Project Healthy Children’s Global Fortification Efforts

Tufts Center for Global Public Health
Global Health Research and Innovation Day
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Project Healthy Children (PHC)
Individuals placed in-country work in service of national governments.

**Large-scale:**
- Honduras (2007-2010)
- Rwanda (since 2009)
- Malawi (since 2010)
- Burundi (since 2011)
- Liberia (since 2010)
- Sierra Leone (since 2014)
- Zimbabwe (since 2013)

**Small-scale:**
- Nepal (2011-2013)
- Tanzania (since 2013)
Elements critical to success (1 of 2)
We use a data-driven approach in the design of each program.

• Situation assessment / context specific analysis
  - Consumption survey (HIES, CFSNS)
  - Current MN deficiencies
  - Market and industry analysis
### Evidence of impact

75% of the 300,000 NTD cases/year could be prevented with sufficient folate intake at a cost of less than US$0.05 per person per year.

<table>
<thead>
<tr>
<th>Country</th>
<th>National Program</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>• 2000: Mandatory fortification of wheat flour with folic acid</td>
<td>• 40% decrease in NTDs</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>• 1997 and 1999: Mandatory wheat flour, corn flour with folic acid and other MNs</td>
<td>• 74% decrease in NTDs</td>
</tr>
<tr>
<td>South Africa</td>
<td>• 2003: Mandatory fortification of maize and wheat flour with folic acid</td>
<td>• 30% decrease in overall NTDs; spina bifida, specifically, dropped 41.6%</td>
</tr>
<tr>
<td>Canada</td>
<td>• 1998: Mandatory fortification of grain products with folic acid</td>
<td>• 46% decrease in NTDs after four yrs</td>
</tr>
<tr>
<td>United States</td>
<td>• 1998: Mandatory folic acid fortification of grain products</td>
<td>• 19% decrease in NTDs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Incidence of elevated total plasma homocysteine declined</td>
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</tbody>
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Chile’s program would only need to prevent two neural tube defects to recoup more than the annual cost of the nationwide flour fortification program.

Cost of treatment: $120,000 for one child from birth to age 18
Cost of intervention: $175,000 / year to fortify the entire country’s consumption of flour
Elements critical to success (2 of 2)
However, despite decades of success, effective large-scale fortification programs are often missing from national agendas.
More efforts are needed to ensure reach and impact
We must learn from past program successes and failures

Six core elements need greater attention:
- Greater government commitment AND more targeted, country-specific guidance
- Focus on institutional / in-country capacity building
- Private sector engagement from the get-go
- Government monitoring BEFORE impact studies occur
- Better choice of fortificants
- Better choice of metrics / impact indicators

How:
- Focused desk-side support for 3-5 years, partner MOUs, planned hand-over process
- All-inclusive NFAs to ensure inter-agency coordination
- Identification of a champion / strong leader within government AND industry
- Dedicated government position focused on M&E for 3-5 yrs post-implementation
- Fortification Monitoring Tool or equivalent to track compliance
The ‘Fortification Monitor’: Graphical Displays of Compliance – by Customs Station

MBS Import Control: Average Salt Iodization Level by Customs Station (ppm; 09/01/2008 to 07/01/2010)

<table>
<thead>
<tr>
<th>Station</th>
<th>Avg Iodization</th>
<th># of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLA</td>
<td>82</td>
<td>63</td>
</tr>
<tr>
<td>DED</td>
<td>87</td>
<td>42</td>
</tr>
<tr>
<td>LIL</td>
<td>111</td>
<td>6</td>
</tr>
<tr>
<td>MUL</td>
<td>69</td>
<td>17</td>
</tr>
<tr>
<td>MWA</td>
<td>103</td>
<td>51</td>
</tr>
<tr>
<td>SWE</td>
<td>95</td>
<td>9</td>
</tr>
</tbody>
</table>

Legend:
- **Blue** bar: Avg Iodization
- **Red** line: # of Samples
The ‘Fortification Monitor’: Graphical Displays of Compliance – by Company

MBS Industry Control: Average Salt Iodization Level by Company (ppm; last 12 months)

- Bharat Trading: 84
- Chimalira Enterprise: 87
- Eco Products: 116
- Fadamz Mill: 91
- Rice Processors: 64
- Rice Milling: 80
- Tambala Fox Products: 113

Legend:
- **Blue**: Avg Iodization
- **Red**: # of Samples
We have a responsibility to leverage what we already know works and take large-scale fortification programming the final mile.

However, what about those who do not have access to centrally processed foods?
Small-scale fortification
Becoming a viable option

• Prior attempts fell short in terms of:
  - Scalable technology solution
  - Sustainable business model to support millers

Scoop  Blender  Crank
Technology Solution

• Fully automated dosifier eliminates additional step in the milling process.

• Does not require additional personnel or labor expense at the mill.

• Installation requires less than 5 minutes, training takes less than 1 hour.

• Quality control is insured through complete data capture of the milling process.

Please click link to view video of technology segment.

• 2013 winner of the Ashoka Changemaker’s Nutrients for All competition

• Officially approved by GAIN in 2014
Business Model

Currently being tested through a partnership with USAID and Tuboreshe Chakula in a 57-device roll-out in 3 regions in Tanzania.

• **Implementing partner (USAID) and local org:** *Initial premix purchase, mill ID, outreach, social marketing, capacity building*

• **Sanku:** Engineering, manufacturing, training, maintenance, *premix distribution, monitoring* through a Sanku Miller Support (MS) Team

• **Miller:** Mill registration and certification, completion of training, *premix purchase after initial donation*

• **Premix supplier:** *Equipment contribution* -- premix partner recovers investment over time through increased sales of premix

Goals:

• For Sanku to maintain a sustained revenue to operate the program through device sales purchased by premix supplier

• To provide fortified flour to *7 million people by 2018*
Sustainability

The model forecasts that Sanku is on pace to achieve true sustainability by March 2017. Based on projected growth rate, this represents approximately 350 dosifiers installed and 386MT of premix sold.
Way Forward

Seeking potential collaborators….

- Large-scale food fortification monitoring
  - National programs that need assistance tracking compliance
  - Programs that are in place but unable to get consistent compliance and/or are not showing impact

- Small-scale fortification
  - Pursuing a project with *Tufts Global Public Health Center* in order to test the impact and application of the Sanku program
  - Seeking other program partners for the Sanku program
    • Where small-scale milling is a dominant practice in high burden areas
THANK YOU!

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