

# Technical Considerations in Fortification of Milk & Milk Products

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# Nutritional Status in India: Current Scenario

## Reduction of Stunting, Wasting and Underweight in Children Under 5

years

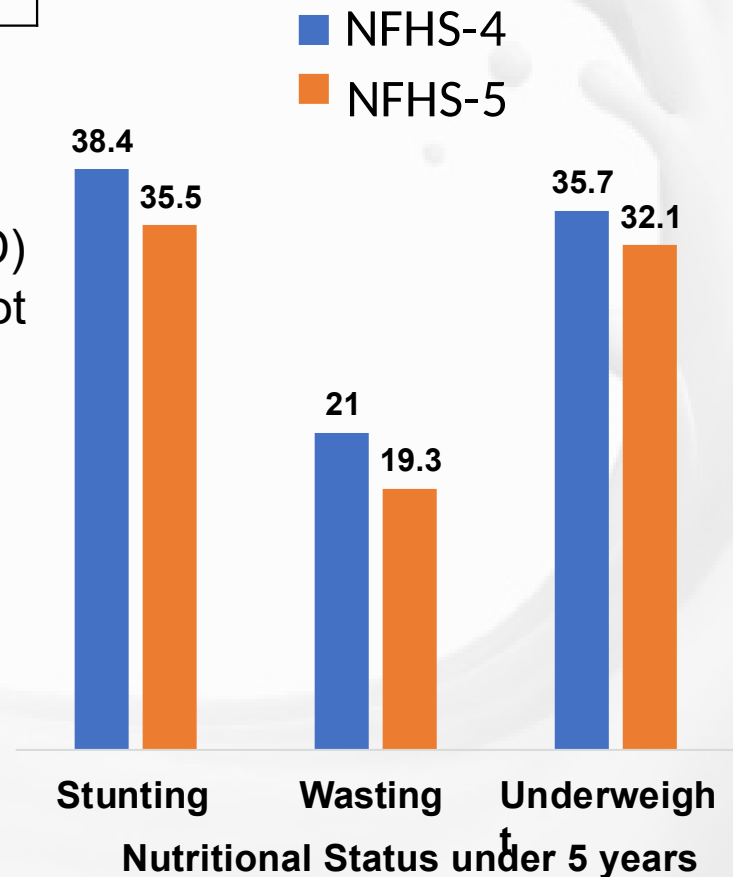
Lower prevalence of stunting	NFHS-4 - 38.4%	NFHS-5 – 35.5%
Lower prevalence of wasting	NFHS-4 - 21.0%	NFHS-5 – 19.3%
Lower prevalence of underweight	NFHS-4 - 35.7%	NFHS-5 – 32.1%

Source: National Family Health Survey -5; 2021

## Nutritional Status in Children 5-9 years and Adolescents 10-19 years

- One quarter of 5-9 and 10-19 year olds were thin for their age (BMI-Age <-2SD)
- One in five children 5-9 years old were stunted. The school age period does not provide an opportunity for catch up growth in height.
- About 5% of 5-9 and 10-19 year olds were overweight or obesity

## DOUBLE BURDEN OF MALNUTRITION



Source: CNNS Data - Nutritional Status in Children 5-9 years and Adolescents 10-19 years

