FOOD FORTIFICATION FOR ANEMIA PREVENTION

KEEPING PROGRAMS AND MARKETS MOVING

WHO AREA PROGRAM
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Nutrition | Global Development

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WIDE DISRUPTIONS TO FOOD SYSTEMS FROM COVID-19

SUPPLY SIDE

- Limitations on the movement of goods, particularly imported foods and fruits/vegetables.
- Bangladesh: Transport costs rise by 20% and labor shortages are leading to considerable wastage of milk, vegetables, poultry, and fish.
- Indonesia: 24% decline in available SKUs for fresh vegetables from March to May 2020.
- Internationally-sourced premix higher cost: Sea-freight costs have increased by 20%; air-freight has risen by 250% (between Europe to West Africa)
- Lower demand combined with higher input and processing costs put SMEs at risk for bankruptcy

DEMAND SIDE

- Remittances to Sub-Saharan Africa expected to decline by 23.1% due to crisis
- GAIN analysis: Of 137 country-food combinations, 111 show price increases.
  - Largest in Rwanda (19.5%), Tanzania (12.3%), and Mozambique (10.5%).
  - Foods with the greatest increases were cheese (12.8%), onions (10.5%), chicken (10.1%), and oranges (9.5%).
- Higher demand for shelf-stable products, such as maize and porridge flour, respectively

Source: GAIN Rapid Assessment of COVID-19 on Selected Food Systems – Edition 3, May 2020.

BUT IRON INTAKE WAS LOW EVEN BEFORE COVID-19

MN intake (as % of EAR/RNI) based on natural foods + fortified foods

		Vitamin A	Folate	Iodine	Iron[1]	Zinc
India	Rural Bihar	16%	62%	204%	22%	122%
	Rural Odisha	37%	59%	123%	15%	97%
	Rural Rajasthan	45%	51%	157%	35%	166%
	Rural Uttar Pradesh	29%	49%	141%	20%	118%
	Rural Andhra Pradesh	69%	47%	184%	14%	104%
	Rural Gujarat	94%	46%	138%	29%	131%
Nigeria	Akwa Ibom	145%	58%	284%	42%	242%
	Borno	100%	58%	284%	42%	196%
	Kaduna	107%	58%	284%	33%	177%
Ethiopia	Rural Ethiopia	66%	50%	200%	41%	161%

Meets or exceeds EAR | 70-100% of EAR | 0-70% of EAR

Driven by USI

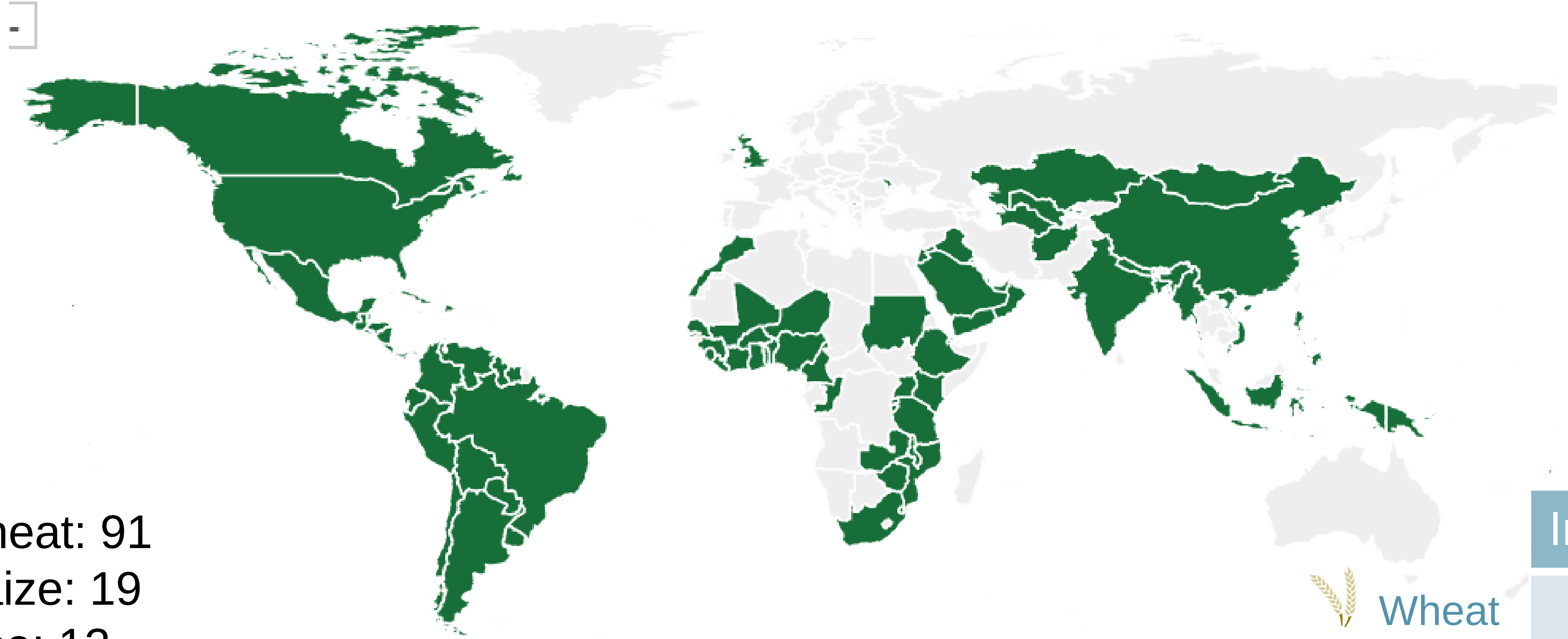
Driven by intake of cereals, cassava and meat depending on region

