Value Chains for Enhanced Nutrition “Flagship”: Legumes

Alan de Brauw
Markets, Trade and Institutions Division
International Food Policy Research Institute
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Challenge: Value Chains for Enhanced Nutrition

- Diets in developing countries are not just (intermittently) short on calories, also on macro and micronutrients
- Income increases are not sufficient to improve diet
- Policies sometimes promote production of grains at the expense of healthier products
  - US Farm Bill, but many examples in LDCs too
- Notion: Can use a value chain approach targeting more nutritious crops
  - Relatively new notion at IFPRI and somewhat within the CGIAR (exception of biofortification which is related)

Evidence: Diet Diversification; Food Group Shares (kcal/cap/day)

<table>
<thead>
<tr>
<th></th>
<th>Ideal</th>
<th>US</th>
<th>China</th>
<th>Bangladesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starchy Staples</td>
<td>48</td>
<td>31</td>
<td>49</td>
<td>80</td>
</tr>
<tr>
<td>Legumes &amp; Nuts</td>
<td>22</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Animal &amp; Fish Products</td>
<td>10</td>
<td>14</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Fruits &amp; Vegetables</td>
<td>9</td>
<td>7</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Fats &amp; Sugars</td>
<td>11</td>
<td>43</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Total Calories</td>
<td>2200</td>
<td>Too many</td>
<td>Too many</td>
<td>Too few</td>
</tr>
</tbody>
</table>

Source for “Ideal” shares: Thompson and Meerman, FAO, 2013
Income Increases and Diet

- Ruel and Alderman show that:
  - 10% increase in GDP per capita associated with 6% reduction in stunting (income elasticity of stunting=-0.6)
  - 10% increase in GDP per capita associated with a 7% increase in overweight and obesity among women (income elasticity of overweight=0.7)
- Why? Previous food security goals could be a reason...

![Non-Staple Food Prices in India Have Risen by 50% Over 30 Years](chart)

Value Chain Approach

- **Supply side**
  - Identify production and market constraints to improved nutrition and safety
- **Develop and test solutions**
  - Example: Increased seasonal availability of fruit
  - Example: Nutrition education delivered by vegetable seed supplier
- **Consumer**
- **Producer**
  - Inputs into production
  - Food production
  - Food storage and processing
  - Food distribution and transport
  - Food retail and labeling

Three aspects of value chains for enhanced nutrition

- **Demand (Consumption) Side**
  - Affect by Prices, Income
  - Demand “shifters” (Preferences; Information)
- **Supply (Production) Side**
  - Producing more nutritious foods (macronutrients/micronutrients)
  - Making sure those are safe (food safety- more of a challenge with animal source foods, but also aflatoxins etc.)
- **Policies / Markets**
Four Broad Classes of Nutritious Foods

- Pulses/Legumes
  - Could categorize specific oilseeds here (e.g. soy)
- Fruits/Vegetables
- Animal Products
- Biofortified Crops (HarvestPlus)

Different Classes of Foods may have different constraints to increased use
- Pulses/Legumes – cooking times

Applied to Pulses and Legumes...

- Demand Side
  - Consumers may simply lack information– pulses and legumes are particularly healthy crops
  - Often only lightly processed (e.g. washed and bagged)
  - May be innovations possible on the demand side to stimulate consumption of pulses or legumes
- Supply Side
  - Relative prices quite high (in many cases) so clear advantage to growing more pulses and legumes
  - Value chain interventions could lead to increased supply and smallholder incomes
- Policy
  - Public focus on staple crops means underinvestment in nutrient rich foods

Pulses and Legumes: What is A4NH doing?

- Our goal is to develop a research program that examines ways to overcome constraints against:
  - Consumption of pulses/legumes among the poor
  - Production of pulses/legumes (in collaboration with PIM)
  - Potentially stimulate the use of pulses and/or legumes in more processed foods
- One constraint- legumes in particular may not do much for stunting
  - Cooking times are likely prohibitive for the poor

Work so far: Pulse Innovation Partnership (PIP) in India (through McGill)

- What are the technological capabilities of the partners in the PIP (inventory)?
- What is the route to market (business model) for the PIP?
- What are the funding avenues for the PIP projects?
Capabilities in the PVC

