Rice Fortification – Way to improve micronutrient deficiencies

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Micronutrient malnutrition places a heavy burden on the health and economy of nations

-2%
2 billion
People worldwide suffering from micronutrient malnutrition

1/3
Global population affected by iron, zinc and vitamin A deficiencies

45%
Child deaths caused by undernutrition

250,000
Global birth defects due to maternal folate deficiency

3.1 million
Global deaths due to vitamin A and zinc deficiencies

40%
Preschoolers in developing countries with iron-deficiency anemia

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Prof Robert E Black MD, Prof Cesar G Victora MD, Prof Susan P Walker PhD, Prof Zulfiqar A Bhutta PhD, Prof Parul Christian Dr PH, Mercedes de Onis MD, Prof Majid Ezzati PhD, Prof Sally Grantham-McGregor FRCP, Prof Joanne Katz ScD, Prof Reynaldo Martorell PhD, Prof Ricardo Uauy PhD, the Maternal and Child Nutrition Study Group. Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet. 3 August 2013; Vol. 382, Issue 9890: Pages 427-451.

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Addressing micronutrient malnutrition requires an integrated strategy that includes fortification.

Staple food fortification provides a population-based safety net against micronutrient malnutrition, especially relevant to children and women of reproductive age.

Staple food fortification is a proven, cost-effective strategy to improve micronutrient health:

- Adopted in developed countries since the early 20th century
- Supported by WHO, WFP, FAO, and the World Bank
- Ranked by the Copenhagen Consensus 2012 as one of the highest-return interventions in global development¹
- Investing in nutrition breaks the cycle of poverty: $1USD can result in return up to $30USD!

¹ [http://www.copenhagenconsensus.com/Projects/CC12/Outcome.aspx](http://www.copenhagenconsensus.com/Projects/CC12/Outcome.aspx)
Current scenario of rice fortification

Commercial Distribution for A and B consumers

- China, small-scale targeted at high-end market segments
- USA, 70% of rice voluntarily fortified under national FDA standards
- Japan, enriched rice in the market place since 1981

Public Distribution

- India, public distribution through mid-day meal program – Akshaya Patra and Nazareth Foundation
- Brazil, distribution in municipal school lunch programs in Dourados, Indaiatuba and Sobral
- Colombia, distribution through school lunch program

Mandatory Fortification

- Philippines, fortification through government safety net programs
- Costa Rica, variable implementation
- Papua, mandatory fortification enacted
- Nicaragua, ministerial resolution requiring fortification; lack of implementation

Source: Gain Rice Fortification Strategic brainstorm meeting, Bangkok, January 2014

PATH’s Ultra Rice® fortification technology is an innovative and cost-effective solution

Produced with a hot extruder, with the same shape, appearance, and taste of traditional rice, PATH’s Ultra Rice® fortification technology has a minimal impact on consumer prices.

Ultra Rice is a registered US trademark of Bon Dente, International, Inc.
PATH’s Ultra Rice® technology has an evidence base of 30 research and field studies

### Key research areas
- Effectiveness
- Safety
- Stability
- Acceptance
- Cost

### Peer-reviewed research highlights
- Fortified rice was **more effective than iron drop supplements** in improving the iron status of children between the ages of 6 months and 2 years in the southwest region of Brazil.
- Schoolchildren in India between the ages of 5 and 12 years who ate fortified rice had a **significant increase in iron stores**.
- The **prevalence of iron deficiency reduced significantly** in Mexican women who consumed fortified rice in comparison to the control group.

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**Why Myanmar**

- Rice is the main staple food crop in Myanmar.
- Myanmar people are among the highest rice-consumers globally. (>300mg/day/per capita)

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**Initial targets for fortified rice introduction**

**Goal:** To reduce micronutrient deficiencies in the population while creating income-generation opportunities for supply-chain and distribution actors through the introduction of fortified rice in Myanmar

- **Reduced selected micronutrient deficiencies**
  (Vitamin A, B1, B3, B6, B9, B12, Iron, Zinc)

- **420,000+ fortified rice consumers reached through retail, social, and public sector distribution**

- **24+ local supply-chain and distribution actors**

**Key activities**

**Output 1: Advocacy & policy**

- Establish national rice fortification collaboration
- Validate acceptance by population
- Advance towards national fortified rice policy

**Output 2: Supply chain & distribution**

- Enable fortified grain production
- Enable blender fabrication
- Enable fortified rice production

**Output 3: Sustainable demand**

- Conduct demand generation campaign
- Support miller and distributor marketing
Public sector alignment and coordination advances us towards standards and policies

- 2011-2015 National Plan of Action for Food and Nutrition fortification strategic objectives
- Scaling-up Nutrition Initiative activities
- Introduction of fortified rice activities

Development of standards and policy for fortification

Fortification: Establishment of the local Supply Chain

Fortified grain producers
- Low cost extrusion
  - Rice flour + vitamin pre-mix

Fortified Grains

Rice Millers
- Blending
  - Grains + milled rice

Fortified rice

Fabricators
- Blending unit
  - Blenders + dosifiers

Retailers
- Fortified rice
Demand generation campaign on Fortification:
Working with partners

Rice Fortification – Way forward

- National policy on fortified rice
- Local production of fortified rice
- Demand generation through commercial and social channels
Thank you