.N. General Assembly on Children.
- Builds and supports innovative partnerships among the public and private sectors to increase access to and consumption of nutritious foods at Scale
- Current reach: over 600 million people (half women and children)
- >30 countries, goal is to reach 1.5 billion people within the most vulnerable populations around the world through access to sustainable nutrition solutions
GAIN Initiatives/programs

1. Large scale fortification
2. Agriculture and Nutrition
3. Maternal, Infant and Young Children Nutrition
4. Nutritious diets for vulnerable groups

The tool to be presented is part of the Ag-Nut Initiative
# GAIN approach: Removing obstacles and invest in opportunities along the value chain

<table>
<thead>
<tr>
<th>Inputs into Food Production</th>
<th>Food Production</th>
<th>Food Storage and home processing</th>
<th>Industrial Food Processing</th>
<th>Distribution, Transport &amp; Trade</th>
<th>Food Retailing, Marketing &amp; Promotion</th>
<th>Food Preparation &amp; Catering</th>
</tr>
</thead>
</table>

## Activities

<table>
<thead>
<tr>
<th>Seeds, fertilizer, pesticide, irrigation, organic matter, equipment, crop selection</th>
<th>Farming practices, (tillage practices, irrigation frequency, cultivation), harvest and post-harvest techniques</th>
<th>At or Near the Farm: Home or warehouse storage &amp; processing</th>
<th>Industrial: Food storage &amp; manufacturing</th>
<th>Bulk packaging and transport to market</th>
<th>Point of Purchase</th>
<th>Point of Consumption</th>
</tr>
</thead>
</table>

## Nutrition Opportunity

<table>
<thead>
<tr>
<th>Deliver micronutrient fertilizers, diverse horticultural seeds, biofortification</th>
<th>Crop diversification; Limited research on effect of farming practices on nutrient content of crops</th>
<th>Commodity storage that reduce exposure to heat and sun. Reduced milling and polishing time</th>
<th>Fortification</th>
<th>Nutrition sensitive bulk packaging and transport</th>
<th>Nutrition sensitive retail packaging and branding, Promoting importance of good nutrition</th>
<th>Promoting importance of good nutrition. At home fortification</th>
</tr>
</thead>
</table>

## Value Chain Actors

<table>
<thead>
<tr>
<th>Crop researchers and agricultural scientists, extension services, Seed companies, fertilizer companies farmer cooperatives, agrochemical and farm machinery companies</th>
<th>Farmers, agricultural laborers, cooperative extension services, equipment manufacturers</th>
<th>Granaries, local millers, crushers, storage container companies, cooperative extension services</th>
<th>Processed food manufacturers, industrial mills, fortificant manufacturers, blenders, mineral companies</th>
<th>Importers, exporters, brokers, traders, wholesalers</th>
<th>Informal &amp; formal food retailers, restaurant, food service, advertising, media &amp; communications companies</th>
<th>Consumers, restaurant, and food service companies</th>
</tr>
</thead>
</table>
Agriculture and Nutrition: The Institutional Gap

Agriculture
- Crops/Livestock
- Farm households
- Quantity of food
- Food availability

Health
- Nutrients
- Lifecycle groups
- Nutritional quality
- Access to food
Why Agriculture – Nutrition Integration?

- Global rates of undernourishment remain persistently high
- Increasing concern about co-existing ‘hidden hunger’, underweight and overweight
- Agriculture ‘back’ on the donor agenda:
  - Global food crisis
  - Failure to meet MDGs on undernutrition
- Agriculture seen as key to enhanced nutrition
- Recognition of widespread failure to integrate agriculture, nutrition and health
Routes from Agriculture to Improved Nutrition

• Agriculture as a driver of macro processes of income growth and improved nutritional outcomes (Vanilla –boom babies In Mukono)

• Enhanced nutritional outcomes in producer households from increased consumption (Nile perch value chain & Stunting in SW Ug)

• Enhanced nutritional outcomes in non-producer households
Nutritional Enhancement in Producer Households