<table>
<thead>
<tr>
<th>Partner</th>
<th>Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buhler</td>
<td>Portfolio of technologies for end-to-end primary and secondary processing of pulses (Drying, Hulling, Grinding, Roasting, Sifting, Polishing, Grading and Extrusion).</td>
</tr>
<tr>
<td>Firmenich</td>
<td>Flavors and Fragrances. Firmenich has not worked with pulse based products so far but can apply existing capability to pulse based products.</td>
</tr>
<tr>
<td>DSM</td>
<td>Food Processing ingredients - food enzymes, cultures, sensory ingredients and other specialties for the foods and beverages – that can shape the taste and texture</td>
</tr>
<tr>
<td>Hakan</td>
<td>Pulse trading. Capability to source and supply various pulse commodities.</td>
</tr>
<tr>
<td>Glencore Grain</td>
<td>Pulse trading. Capability to source and supply various pulse commodities.</td>
</tr>
<tr>
<td>Leo Burnett</td>
<td>Marketing/Advertising</td>
</tr>
<tr>
<td>Pulse Canada/</td>
<td>Pulse growers association of Canada and Australia respectively. Capability in commissioning research on new Pulse varieties, establishing the nutritional importance of Pulses.</td>
</tr>
<tr>
<td>Pulse Australia</td>
<td>Product innovation.</td>
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Gaps and Challenges
- Absence of consumer facing food companies in the partnership. This creates a void in:
  - Intelligence on Consumer preference
  - Distribution and retailing of products
- Heterogeneity of interests among partners
  - Locational interests (Canada, Australia, India).
  - Short-term versus long-term interests (what pulse products can we take to market in the next year; how can we increase pulse consumption so there is an increased demand for pulse production).
- Route to market unclear
  - Should the PIP engage in product innovation? If so, which and how many food companies should PIP partner with?
  - Should the PIP provide a knowledge package service offering? How can such an offering add value beyond existing market mechanisms?
- Funding model
  - What are the sources of funding for PIP activities?
  - What is the suitable positioning to seek funding from these sources?

Infra + Knowledge Package – A three pronged strategy
- Innovation pillar
  - Upstream value chain support for food companies to develop pulse products. This spans pulse sourcing, technologies for all stages of physical processing and technologies for sensory experience.
  - The subset of partners for this pillar will be Firmenich, Buhler, DSM, Hakan foods, Glencore, Leo Burnett.
- Marketing pillar
  - Consumer and market insights; Market intelligence
  - Broad marketing support for creating awareness about pulse-based products and their nutritional benefits
  - Endorsement by nutrition experts (example: American Nutrition Association).
  - Recognition as an official partner of IYOP, perhaps with mention at IYOP events and in IYOP marketing material.
  - This may be headed by Leo Burnett, Pulse Canada, Pulse Australia along with CGIAR.
- Policy pillar
  - Work with governments to negotiate favorable policies for pulse based products.
    - More responsive to evidence of health and nutrition benefits
    - Enable investments that don’t suffer from market and institutional failures and are not skewed through inefficient subsidies or regulations.
    - Policies that interface between marketing and the behavioral and social improvements required for healthier consumption.
  - Pulse Canada, Pulse Australia will drive this in respective countries with support from CGIAR.

Private Sector— “Gives” and “Gets”
- Gives
  - Make a commitment to roll out at least 2 pulse-based food products in 2016. Could be formalized via an MoU.
  - How many products? How many countries?
- Gets
  - Innovation support
  - Marketing support (Depending on the pledge, they could be awarded partnership levels) partnerships
  - Policy support
  - Opportunity to create a new, healthy food category (contribution to the triple bottom line)
  - The actual gives and gets will depend on the type of company i.e., SMBs or large companies.
PIP – High Level Action Plan

• Form task force for each pillar – Innovation, Marketing and Policy.
• Task forces to fine tune the club, public and private goods they will offer; Create detailed plan to make that happen.
• Reach out and sign up food companies based on the PIP value proposition articulated (to be finalized by the task forces).
  • Target: 20 pulse products by 2016 (10 food companies)
  • Companies may be large MNCs or SMBs
  • Location not to be a constraint (Canada, Australia, India)
  • Each partner to open doors with 2 food companies?

Funding

• The partners who stand to expand their business and monetize their in-kind support to the PIP should put down a seed fund (Firmenich, Buhler, DSM, Hakan, Glencore). This should cover for travel and other activities to enlist food companies.
• Others (Pulse Canada, Pulse Australia) will contribute in-kind.
• IDRC may be willing to support a proposal that uses the policy pillar as the main plank and linking it to private sector participation.
• IYOP might be willing to provide in-kind support to the marketing pillar.
• This component could use potentially some more thought

Conclusion

• Through Value Chains for Enhanced Nutrition, looking for ways to integrate project ideas with rigorous evaluation
  • Likely to implement something in next year with IFPRI India office
• Interested in testing ways that we can either stimulate demand for or develop supply of interesting products related to legumes
  • Focus remains on stimulating demand among the poor to diversify diets among those most likely affected by malnutrition