Overview and Context
Project Healthy Children

PHC works with governments, NGOs and private industry to improve health and well-being by designing and implementing comprehensive food fortification strategies. Our experience has shown that to successfully implement a sustainable program, three elements are required.

<table>
<thead>
<tr>
<th>Fortification Strategy</th>
<th>Fortification Legislation</th>
<th>Industry Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Using data on consumption practices, market dynamics, and trading patterns specific</td>
<td>• Containing broad, enabling provisions establishing purpose and boundaries of legislation</td>
<td>• Engaging industry to educate, advocate and encourage participation in planning for fortification before legislation is implemented</td>
</tr>
<tr>
<td>to each country</td>
<td>• Mandating the Ministry of Health to require food standards to improve health of the population</td>
<td>• Investigating economic models to ensure strategy can be implemented efficiently and at the lowest cost</td>
</tr>
<tr>
<td>• Understanding regional regulations and standards of trading partners</td>
<td>• Giving the Bureau of Standards or appropriate body the authority to define specific standards, monitor adherence and enforce regulations</td>
<td>• Identifying potential technical issues and identifies solutions to those issues</td>
</tr>
<tr>
<td>• Setting standards for which food products should be fortified, with what nutrients,</td>
<td></td>
<td>• Working with local industry to procure equipment and fortificants at the lowest cost</td>
</tr>
<tr>
<td>and at what levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Describing method and means for monitoring and regulating</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Micronutrient Malnutrition in Rwanda

Several studies have identified malnutrition as an issue from which many Rwandans, particularly women and children, continue to suffer.

• Micronutrient malnutrition is one of the most common causes of child mortality as moderate and hidden malnutrition contribute to more than 60% of child deaths\(^1\)

• Of children under 5 years of age, 22% were underweight, 45% stunted and 4% wasted; these conditions increase the risk of disease, reduce mental function and limit physical productivity

• The incidence of goiter, which often results from either a deficiency or an excess of iodine and impairs thinking and learning, is observed in 26% of school age children\(^3\)

• Sub-clinical vitamin A deficiencies, which cause damage to the eye and can lead to increased morbidity and mortality in children, were reported in 25% of children under 6 months, 21% of children 6 to 12 months of age and 7% of women of reproductive age \(^2\)

• The incidence of iron deficiency in children remains high although it decreased from 69%\(^4\) in 2000 to 48% in 2008\(^5\)

• Iron deficient anemia, which contributes to maternal mortality, is a significant issue although it fell from, 43% of women in 2000\(^4\) to 27% in 2008\(^5\)

---

\(^1\) Ministry of Health, 2003
\(^2\) 2005 DHS
\(^3\) Ibid
\(^4\) 2000 VMD Progress Report
\(^5\) 2007-2008 mini-DHS
Consumption Patterns
Nationally representative data was collected on the consumption patterns of women 16-45 years and children under 59 months of age for six staple food items.
Additional Data

In addition to the whether each of six staples were consumed, additional date was collected on the frequency and amount of consumption, purchasing preferences, storage methods and methods of preparation.

### Weekly Cassava Consumption: Women

- **n** = 590, average = 2.48, $\sigma$ = 1.43

**Graph showing frequency of cassava consumption:***

- 1 Time: 200 respondents
- 2 Times: 150 respondents
- 3 Times: 100 respondents
- 4 Times: 50 respondents
- 5 Times: 25 respondents
- 6 Times: 15 respondents
- 7 Times: 10 respondents

### Average Cassava Consumed: Women

- **n** = 321

**Graph showing average cassava consumption:***

- Eastern: 0.12 kg
- Kigali: 0.11 kg
- Northern: 0.10 kg
- Southern: 0.09 kg
- Western: 0.08 kg
- TOTAL: 0.14 kg

### Average Amount per Cassava Purchase

- **n** = 855

**Graph showing average amount per purchase:***

- Eastern: 4.00 kg
- Kigali: 3.50 kg
- Northern: 3.00 kg
- Southern: 2.50 kg
- Western: 2.00 kg
- TOTAL: 5.00 kg

### Cassava Storage Method

- **n** = 165

**Graph showing cassava storage methods:***

- In a bag: 93%
- In a box: 3%
- In a bucket: 2%
- In a tin: 2%
Market Pricing
Except for rice and brown sugar, there is limited variability across provinces for different staple items.
Local Food Production

Agricultural production in Rwanda varies by geography; while cassava is grown nation-wide, maize is concentrated in the north and rice in the south. Furthermore, most processing, for sugar and flour are located close to Kigali.

Source: Rwanda Bureau of Standards, 2007 import records, Ministry of Agriculture and of Commerce 2008 production data, BNR, RRA, RADA interviews and calculations
Food Imports

Imported staple food products—the majority of which are from neighboring and East African countries, with a small amount from Europe, Asia and the rest of Africa—are inspected by RBS upon arrival at one of five checkpoints.

**Uganda** 100% maize, 14% rice, 2% salt, 10% sugar, 70% oil, 41% wheat flour

**Kenya** 91% salt, 21% sugar, 24% oil
**UAE** 10% rice
**Pakistan** 53% rice
**Vietnam** 11% rice
**Indonesia** 4% oil
**India** 1% oil
**Egypt** 9% sugar, 2% wheat flour

**Belgium** 4% wheat flour

**Tanzania** 54% wheat flour
**South Africa** 33% sugar
**Malawi** 7% sugar

Update needed from Green Paper
National Food Standards
Several staple foods are already subject to national or regional standards.

<table>
<thead>
<tr>
<th>Product</th>
<th>Number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
<td>RS30:2004</td>
<td>Requirements for sorghum flour for human consumption</td>
</tr>
<tr>
<td>Maize</td>
<td>RS28:2008</td>
<td>Requirements for whole maize meal for human consumption</td>
</tr>
<tr>
<td></td>
<td>RS121:2006</td>
<td>Requirements for dry milled maize for human consumption</td>
</tr>
<tr>
<td>Rice</td>
<td>RS27:2007</td>
<td>Requirements, classification and methods of testing for milled rice for human consumption</td>
</tr>
<tr>
<td>Salt</td>
<td>EAS35:2000</td>
<td>Requirements for edible salt</td>
</tr>
<tr>
<td>Sugar</td>
<td>RS96:2007</td>
<td>Requirements for refined white sugar for human consumption</td>
</tr>
<tr>
<td></td>
<td>RS95:2007</td>
<td>Requirements and methods of testing for brown sugar for human consumption</td>
</tr>
<tr>
<td>Oil</td>
<td>RS47:2007</td>
<td>Requirements vegetable oils for human consumption</td>
</tr>
<tr>
<td>Wheat</td>
<td>RS31:2004</td>
<td>Requirements for whole wheat flour or mixtures for human consumption</td>
</tr>
</tbody>
</table>
Process for Developing Food Standards

A standards development procedure has been defined by the Rwanda Bureau of Standards. We will assemble and engage a team using this approach moving forward.

- The need for new standards is identified, presented to RBS and included in the work plan
- Technical Committee convened and standard drafted, revised and balloted during meetings.
- Committee draft of standard prepared for public review and available for 60 days in government newspaper
- Standards edited and sent to Management Committee to be approved and Director General to be signed
- Final standards ratified by RBS Board of Directors, maintained in information library and published in Official Gazette