

Delivery options and actions to drive rice fortification through social programmes

India and Bangladesh

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World Food Programme

BANGLADESH



World Food Programme

Country Overview

Bangladesh – aims to become middle income country !!!!

Significant progress;

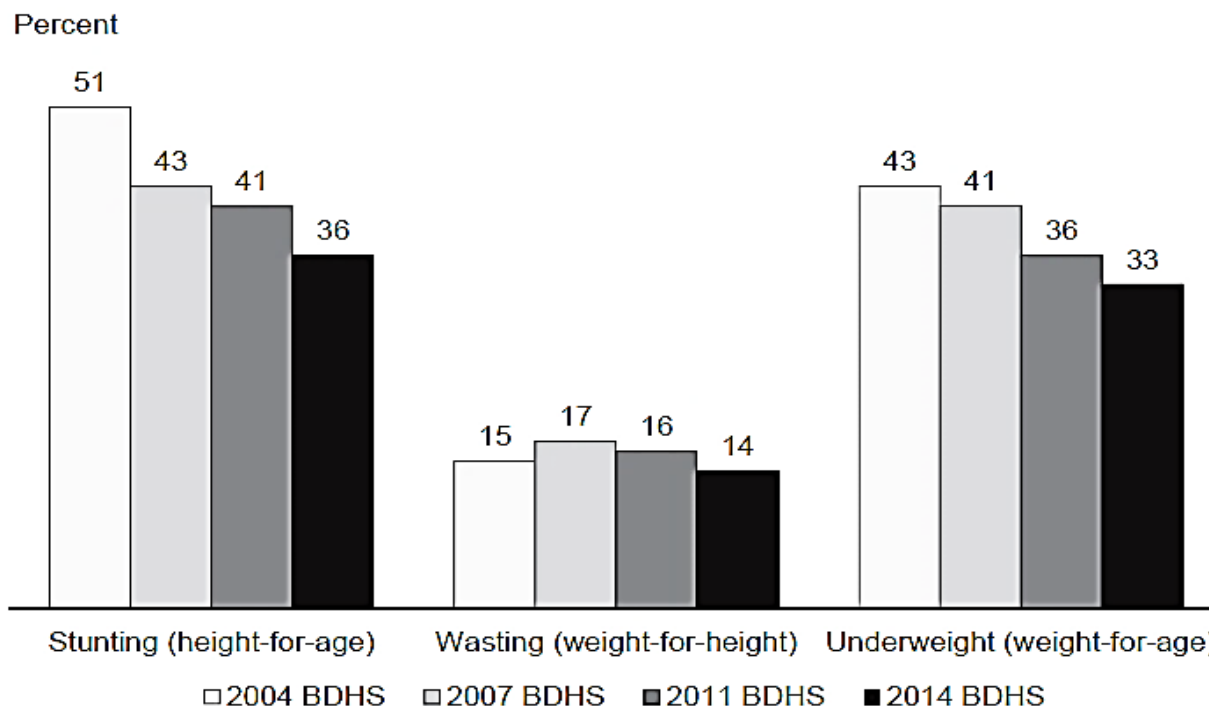
- Sustained economic growth in the order of 6%
- Poverty and food insecurity continue to decrease steadily
- Steady increase in per capita income at USD 1,314
- The Government is able to increase its allocation in FY 2015-2016 for social safety nets (SSN) - US\$3 billion; 2.3% of GDP; 12% of Government expenditures
 - ❖ Food based – US\$ 1.6 billion (60%)
 - ❖ Cash based – US\$ 1.1 billion (40%)

Bangladesh reduced poverty; achieved MDG-2 Goal even earlier BUT;

- Prevalence of micronutrient deficiencies remains a major problem

Bangladesh National Nutrition Status

TRENDS IN NUTRITIONAL STATUS OF CHILDREN UNDER AGE 5, 2004-2014*



* *Bangladesh Demographic and Health Survey 2014*

AGE GROUP	ANEMIA RATE*
Pre-school children (<i>children under 5</i>)	33.1%
School children (<i>6-11 years</i>)	19.1%
School children (<i>12-14 years</i>)	17.1%
Non pregnant and Non lactating (NPNL) (<i>15-49 years</i>)	26%