Notes: Natural micronutrient intake is relatively low across the board, except in the case of zinc (where EAR is met) and folate (still falls short despite 40-60% contribution from natural MN intake) .Incorporates compliance data where available (Nigeria), otherwise assumes vehicles are fortified 100% to standards

1. Percentage of RDI shown for iron, as EAR is N/A. Note that DFS contribution to iron in current state assumed to be zero, since most programs are in pilot stage (India).
2. Source: BCG Impact Assessment, unpublished

COUNTRIES WITH IRON IN THEIR FORTIFICATION STANDARDS

94 countries have iron in either a mandatory or voluntary standard for at least one vehicle



- Wheat: 91
- Maize: 19
- Rice: 12
- Salt: 1

*% fortifiable**

	India	Nigeria	Ethiopia
Wheat	30%	96%	25%
Rice	50%	40%	N/A
Maize	N/A	25%	N/A
Salt	80%	96%	~100%

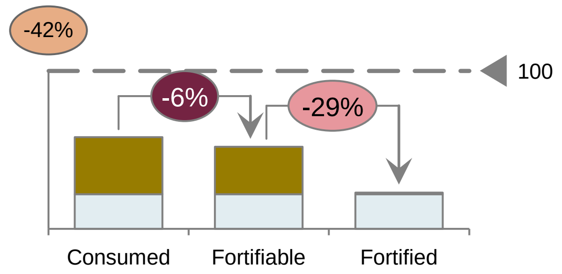
Source: Global Fortification Data Exchange (GFDx)
*Produced in industrialized facilities (Food Fortification Initiative, 2019 annual report)

RDI LOST: PROGRAM DESIGN, INDUSTRY FRAGMENTATION, AND COMPLIANCE

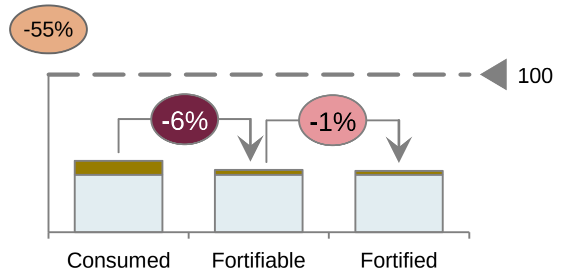
Estimated losses at each drop-off point

Iron (RDI)