- Behaviour Change
- Communication

Food Consumption

Food Purchases

Food Production

Income

Labour Usage

Nutritional Requirements

Kitchen Gardens

Nutritional Status

Health Status

Biofortification

Agricultural Production Practices
Nutritional Enhancement in Non-Producer Households

- Health Status
- Nutritional Status
- Food Consumption
- Food Distribution
- Food Purchases
- Value Chain Interventions

- Behaviour Change Communication
- Nature and Performance of Agri-Food Value Chains
- Biofortification
- Fortification
- Agricultural Production Practices
Linking Agriculture and Nutrition: Value Chain Analysis-Based Tools for Enhancing the Nutritional Impacts of Agricultural Interventions
Nutritious Agriculture by Design: A Tool for Program Planning

The tool considers:

• What evidence is there that the project is bringing about nutritional improvements in consumers that are nutritionally deficient?

• How are these nutritional improvements being brought about?

• What challenges might prevent any potential nutritional improvements from being realized and how are these challenges being alleviated?

• What engagement is there with the private sector in trying to realize these nutritional improvements?
Nutritious Agriculture by Design: A Tool for Program Planning

• Applications:
  ➢ Prompt redesign of existing projects
  ➢ Enhance specifications for new projects

• Users:
  ➢ Project/program implementers
  ➢ USAID and other donors

• Formats:
  ➢ Paper
  ➢ Electronic
### Routes from Agriculture to Nutrition

<table>
<thead>
<tr>
<th>Consumption of Nutrient-Dense Food by Target Producer Households</th>
<th>Income Route</th>
<th>Consumption Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of Nutrient-Dense Food by Other Households</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>
Structure of the Tool

Part 1
Basic characteristics of the intervention

Part 2
Does the intervention aim to increase consumption of nutrient-dense food(s)?

- Yes
  - Part 3
    Promotion of consumption of the nutrient-dense food in producer households
  - Parts 4 and 5
    Promotion of consumption of the nutrient-dense food in non-producer households

- No
  - Part 6
    Enhancing the nutritional benefits of improving producer household incomes and/or productivity

Part 7
Assessment of intervention
Testing the Tool

• Focus on existing agricultural projects
• Interventions applied to Feed the Future priority value chains in select countries:
  ➢ Kenya
  ➢ Bangladesh
  ➢ Mozambique
Application Process Using the Tool

• In many contexts requires information from multiple individuals

• Can be a challenging process:
  ➢ Requires reflections on working assumptions
  ➢ Slightly repetitive

• Effective at starting crucial thought processes

• Good at identifying ‘low hanging fruit’
In the case of Kenya

- 25 commodity value chains were examined in defining USAID’s on-going Feed the Future strategy and to which four filters were applied:
  - Value chains with high revenue per hectare (income potential).
  - Value chains with large numbers of smallholders (scalability).
  - Value chains with the highest nutritional value (nutrition).
  - Value chains with likely strong demand and competitiveness (competitiveness).

- This led to the selection of three sectors in two priority geographical regions: 1) horticulture, maize and drought-resistant crops in Region SA2; and 2) horticulture, maize and dairy in Region HR1.
Testing the Tool: Kenya

• Kenya Dairy Sector Competitiveness Program (KDSCP)

• Kenya Maize Development Program (KMDP):
  ➢ Maize
  ➢ Common beans
  ➢ Other staple crops

• Kenya Horticulture Competitiveness Project (KHCP):
  ➢ Passion fruit
  ➢ Sweet potato
  ➢ Tomatoes
  ➢ Various other horticultural crops
Potential target groups in which consumption of milk and dairy products can conceivably be enhanced in Kenya (steps 3, 4, & 5)

• **Consumption Route (direct):**
  - Own-consumption by *producers* directly targeted by the program.

• **Consumption Route (indirect):**
  - Market purchases of milk by predominantly *poor non-producer households* in both rural and urban areas.

