



# Rice Fortification in India

WFP India Country Office

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Sharing for Learning

# Context

- India is a developing South Asian Country and home to 1.4 billion people
- Over 50% of the women (15-49 years) and children (under 5 year) and 1/4<sup>th</sup> men suffer from anemia
- Fortification of rice in India is being implemented in India as a complementary strategy to address the burden of anemia
- India leverages its food-based safety net system to ensure reach of fortified rice to over 800 million people including women and children

# Interventions in action to address Anemia

- Interventions to address anemia are a part of a comprehensive strategy called Anemia Mukht Bharat
- 6 interventions included are

**Prophylactic Iron and Folic Acid Supplementation for children, adolescents, WRA, Pregnant, lactating women**

**Biannual mass deworming for children and adolescents aged 1-19**

**Intensified year-round Behaviour Change Communication Campaign (Solid Body, Smart Mind)**

**Mandatory provision of Iron and Folic Acid fortified foods in government funded public health programmes.**

**Intensifying awareness, screening and treatment of non-nutritional causes of anaemia in endemic pockets**

**Testing and treatment of anaemia, using digital methods and point-of-care treatment**

# Three Food-Based Safety Net Programmes

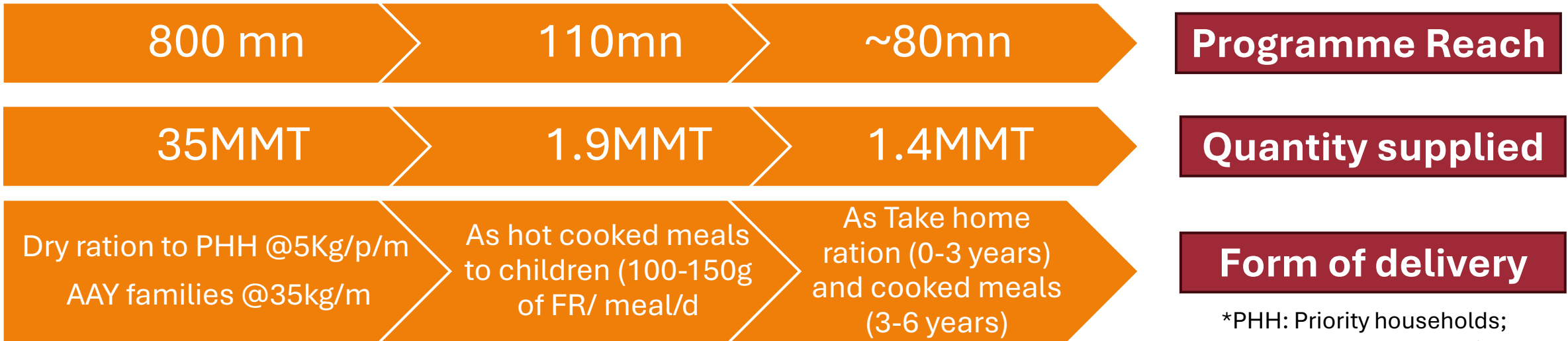