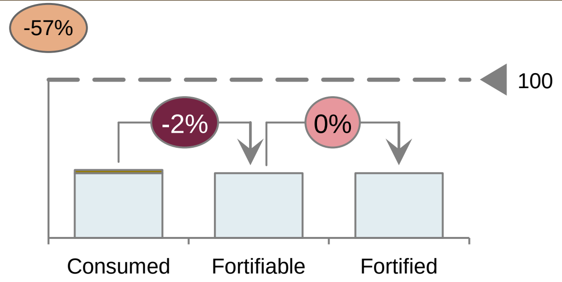
India
Average across WRA in six states



Nigeria
Average across WRA in three states



Ethiopia
Rural adults



Legend

Consumed: MN intake if all consumed food were fortified

Fortifiable: MN intake if all industrially-produced food were fortified

Fortified: Actual MN intake

Natural MN contribution

Fortified MN contribution

% — % RDI lost due to program design

% — % RDI lost due industry fragmentation

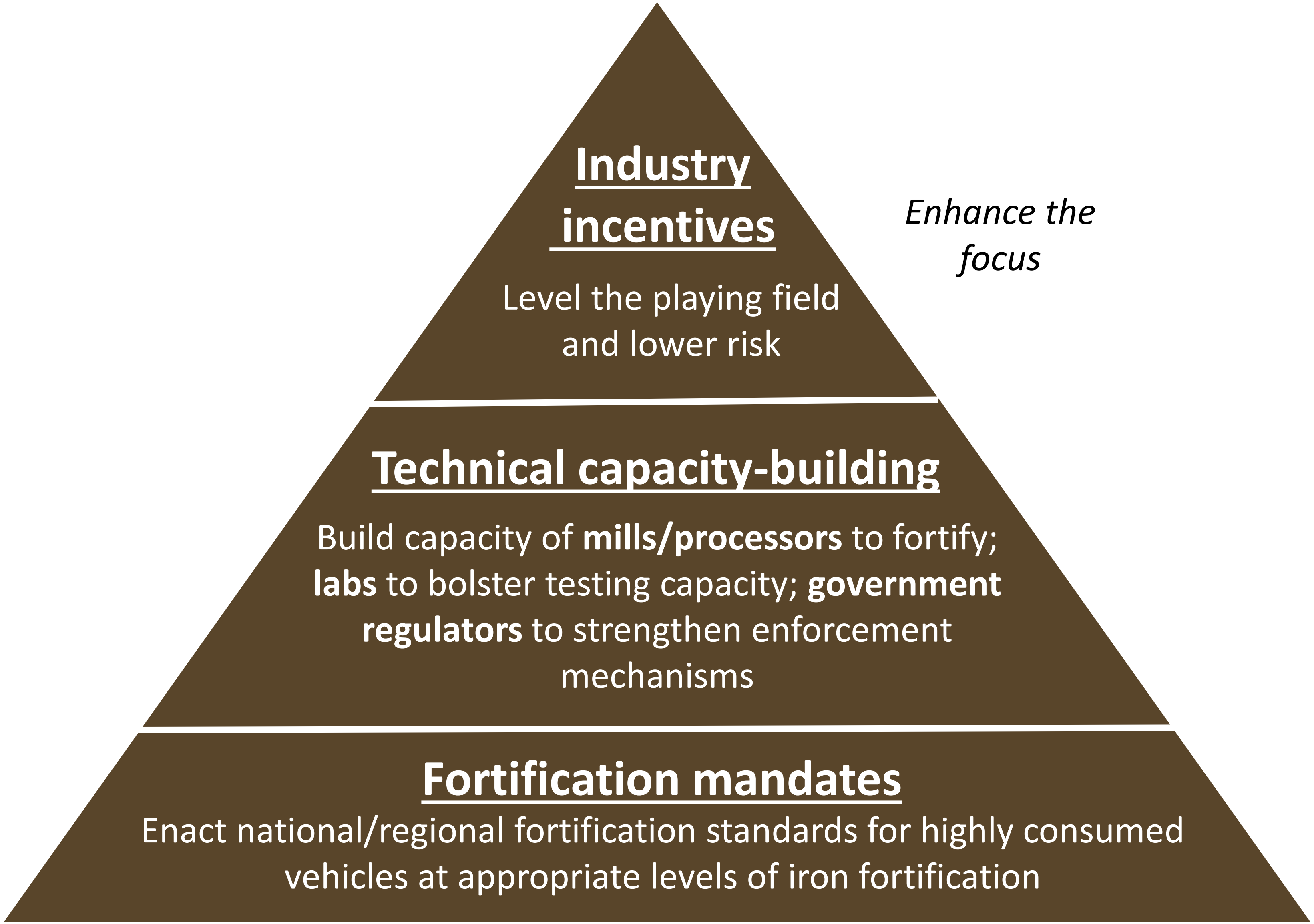