* *National Micronutrients Status Survey, 2011-12*

Bangladesh National Strategy on Prevention & Control of Micronutrient Deficiencies

The Government strategy includes food fortification

**FOOD
SUPPLEMENTATION**

**FOOD
FORTIFICATION**
*(includes
Rice Fortification)*

**DIETARY
DIVERSIFICATION**

Bangladesh National Rice Consumption Parameter

**Dietary diversity is limited -
Rice Consumption in Grams Per Capita Per Day
(HIES 2010)**

National 416 grams

Urban 344.2 grams

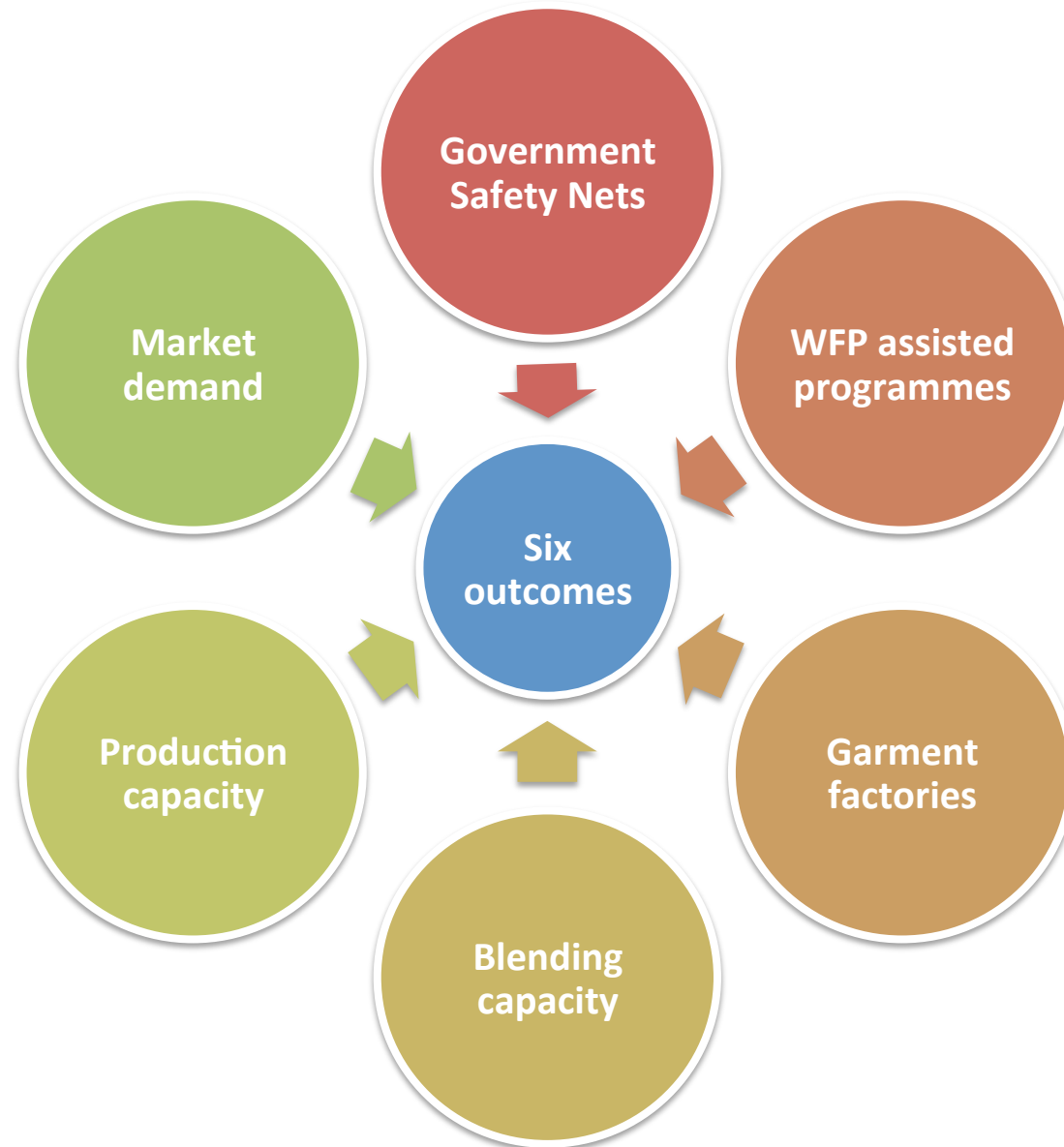
Rural 441.6 grams



- *Rice is the staple food for Bangladesh*
- *Bangladesh ranks 4th on worldwide rice consumption in 2014/15*
- *Bangladesh consumes more than 35.3 million metric tons of rice every year*

Scaling Up Rice Fortification in Bangladesh

Initiative Overview