**Targeted Public Distribution System**



**PM Poshan (Pradhan Mantri Poshan Shakti Niman)**



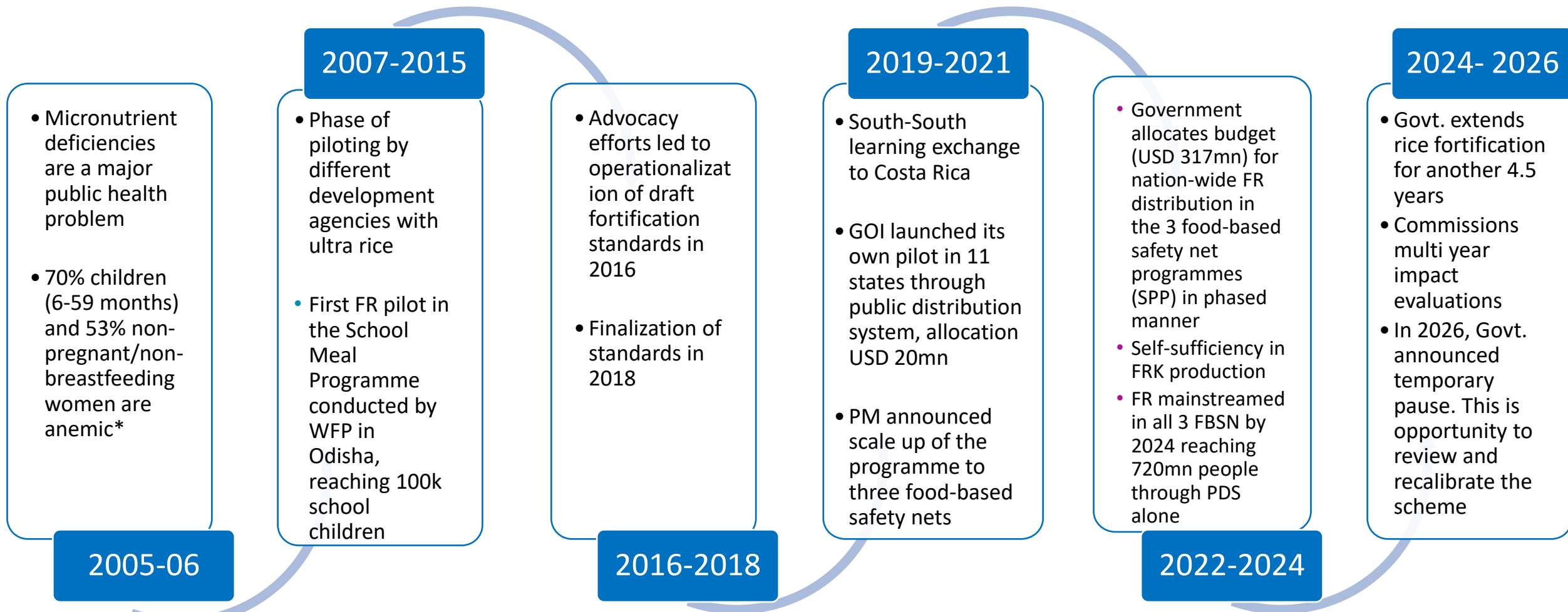
**Integrated Child Development Services scheme**



\*PHH: Priority households;  
AAY: Antyodaya Anna Yojana;

# Evolution of rice fortification in India

## A classic example of pilot to scale approach



\* National Family Health Survey 2005-06

# Key Stakeholders

## Government: National and State

### Department of Food and Public Distribution

Anchoring Scheme

Budgetary support

Operational guidelines for production and delivery of quality fortified rice

Awareness generation

### Ministry of Women and Child Development

Procures fortified rice for supplementary nutrition programme

Awareness generation and capacity strengthening of field functionaries

### Ministry of Education

Procures fortified rice for school meals programme

Awareness generation and capacity strengthening of field functionaries

### Food Safety and standards Authority of India

Regulatory body under Ministry of Health

Lay standards

Issue licenses to Food Based organizations

Undertake quality checks (surveillance and legal sampling)