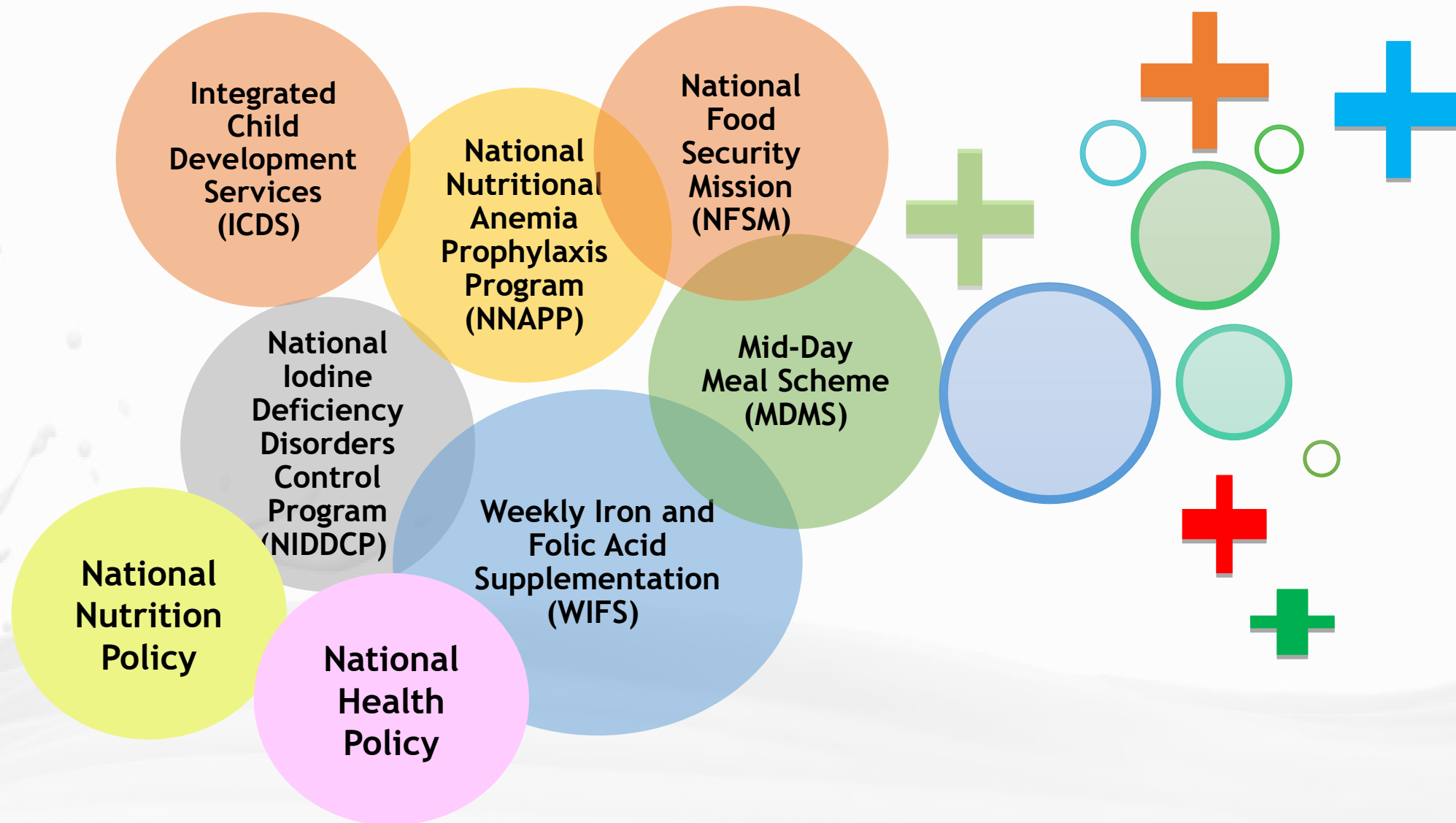
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# Micronutrient Status in India: Current Scenario

- **Vitamin A deficiency** was 16-22% in 1-19 years age group with geographical variations
- **Vitamin D deficiency** varied from 14% to 24% in 1-19 years age group (following cut-off of expert panel of Institutes of Medicine)
- **Vitamin B12 deficiency** ranged from 14% to 31% in 1-19 years of age and was highest among adolescents
- Adequate Median Urinary Iodine level in all states indicating the success of Salt Iodization program