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Mainstreaming Gender
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Scaling Up Fortified Rice in Bangladesh

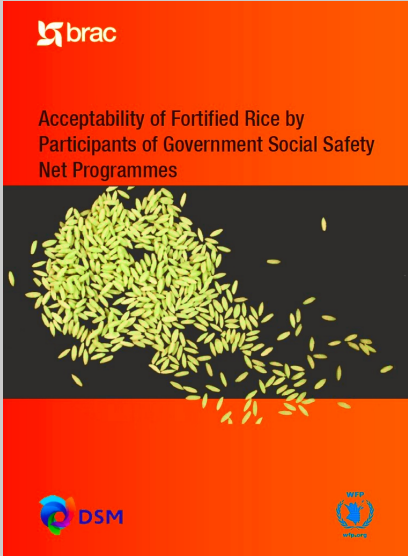
The initiative involves Multi Stakeholder Engagement



Scaling Up Fortified Rice in Bangladesh

The implementation requires creating evidence and learning

Acceptability trial



Outcome

Provided evidence on acceptance by the beneficiaries – served as the basis

Assessment at Garment Factory

- Health and nutrition benefits
- Women Empowerment
- Increase productivity

Expected Outcomes

The evidence will be presented to encourage distribution of fortified rice subsidy for garment producers

Effectiveness study

- Improve micronutrient status among poorest group
- Improve women empowerment
- Improve programme efficiency