• **Consumption Route (indirect):**
  - Direct distribution to *schoolchildren* through a school milk program.
KDSCP Value Chain Mapping

Rural Consumers → Smallholder Dairy Farmers

Low-Income

Hawkers/Milk Bars → Traders

Urban Consumers

Caterers/Hotels

Small Retailers → Large/Medium Processors

High-Income

Large/Small Retailers → Large/Medium Processors

Cooperatives/Self-Help Groups

Large/Medium Dairy Farmers
KDSCP: Evidence for Consumption Route

<table>
<thead>
<tr>
<th>Condition</th>
<th>Direct Beneficiary Households</th>
<th>Wider Population Groups</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consume (more) milk and/or dairy products if available</td>
<td>Yes</td>
<td>Yes (?)</td>
<td>Yes (?)</td>
</tr>
<tr>
<td>Project will maintain/increase consumption of milk and/or dairy products</td>
<td>Yes</td>
<td>Yes (?)</td>
<td>Yes (?)</td>
</tr>
<tr>
<td>Consumption of milk could decline in target producer households as a result of efforts to commercialize production</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Increased consumption of milk and/or dairy products will enhance diet quality/diversity</td>
<td>Yes (?)</td>
<td>Yes (?)</td>
<td>Yes (?)</td>
</tr>
<tr>
<td>Baseline nutritional assessment has been undertaken</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Opportunities for private sector, NGO and/or public sector engagement to market to target consumer groups</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nutritional outcomes and impacts included in monitoring and evaluation schedule</td>
<td>Scope</td>
<td>Scope</td>
<td>Scope</td>
</tr>
</tbody>
</table>
Challenges in Realising Consumption Impacts

Consumption

- Value chain ‘pinch points’ (e.g. storage, cold chain)
- Preserving/enhancing nutritional value
- Consumer acceptability

Inputs and Production
# KDSCP: Assessment of Challenges (step 7)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Scope to Address?</th>
<th>Private Sector Engagement?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs and production</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal housing</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Storage, Transport and Processing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport infrastructure</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Distribution and Marketing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Storage infrastructure</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Transport infrastructure</td>
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<td>No</td>
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</table>
## KDSCP: Assessment of Challenges

<table>
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<tr>
<th>Programme</th>
<th>Scope to Address?</th>
<th>Private Sector Engagement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution and Marketing</td>
<td>Yes Yes</td>
<td></td>
</tr>
<tr>
<td>Availability of milk</td>
<td>Yes Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer nutritional awareness</td>
<td>(Yes) (Yes)</td>
<td></td>
</tr>
<tr>
<td>Consumer acceptability</td>
<td>(Yes) (Yes)</td>
<td></td>
</tr>
<tr>
<td>KDSCP: Assessment of Challenges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-home handling/preparation</td>
<td>(Yes) (Yes)</td>
<td></td>
</tr>
<tr>
<td>Affordability</td>
<td>(Yes)</td>
<td>(Yes)</td>
</tr>
</tbody>
</table>

### Recommendations:
- Promotion of milk dispensers
- Promotion of more appropriate milk packaging
- Promote milk and dairy product consumption
- Facilitate dairy product production
- More rigorous assessment of impact on milk consumption
- In-home handling preparation practices
- Affordability
Potential for Negative Consequences?

• **Consumption:**
  Promotion of consumption → consumption substitution?

• **Production:**
  Small scale cold storage → reduce on-farm consumption?

• **Processing/Marketing:**
  Individual packaging → cost implications for poor consumers?
Difficult Trade-Offs

• Producer targeting:
  - Income
  - Nutritional status
  - Productive potential

• Agricultural production:
  - Staples
  - Nutrient-dense foods
  - High-value non-nutritious foods
  - Non-foods

• Target markets:
  - Exports
  - High income consumers
  - Low income consumers
Conclusions

• Participatory approach: facilitate dialogue between donors, NGOs, private sector and government
• Identification of specific activities that can be included/modified that will increase the potential for nutrition impact
• Encouraging dialogue on public-private sector engagement and expanding the scope of product potential (i.e. profit-bearing production of more nutritious foods)
• Prompts program managers and USAID to consider measurement of feasible indicators for projects (typically more input/output level) and development objective (typically outcome/impact)
• The tool is not designed to design projects and programs per se, but to provide an assessment of the degree to which nutritional impacts have been thought about and integrated into the design.
Thank you!

Mwebale!