## TRIPLE BURDEN OF MALNUTRITION

# Nutrition Intervention Programs in India ....

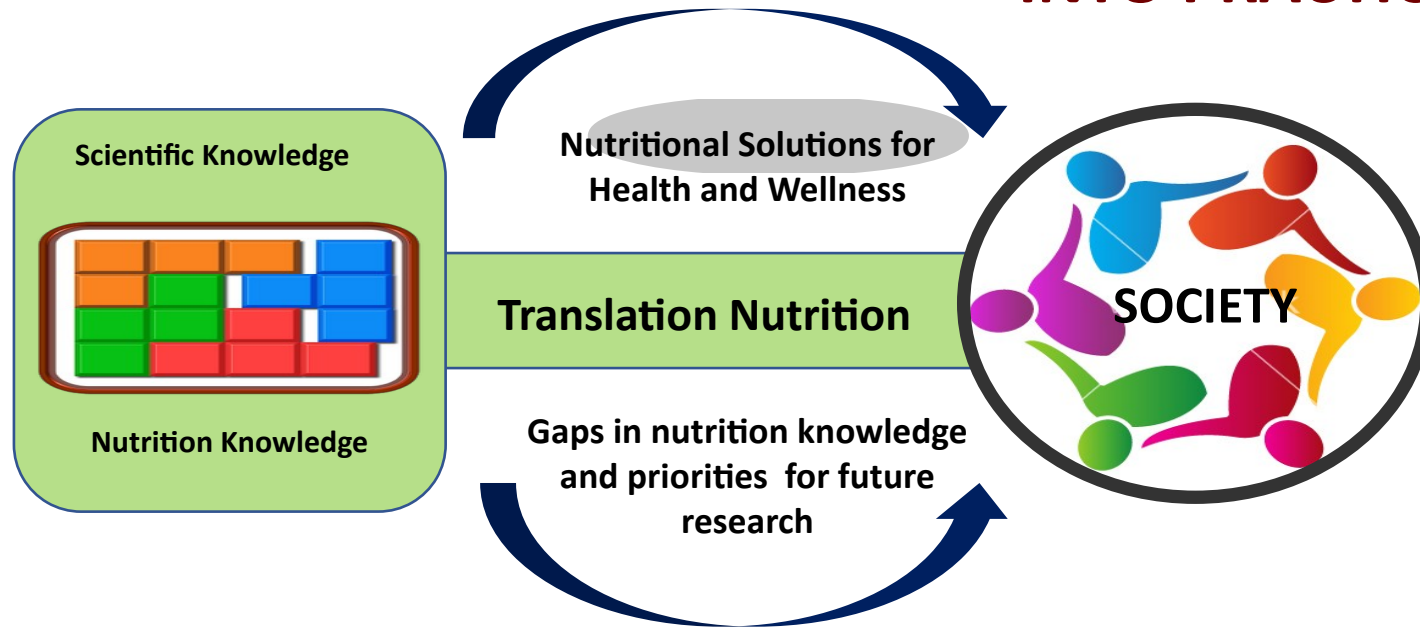


# Food Fortification

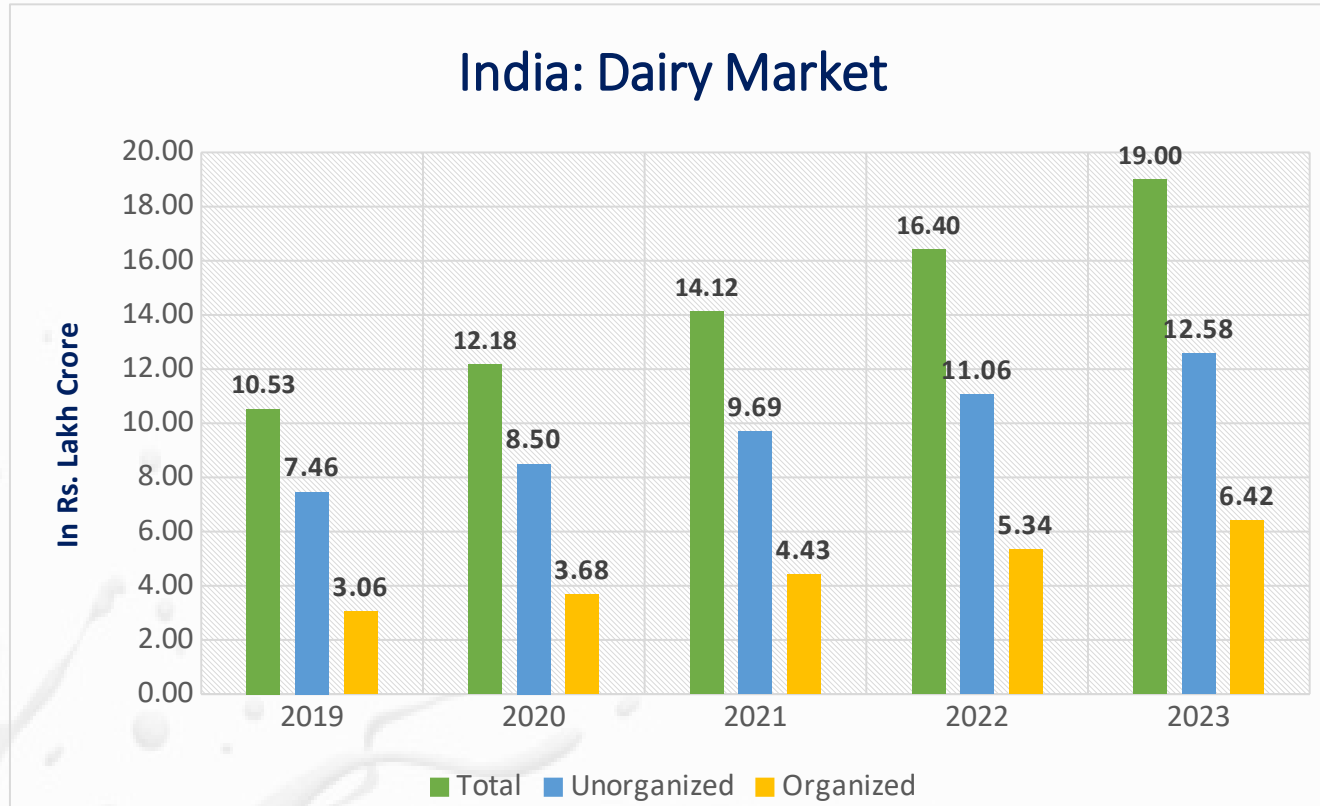


**Complementary Solutions to Control MNM**

# Need of the Hour....



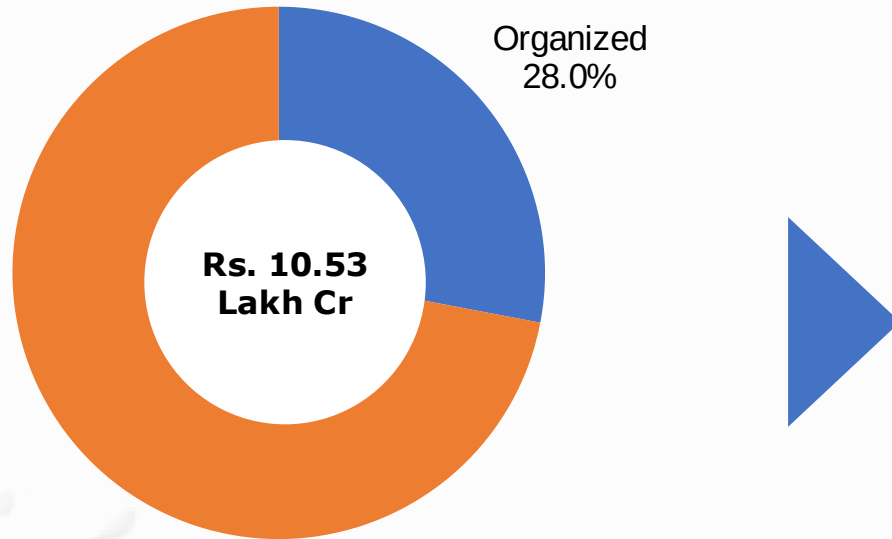
# Dairy - Great Vehicle to translate Nutrition into Innovation



Industry	Val. in Rs. Lakh Crore		
	2019	2023	CAGR
Organized	3.06	6.42	16%
Un-Organized	7.46	12.58	11%
<b>Total</b>	<b>10.53</b>	<b>19.00</b>	<b>13%</b>
<b>Organized %</b>	<b>29%</b>	<b>34%</b>	

- ✓ **Economy Growth by 6%+ | Organized Dairy Industry Growth expected 16% CAGR**
- ✓ **Health Awareness @ peak | Dairy One Stop Solution for Healthy India**

# Huge Opportunity for Innovations in Dairy Products



Milk & Milk Products Organized + Un-Organized	
Category	Salience (by val.)
Liquid Milk	45.6%
Ghee	21.7%
Khoya	7.4%
Dairy Sweets	6.9%
Paneer	3.0%
Curd	8.4%
SMP	1.8%
Ice Cream	1.6%
Dairy Bvgs.	1.4%
Others	2.1%

- ✓ Immense opportunities in Value added products segment with 54.4% business of Dairy is in Value added
- ✓ Categories such as Curd, Paneer are very well known and established among Indians