Expected Outcomes

Expansion and scaling up based on the learning and evidence

Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

a) Implementation arrangements and guidelines

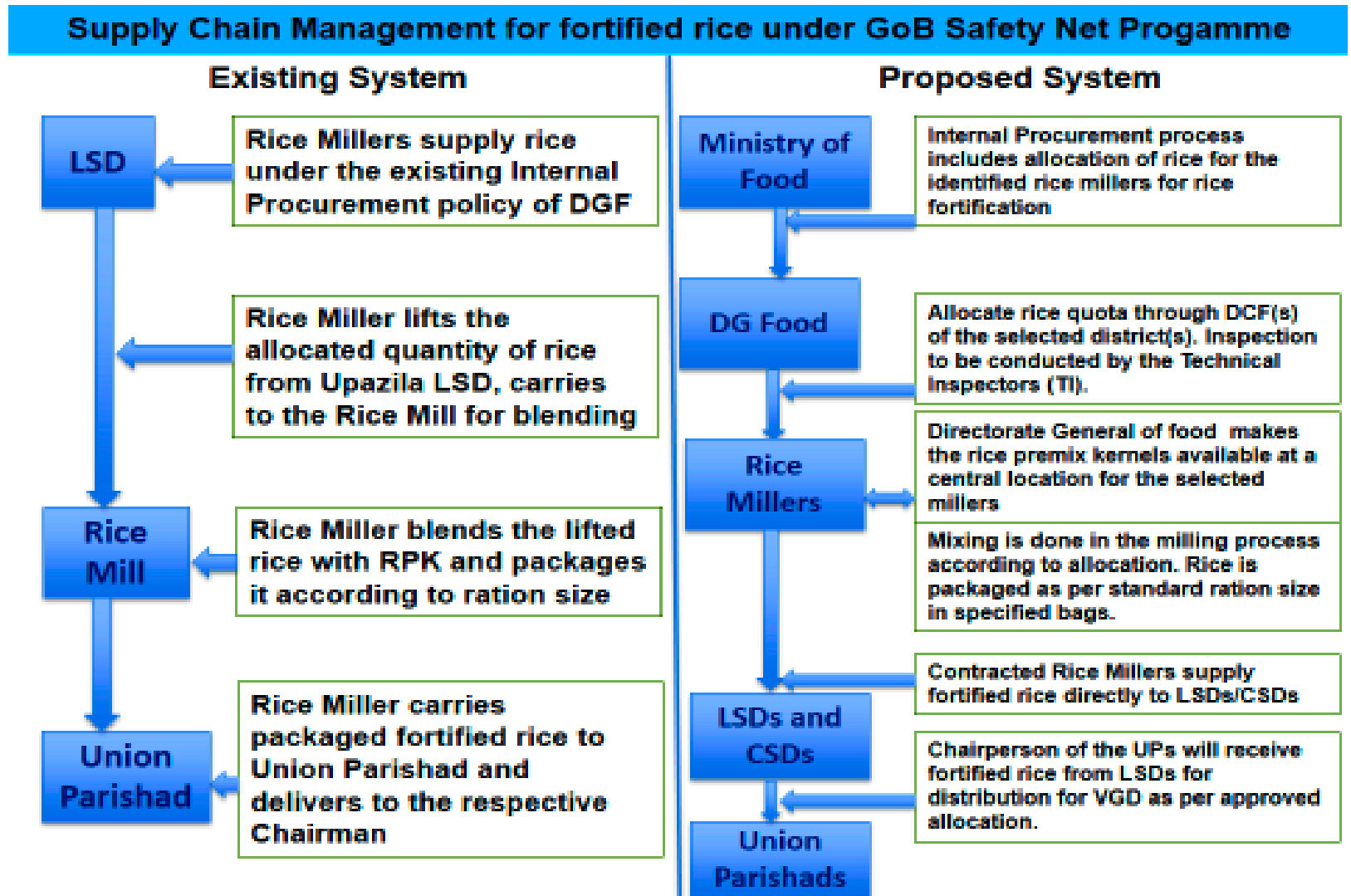
- ❖ Formed expert group from various government ministries
- ❖ Organized inter-ministerial meeting to agree on basic principles and coordination
- ❖ Prepare necessary guidelines, issuance of Government circulars
- ❖ Prepared training/ advocacy materials endorsed by National level committee
- ❖ Organized training and orientation sessions



Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

b) Established new supply chain management under Government Safety Nets



Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

c) Adoption of Standards – essential to assist private partners in marketing fortified rice

The composition approved for Bangladesh (determined based on the needs). This composition was agreed in a series of consultations (Government agencies, research agencies, nutrition working groups, consumers' association, etc.)

Nutrient Unit	Rice consumption of 150-300 g/cap/d, in ppm (mg/kg)	Targeted amount in 100 g uncooked rice	Target fortification level, including 30% overage for vitamins to compensate	Target range ex-factory	Expected range at household level
Vitamin A (Palmitate)	1.5	150 mcg (=RE)	195 mcg	185- 215	150 - 215
Vitamin B ₁ (as Thiamin mononitrate)	4	0.4 mg	0.52 mg	0.45- 0.60	0.40 – 0.60
Vitamin B ₁₂ (Cyanocobalamine)	0.01	1 mcg	1.3 mcg	1.15-1.45	1.00 – 1.45
Folic Acid (vitamin B ₉)	1.3	130 mcg	170 mcg	150-190	130 - 190
Iron (Ferric pyrophosphate)	60	6 mg	6 mg	5.0-7.0	5.0-7.0
Zinc (as Zinc oxide)	40	4 mg	4 mg	3.5 – 4.5	3.5 – 4.5

Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

d) Locally designed blending units

- ❖ Developed by local engineering firms
- ❖ Low cost – USD 12,000
- ❖ Affordable to local traders/ millers
- ❖ Able to blend fortified rice kernels with milled rice at a ratio of 1:100
- ❖ Capacity to mix 2.5mt/ hour & 500mt/ month approximately
- ❖ Continuous blending



Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

e) Quality control of blending fortified rice kernels with milled rice

- ❖ Calculation procedure to determine fortified rice kernel per gram
 - i. $\text{Kernel/ gram} = (\text{number of kernels}) / (\text{weight of sample in gram})$
 - ii. Estimated CV = 0.5%

- ❖ Calculation of mixing quality (even distribution)
 - i. Standard deviation
 - ii. Coefficient of Variation (CV)

- ❖ Acceptable deviation
 - i. Maximum deviation from the target value is +20% for a single measurement
 - ii. For multiple measurements (mean of 5), the maximum deviation is +15%
 - iii. Coefficient Variation (CV) of 5 measurements should be < 14%
 - iv. CV of very homogeneous mixture would be < 5%

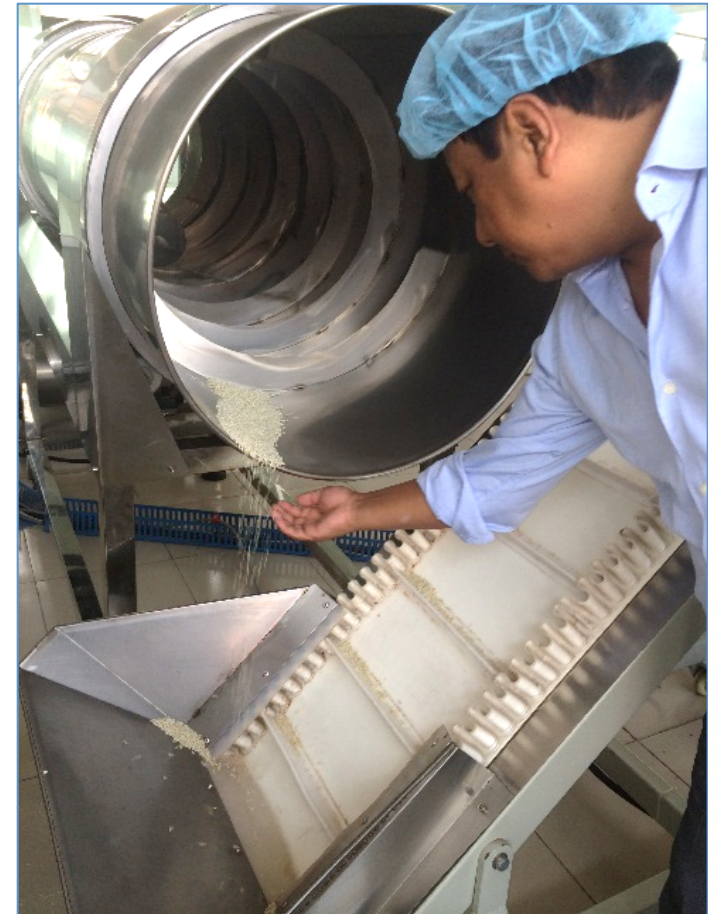
- ❖ Toolkits
 - i. UV Lamp or Money Tester
 - ii. Pocket Balance 100g

Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

f) Local production of fortified rice kernels - US\$100,000

- ❖ Interested private partners
- ❖ Existing quality assurances practices
- ❖ Invested on business model
- ❖ Installed extrusion technology (twin screw)
- ❖ Final product passes through metal detector
- ❖ Produces 1000kg/day