Notifies and capacity building of laboratories

### NITI Aayog

Policy Think tank

Inter convergence between Ministries

Evaluations of scheme

### Bureau of Indian standards

Standards for equipment

Industry

Others

Premix

FRK manufacturer

Rice miller

Laboratories

Academia

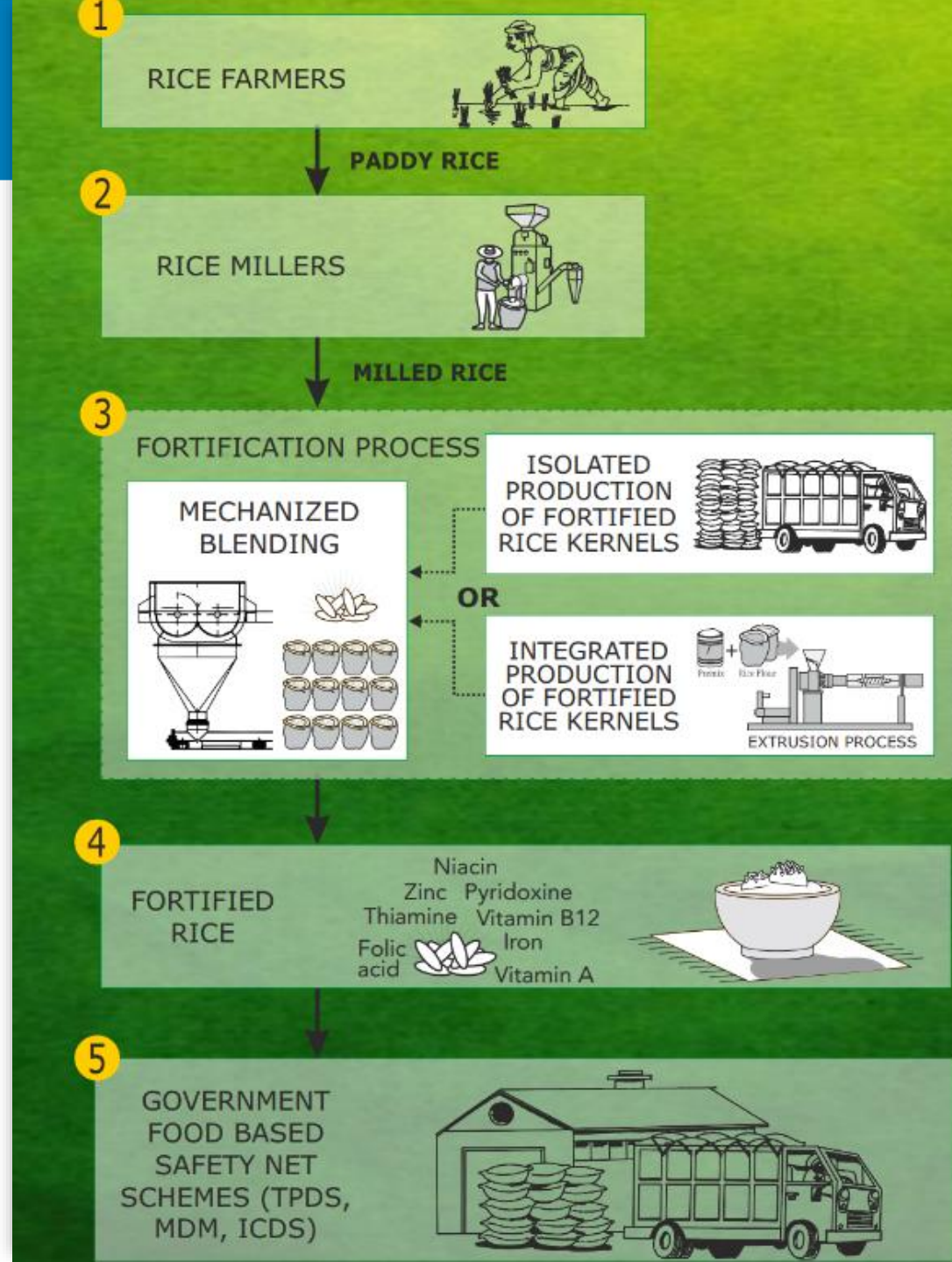
Development partners

Civil society

Local NGOs

# Supply Chain of Fortified Rice

- As part of the existing supply chain, rice was distributed in food-based safety nets
- Paddy from the farmers is procured by the government through its agencies at a minimum support price
- Rice millers are empaneled by the government to convert paddy to rice before its storage or delivery
- FRK manufacturers are empaneled by states/ state agencies to supply FRK to rice millers
- For producing fortified rice, rice millers are equipped with suitable blending solution so that fortified rice can be produced integrated to milling operations.



