Project overview

• Project aims to fortify wheat flour and rice in the Solomon Islands
Solomon Islands Health Crisis

Anaemia
- 1 in 2 women and 1 in 2 children

Neural tube birth defects
- 27 a year; most common example is spina bifida

Stunting
- 1 in 3 children

Anaemia:
- Lowers productivity
- Decreases mental capacity
- Contributes to maternal deaths

Neural tube defects:
- Cannot be cured
- Cause paralysis or death

Stunting:
- Makes diarrhea worse
- Increases risk of infection and pneumonia

Prevention Strategy
*Fortify wheat flour and rice with essential nutrients*

Iron
- Reduces risk of anaemia

Folic Acid
- Prevents most neural tube birth defects

Zinc
- Reduces risk of anemia and stunting
Fortifying wheat flour and rice will help prevent anaemia

More than 40% is considered a severe public health problem

Consequences include:
- Lower productivity in adults
- Less mental development in children
- Increased maternal deaths

Source: DHS 2006-07
Neural tube birth defects (NTDs) such as spina bifida affect 27 pregnancies per year in the Solomon Islands.
1 in 3 children in the Solomon Islands have low height for their age (stunting).

8.5% of children in the Solomon Islands are considered to be severely stunted.

Stunting is a sign of long-term under-nutrition, but fortifying wheat flour and rice can help improve nutrition and reduce stunting.

Source: DHS 2006-07
Fijian success with wheat flour fortification

Reduced prevalence of iron, folate and zinc deficiency and anemia in women of child bearing age

<table>
<thead>
<tr>
<th>Deficiency</th>
<th>2004 (Before %)</th>
<th>2010 (After %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>22.9</td>
<td>7.9</td>
</tr>
<tr>
<td>Folate</td>
<td>8.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Zinc</td>
<td>39.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Anaemia</td>
<td>40.3</td>
<td>27.6</td>
</tr>
</tbody>
</table>

National Food and Nutrition Centre 2010
Food Fortification National Committee

• In the Solomon Islands, the Food Fortification National Committee (FFNC) will drive the design and implementation of rice and wheat flour fortification

• The FFNC is comprised of officials from:

**Government**
- Ministry of Health
- Ministry of Finance – Customs
- Ministry of Agriculture – Quarantine

**Industry**
- Solrice
- Delite Flour Mill

**Donors**
- Food Fortification Initiative
- World Health Organization
- UNICEF
Action Plan of Reforms

• Six core actions:
  1. Program design
  2. Robust legislation
  3. Rice and wheat flour fortified
  4. Regulatory monitoring and enforcement system
  5. Communications and advocacy
  6. Impact Evaluation
Estimating consumption

• Based on analysis of data from Delite Flour Mill, Solrice, FAO and Customs
• Wheat flour availability* – 53-105 grams/person/day
• Rice availability* – 153-224 grams/person/day
• Based on population size of 612,000

*Availability is an indicator of consumption
Summary of current data – wheat flour availability

Table: Wheat flour availability

<table>
<thead>
<tr>
<th>Source</th>
<th>Quantity</th>
<th>Grams/capita/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Agriculture Organization - 2011</td>
<td>38.5 kg/capita</td>
<td>105</td>
</tr>
<tr>
<td>Delite – 2014 sale figures</td>
<td>11,496 mt/annum</td>
<td>51</td>
</tr>
<tr>
<td>Punjas – 2014 estimated imports</td>
<td>840 mt/annum</td>
<td>4</td>
</tr>
<tr>
<td>Customs – 2014 estimates</td>
<td>492 mt/annum</td>
<td>2</td>
</tr>
</tbody>
</table>

Wheat flour availability = 53-105 grams/person/day
### Summary of current data – rice availability

**Table: Rice availability**

<table>
<thead>
<tr>
<th>Source</th>
<th>Quantity</th>
<th>Grams/capita/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Agriculture Organization - 2011</td>
<td>55.8 kg/capita</td>
<td>153</td>
</tr>
<tr>
<td>Solrice – 2014/15 estimates of its own imports</td>
<td>45,000 mt/annum</td>
<td>201</td>
</tr>
<tr>
<td>Solrice – 2014/15 estimates of all rice imports, from all importers</td>
<td>50,000 mt/annum</td>
<td>224</td>
</tr>
<tr>
<td>Food Fortification Initiative – estimates based on customs data and Solrice 2014/15 figures</td>
<td>46,615 mt/annum</td>
<td>209</td>
</tr>
</tbody>
</table>

Rice availability = 153-224 grams/person/day
Additional data from STEPS survey and HIES

• Provide valuable insights on wheat flour and rice apparent consumption for different population groups
• Ensure the fortification program aligns well with other nutrition interventions
• Data should be available mid-2015
Recommended nutrient levels

1. Calculate combined apparent consumption of wheat flour and rice

- Wheat Flour: 53-105 g/p/d
- Rice: 153-224 g/p/d
- Wheat Flour & Rice: 206-329 g/p/d
Recommended nutrient levels

2. Use the 2009 World Health Organization (WHO) wheat and maize flour fortification recommendations to identify an appropriate category for the Solomon Islands.

Solomon Islands
Wheat Flour & Rice apparent consumption
206-329 g/p/d

WHO Fortification recommendations for 150-300 g/p/d
Recommended nutrient levels

3. Calculate the standard for fortified rice to ensure that nutrient additions targeted by the 2009 WHO recommendations are met by the combination of fortified wheat flour and rice consumed.

NB: It is important to retain the current standard for fortified wheat flour as this is consistent with the regional wheat flour standard. There is no regional standard for rice.
## Recommended nutrient levels

Table: Current Solomon Island wheat flour standards and proposed rice standards to meet WHO fortification recommendations

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>WHO recommendations for 150-300 g/p/d (mg/kg)</th>
<th>Amount in wheat flour standard (mg/kg)</th>
<th>Amount proposed for rice standard (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folic acid</td>
<td>1.3</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Iron</td>
<td>60 (electrolytic) 30 (ferrous fumarate)</td>
<td>60 (electrolytic) 45 (ferrous fumarate)</td>
<td>60 (micronized ferric pyrophosphate [mfp])</td>
</tr>
<tr>
<td>Niacin</td>
<td>Not applicable</td>
<td>55</td>
<td>70</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>Not applicable</td>
<td>2</td>
<td>0 (none)</td>
</tr>
<tr>
<td>Thiamin</td>
<td>Not applicable</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Zinc</td>
<td>40</td>
<td>30</td>
<td>45</td>
</tr>
</tbody>
</table>
Decision for FFNC

• Agree to base the national standards for fortification on the currently available data for wheat flour and rice availability

• Endorse recommended nutrient levels for rice fortification:

<table>
<thead>
<tr>
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<th>Amount (mg/kg)</th>
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<tbody>
<tr>
<td>Folic acid</td>
<td>1.1</td>
<td>Riboflavin</td>
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<tr>
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• Agree to establish national standards for rice fortification, using these nutrient levels