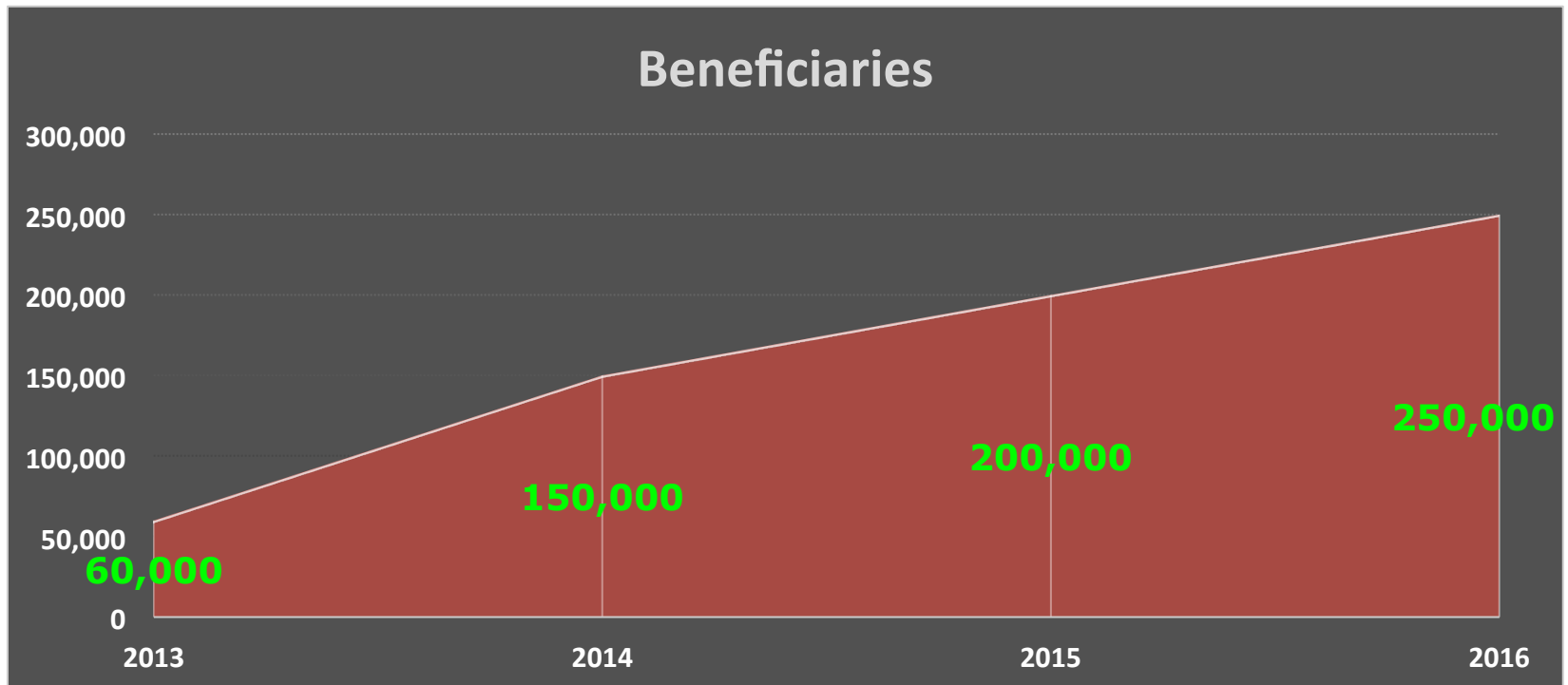


Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

g) Expansion

- ❖ Mainstreaming distribution of fortified rice in Government Social Safety Nets



Scaling Up Fortified Rice in Bangladesh

Implementation and expansion

g) Expansion

- ❖ Allocated government funding
- ❖ Set up framework of agreement to contract private millers for blending
- ❖ Purchase of fortified rice kernels locally from private company
- ❖ Improved monitoring oversight



Scaling Up Fortified Rice in Bangladesh

Key success factors

- ❖ Multi-sector approach engaging public and private sector partners
 - Government leadership and collaboration across multiple government departments
 - Involvement of the private sector
- ❖ Working in partnership with development partners
- ❖ Technical assistance from WFP and DSM
- ❖ Addressing commercial sustainability for fortified rice private sector engagement
- ❖ Local production of fortified rice kernels

Scaling Up Fortified Rice in Bangladesh

Way Forward

- ❖ The Government has decided to scale up of rice fortification in its programmes/interventions
- ❖ The Government is putting in place the necessary measures such as guidelines/ standards/ contracting arrangements
- ❖ Plan to invest to improved infrastructure - building storage capacities up to 500,000mt of fortified rice in the Government Storage Depots
- ❖ Plan to make fortified rice available in the market

Scaling Up Fortified Rice in Bangladesh

Challenges

- ❖ Cost! International import versus local production of fortified rice kernels by the private sector remains a key challenge
- ❖ Marketing the product for poor in remote areas
- ❖ Improved quality assurance practices (discussion ongoing with relevant agencies)
- ❖ Lab facilities, protocols, technical knowledge

INDIA



World Food Programme

Need for fortifying rice in India:

About 65% of India's population consumes rice as a staple.