# Ecosystem created for rice fortification



# Evolution of the Ecosystem

## Labs

**April 2019**  
10 NABL accredited Labs for testing of fortificants

**August 2021**  
20 NABL accredited Labs for testing of fortificants

**August 2023**  
42 NABL accredited Labs for testing of fortificants in Fortified Rice and 15 for FRK

**Dec 2024\***  
55 NABL accredited Labs for testing of fortificants in Fortified Rice and 31 for FRK

## Blending infrastructure

**April 2019**  
<50 rice mills with bending infrastructure

**August 2021**  
2,690 rice mills with bending infrastructure

**August 2023**  
18,709 rice mills with bending infrastructure

**Dec 2024**  
21000+ rice mills with bending infrastructure

## FRK Manufacturers

**April 2019**  
7 FRK manufacturers

**August 2021**  
34 FRK manufacturers

**August 2023**  
192 FRK manufacturers

**Dec 2024**  
900+ FRK manufacturers

\*No. of labs notified for testing of premix expanded later; as on March 2026, 17 labs are equipped to test vitamin mineral premix for FRK

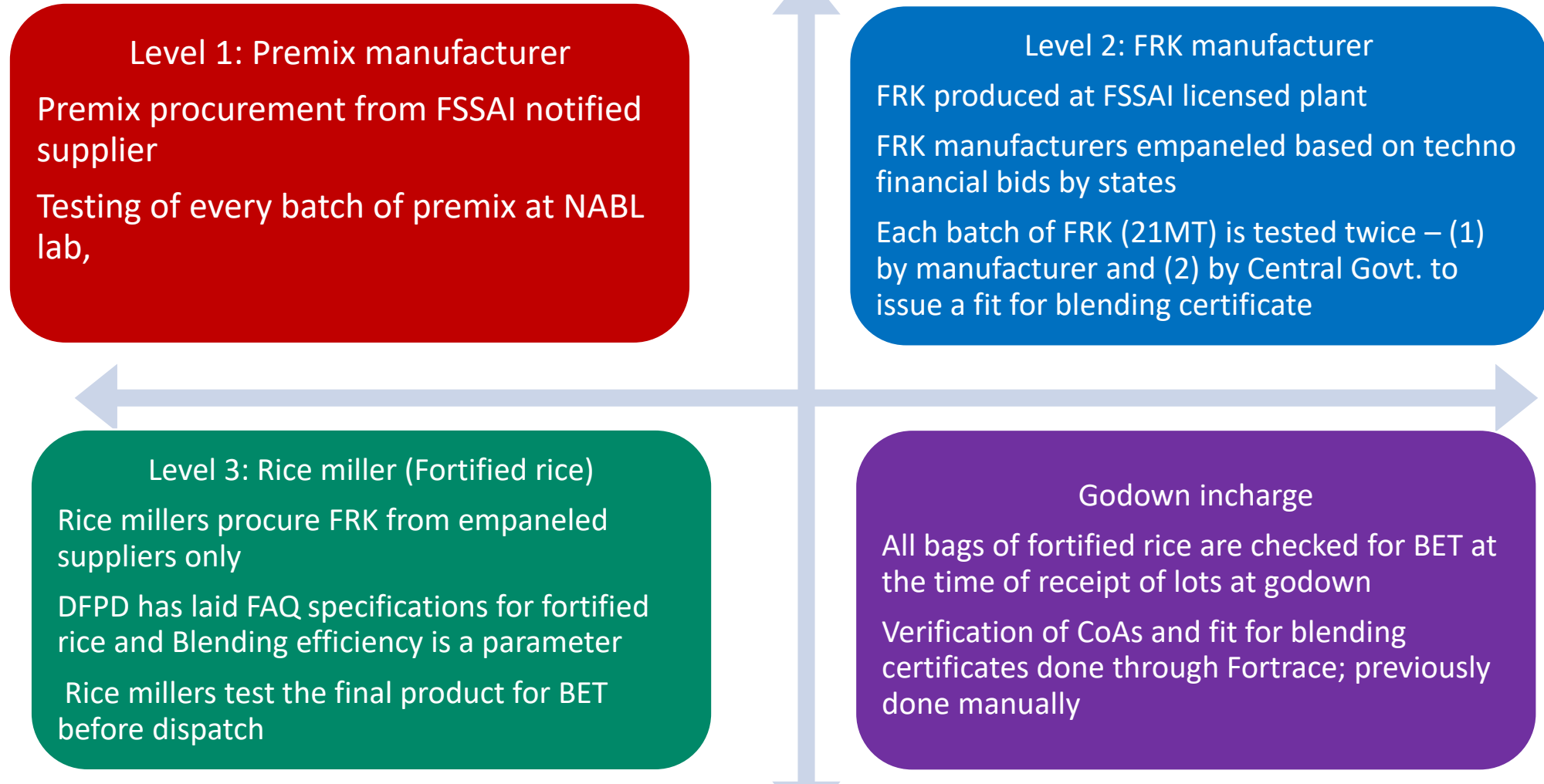
# Key Regulations Guiding Quality Framework