% — % RDI lost due to non-compliance

Key points

- We rely heavily on the gap filling potential of fortification for iron.
- Programs are not well designed to meet the gap.
- We need to address industry fragmentation and compliance against mandates head-on.
- Iron fortification programs are making little contribution to overall iron intakes in geographies examined.

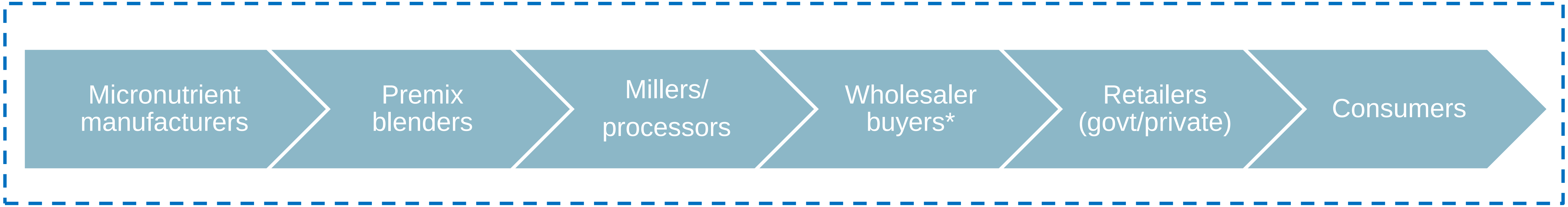
Source: BCG Impact Assessment, unpublished