Rice is a large source of calories and core component of agriculture and nutrition in most of India though low in micronutrients.

Milling of rice removes the fat and micronutrient rich bran layers to produce the commonly consumed starch white rice.

Polishing further removes 75-90% of vit. B1, vit. B6, vit. E and Niacin.

Fortifying rice provides an opportunity to add back the lost micronutrients but to also add others such as iron, zinc, folic acid, vit. B12 and vit. A.

Status check on rice fortification in India

- Policy on mandatory food fortification being drafted- rice included in policy as a vehicle for delivery of micronutrients.
- Draft standards for fortified rice developed by the Food Safety Standards Authority of India.
- Large scale rice fortification initiatives in the school feeding programme in the states of Odisha and Karnataka. Pilot on rice fortification in the state of Tamil Nadu in another government food safety net.
- Keen interest in the other states.
- Local production capacities for fortified rice kernels.

Social safety net schemes

In 2013-'14, approx. 24.5 million tonnes of rice was lifted out of a 44.5 million metric tonnes of grain (both rice and wheat) lifted

Targeted public distribution system

- Household rations distributed to households belonging to antodaya
- Ration include wheat, rice and oil

In 2014-'15, 2 million metric tonnes of rice was lifted out of a total of 2.37 million metric tonnes of grains lifted

Mid day meal scheme

- School going children between 6-12 years
- 450 kcal and 12gm proteins to primary school children
600 kcal and 20 gm proteins to upper primary school children

Integrated Child Development Services scheme

- Children till 6 years of age; pregnant; lactating women
- 500kcal and 12-15gm proteins to children between 6-72 months and 800kcal and 20-25 gm proteins to pregnant/lactating women.

India summary of evidence and studies on rice fortification (N=4)

Type of Research	Research Organization	Country/ Year	Study Objectives
Efficacy	National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India	India 2007-2008	To assess the impact of consuming rice fortified with iron, Ultra Rice, on the iron status of children in a mid-day meal program in India.
Efficacy	Division of Nutrition, St. John's Research Institute, St. John's National Academy of Health Sciences, Bangalore, India.	India 2009-2010	To study the efficacy of rice-based lunch meals fortified with multiple micronutrients, including vitamin A, thiamine, niacin, vitamin B-6, vitamin B-12, folic acid, and zinc, in combination with high or low concentrations of iron on anemia, micronutrient status, and the physical and cognitive performance of Indian schoolchildren.

Contd.

Type of Research	Research Organization	Country year	Study Objectives
Acceptability, Sensory	National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India	India/2006	To test the organoleptic properties of rice fortified with iron Ultra Rice.
Acceptability, Sensory	Indian Market Research Bureau International (IMRB), New Delhi, India	India 2003	To gauge the organoleptic acceptance of Ultra Rice fortified with ferrous sulfate and the sensitivity of potential target segments.

Initiatives on introducing fortified rice through the public sector schemes in India

Geography	Project period	Beneficiary type	Quantity of fortified rice distributed	Beneficiary numbers	Implementing agency
Andhra Pradesh	2008-10	Mid-day meal scheme (6 - 14 yr. old)	1000MT	60,000	Naandi foundation
Rajasthan	2011	Mid-day meal scheme (6 - 14 yr. old)	3300 MTs	185,000	Akshay Ptra Foundation

Role of WFP in furthering the agenda of rice fortification in India

- Demonstrating to the government that implementation of rice fortification at scale over a substantial duration was possible through government platforms.
- Supporting the government in sustaining rice fortification and taking it to scale in a phased manner.
- Contributing to existing evidence base on rice fortification.
- Policy advocacy with both relevant departments and ministries at both National and State level on need for mainstreaming rice fortification into existing government policies, programmes and plans.
- Technical assistance to the government towards policy formulation.