- **Food Safety and Standards (Fortification of Foods) Regulations, 2018:** Guiding on standards of fortified rice and other 4 staples
- **Food Safety and Standards (Food Product Standards and Food Additives) Amendment Regulations, 2023** prescribing standards for FRK and Premix
- **IS 17854 : 2022** – Indian standard for equipment for manufacturing of FR
- **IS 17853 : 2022-** Indian standard for equipment for manufacturing of FRK
- **ISO- 22000-** Food Safety Management System (FSMS)
- **Food Safety and Standards (Packaging) Regulations, 2018** : guiding packaging and labelling of bags of Fortified rice
- **Operational guidelines** issued by Department of Food and Public Distribution, time to time

## Standards for Rice Fortification

Mandatory		Optional	
Micronutrients	Indian Standards (IS) (mg/100g), 2018	Micronutrients	Indian Standards (IS) (mg/100g), 2018
Iron	2.8-4.25 (Ferric Pyrophospahte)	Vitamin A	.050-.075 (Retinyl Palmitate)
	1.4- 2.125 (NaFeEDTA)	Zinc	1-1.5 (Zinc Oxide)
Folic Acid	0.0075- 0.0125 (Folic Acid)	Thiamine	0.1-.15 (Thiamine hydrochloride or Thiamine mononitrate)
Vitamin B12	.000075 - .000125 (Cyanocobalamine)	Niacin	1.25-2.0 (Nicotinamide or Nicotinic acid)
		Vitamin B6	0.15-0.25 (Pyridoxine hydrochloride)
		Riboflavin	0.125-0.175 (Riboflavin or Riboflavin 5'-phosphate Sodium)

## Operationalizing Quality Assurance and Control in Production and Supply of Fortified Rice



Movement of premix, FRK, FR from point of production to point to use/ Storage (FR) is digitally traced using FORTRACE

# Enablers for the programme

Political commitment  
and policy certainty

Central funding to  
support scale up

Public private  
partnership- willingness  
of industry

Strong supply chain  
networks within food  
based safety net  
programmes to support  
rice distribution

Availability of standards  
of fortification of rice as  
well as machinery

Defined regulatory  
mechanisms for quality  
control

Engagement with  
academic institutions

## Challenges

Lack of ownership by Ministry of Health as the scheme is largely viewed as a food security scheme

Lack of state ownership as there is no financial stake involved

Rapid scale up – multiple implementation issues affecting quality

Frequent changes in operational guidance, sometime mid season as well

Delayed supply of FRK in the system due to delay in roll out of surveillance testing

Enforcement issues at the level of FSSAI – leading to quality compromise, convergence issues with line ministries of women and child and Education

Limited awareness in the community on value addition of fortification

# Role of WFP

- Building a case for introducing fortification in food-based safety nets by **demonstrating impact and operational feasibility**
- **Advocacy** for formulation of standards for fortification
- **Evidence generation of impact**, cost analysis
- **Technical support** for development of blueprint of the scheme (pilot) and operational guidelines
- Support to scale up:
  - Capacity building
  - Technical assistance to states
  - Continuous support for resolving issues raised by civil society
  - Awareness generation and scheme promotion
  - Monitoring and evaluation
  - Technical assistance to national government for improvement in policy reforms
  - Documentation of best practices



# Thank You