# Technical Consideration in Fortification: Milk & Milk Products



**NUTRIENT-MATRIX  
INTERACTION**



**NUTRIENT-  
NUTRIENT  
INTERACTION**



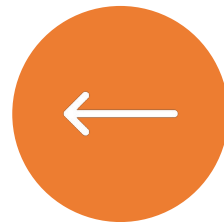
**BIOAVAILABILITY  
OF THE  
FORTIFICANTS**



**SHELF-LIFE AND ITS  
RETENTION**



**PROCESS  
CONSIDERATION**



**STABILITY OF THE  
FORTIFICANTS**



**COST FACTOR  
ORGANOLEPTIC  
ATTRIBUTES**



**CONSUMPTION  
PATTERN**

# Fortification Journey @ Mother Dairy



Bulk Vended Milk  
Vitamin A - @2000  
IU/LTR

1984



DHARA - Oil  
Vitamin A- 25 IU  
Vitamin D-2.0 IU  
Per gm

2006



Bulk Vended Milk  
Vitamin A - 770 IU  
Vitamin D - 550 IU  
Per LTR

Nov' 2016



Poly Pouch Milk  
Vitamin A - 770 IU  
Vitamin D - 550 IU  
PER LTR

Jan' 2017



Bulk Vended Milk  
Vitamin A - 1200 IU  
Vitamin D - 250 IU  
Per LTR  
**As per New Regulation**

Dec' 2018

# Food Fortification & Industry Perspective

- Dairy Industry needs to be committed & vocal
- Responsibility lies with Top brands to set the example
- Create new market and Stimulate innovation
- Build positive brands : Health & Nutrition
- Awareness campaign on fortification
- Partnership with Govt., FSSAI
- Contribute to national development



**THANK YOU !**