WFP Rice Fortification Project at a glance in Odisha

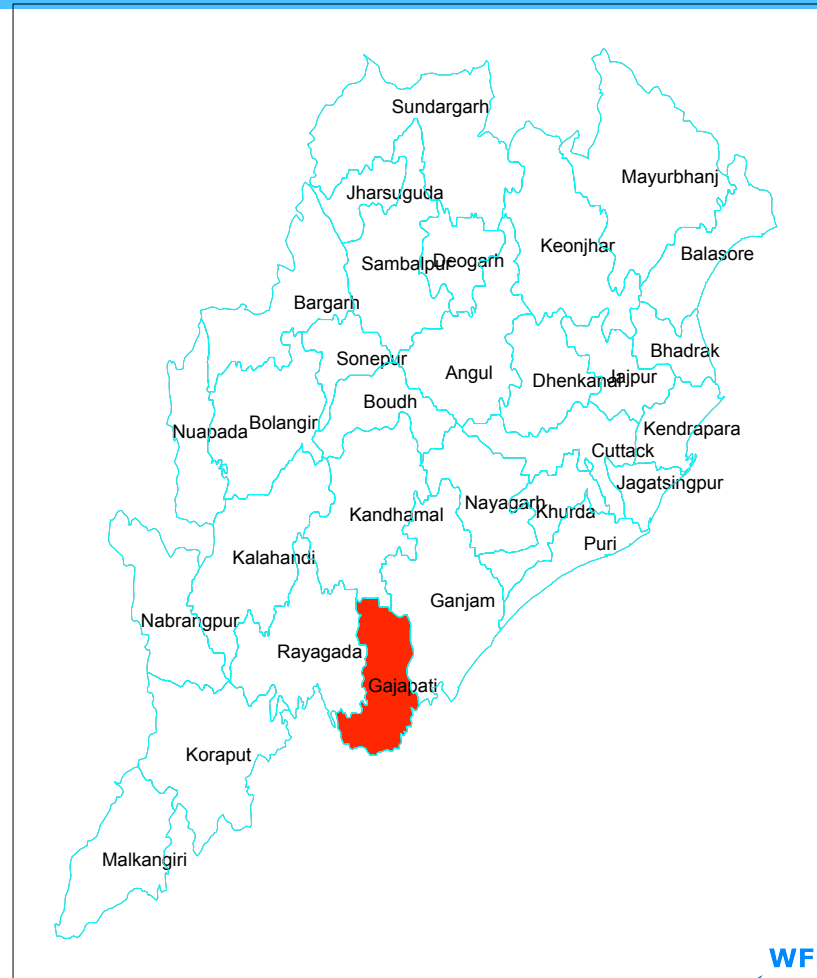
Goal: Operationalizing rice fortification through the platform of the mid-day meal

Modality: Fortification of FCI rice at a centralized location and its distribution and consumption in the MDM across schools in Gajapati.

Coverage: 99,231 school children across 1473 schools in Gajapati

Duration: 40 months (duration of intervention is 31 months)

Results: (i) Fortification of rice taken over by the government and being sustained at their own cost (ii) Commitment from GoO to scale up rice fortification to other districts in a phased manner (iii) Anemia prevalence reduced by 20%age points in the given district of which 6% age point reduction was attributable to fortified rice



Lesson's learnt

What helped? What worked well?

Domestic production capacity for Fortified Rice Kernels

In-country evidence base on fortified rice

Operationalizing delivery of fortified rice in partnership with the government.

Systematic approach to implementation.

Instituting a mechanism of a technical advisory group consisting of government, research institutes and academia to periodically review the WFP pilot helped build confidence with the government.

High level visibility and dissemination of the experience at various fora.

Partnerships and coordination with other agencies.

What did not help? What could be improved?

Limited Fortified Rice Kernels production capacity in the country.

Undue focus on evaluation of the impact of the intervention though the overall goal of the intervention was operationalization.

Difficulty in demonstrating impact in real time field conditions.

Incremental cost

Long term sustainability.

Gracias!

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