MAKING FORTIFICATION MARKETS MORE EFFECTIVE



FOOD FORTIFICATION VALUE CHAIN

Government-issued fortification standards and regulators



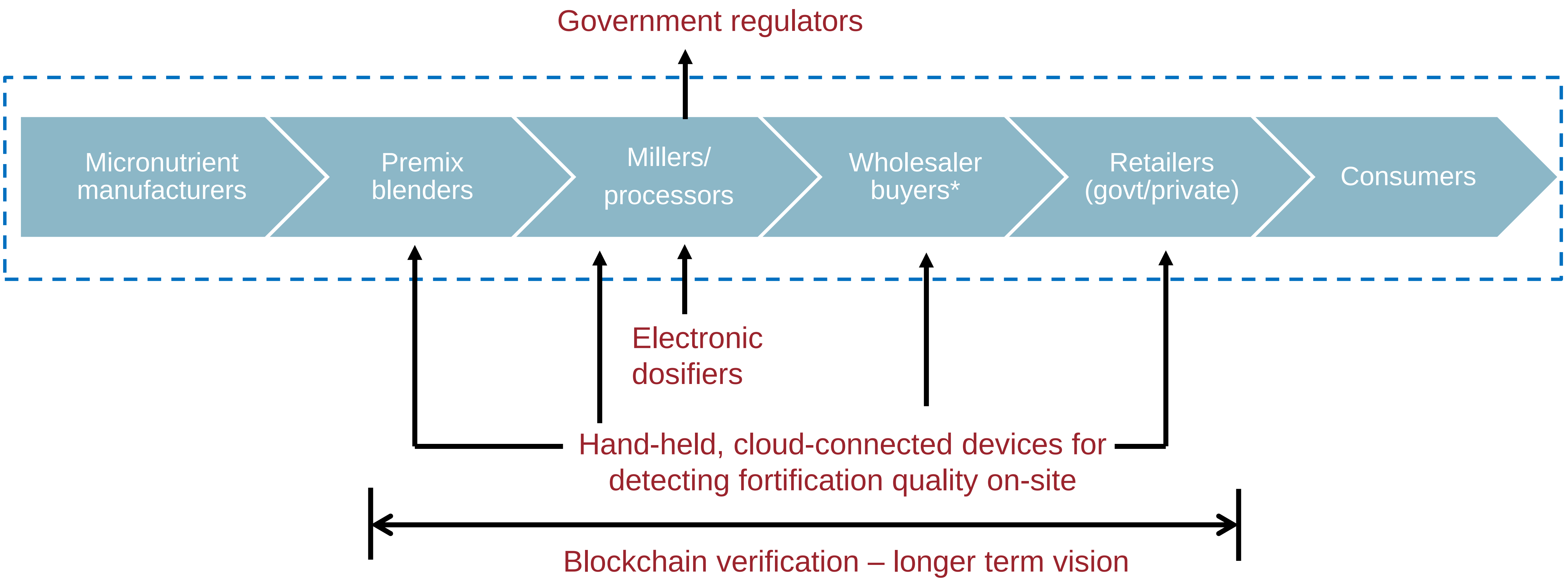
LEVEL THE PLAYING FIELD

- No player is disadvantaged by complying with mandates
- Equitable access to inputs and capacity building needs

*Re-packagers, distributors, food manufacturers

LEVEL
THE PLAYING FIELD:
NO DISADVANTAGE

LEVERAGE THE IT REVOLUTION FOR QUALITY DATA



*Re-packagers, distributors, food manufacturers

ENABLE ACCESS THRU BUSINESS MODEL INNOVATION

LABORATORIES

PREMIX DISTRIBUTORS/SUPPLIERS

MILLERS/PROCESSORS

Commodities
- Premix
- Laboratory consumables
- Equipment (i.e. dosifiers)

Services offered
- Procurement
- Credit
- Quality certification

(In-country)
Fortification Inputs Facility

BEYOND REGULATOR, GOVERNMENT AS ENABLER

Eat Right India
सही भोजन. बेहतर जीवन.

Placing fortification within the broader food quality and safety agenda

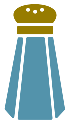
Raising awareness amongst supply chain players and consumers

Micronutrient manufacturers → Premix suppliers → Millers/ processors → Wholesale buyers[1] → Retailers

- *Win business through optimal quality/price of products*
- *Create pull through the supply chain*

[1] Re-packagers, distributors, food manufacturers, etc.

EXPAND VEHICLES THROUGH WHICH IRON IS CARRIED



Double and
multiply-fortified salt

Challenges

- **Input salt:** Higher NaCl purity and lower moisture content required than for iodized salt (capital investment).
- **Organoleptic**: Black spots during storage if low quality premix; discoloration in cooked foods.
- **Cost**: Estimated $0.03 premium on a $0.05 kg/salt in India (60% increase if not subsidized).
- **Guidelines:** WHO recommendations for reducing salt consumption to < 5g/day places pressure on the concentration of iron required for reaching target MN levels.
- **Risks**: Potential for the introduction of DFS to jeopardize the success of existing salt iodization programs.

Opportunities

- **R&D**: FePP with enhanced bioavailability to improve organoleptic profile and tolerance to low-grade salt.
- **Quality**: Improve quality of existing DFS premixes through quality guidelines and stronger QA/QC.
- **Channel cultivation**: Stronger pull from social safety net programs (and expanded pilots into retail markets) to reach economies of scale for producers and reduce price premium.

A WAY FORWARD: DURING COVID AND BEYOND

- In the short term:
  - Support policies to ensure access to premix (national stockpiles, zero levies)
  - Leverage social safety net programs for delivering fortified foods to the vulnerable
  - Continue supporting SME operations through subsidies and/or low-cost loans

- Build back better:
  - Critically examine the design of iron-fortification programs
  - Leverage IT to strengthen the credibility and transparency of fortification quality
  - Expand local access to fortification inputs to enhance SME engagement and reduce the impact of future shocks
  - Integrate fortification into a broader quality agenda to better align with industry priorities and capitalize on inherent competitive dynamics.

- With adjustments, iron-fortification programs can better deliver on their promise.

Photo credit: PATH