

Programme

- 13:30 – 13:40 Welcoming remarks**
Marc Tarabella
Carla Montesi
- 13:40 – 13:55 Keynote address**
Pathway to the SDGs: Why food fortification matters
Lawrence Haddad
- 13:55 – 14:05 EC investments in food fortification**
Helena Guarín
- 14:05 – 14:20 Country perspective on food fortification**
Daniel Sila
- 14:20 – 14:40 Q&A**
- 14:40 – 14:45 Closing remarks**
Steve Godfrey
- 14:45 – 15:00 Coffee and networking**

Food Fortification: An essential development strategy

“Strengthening national capacities in food fortification”



5th February 2020
European Parliament, Room 3G2
13:30 - 15:00

Pathway to the SDGs

Why Food Fortification Matters

Lawrence Haddad

The Global Alliance for Improved Nutrition (GAIN)

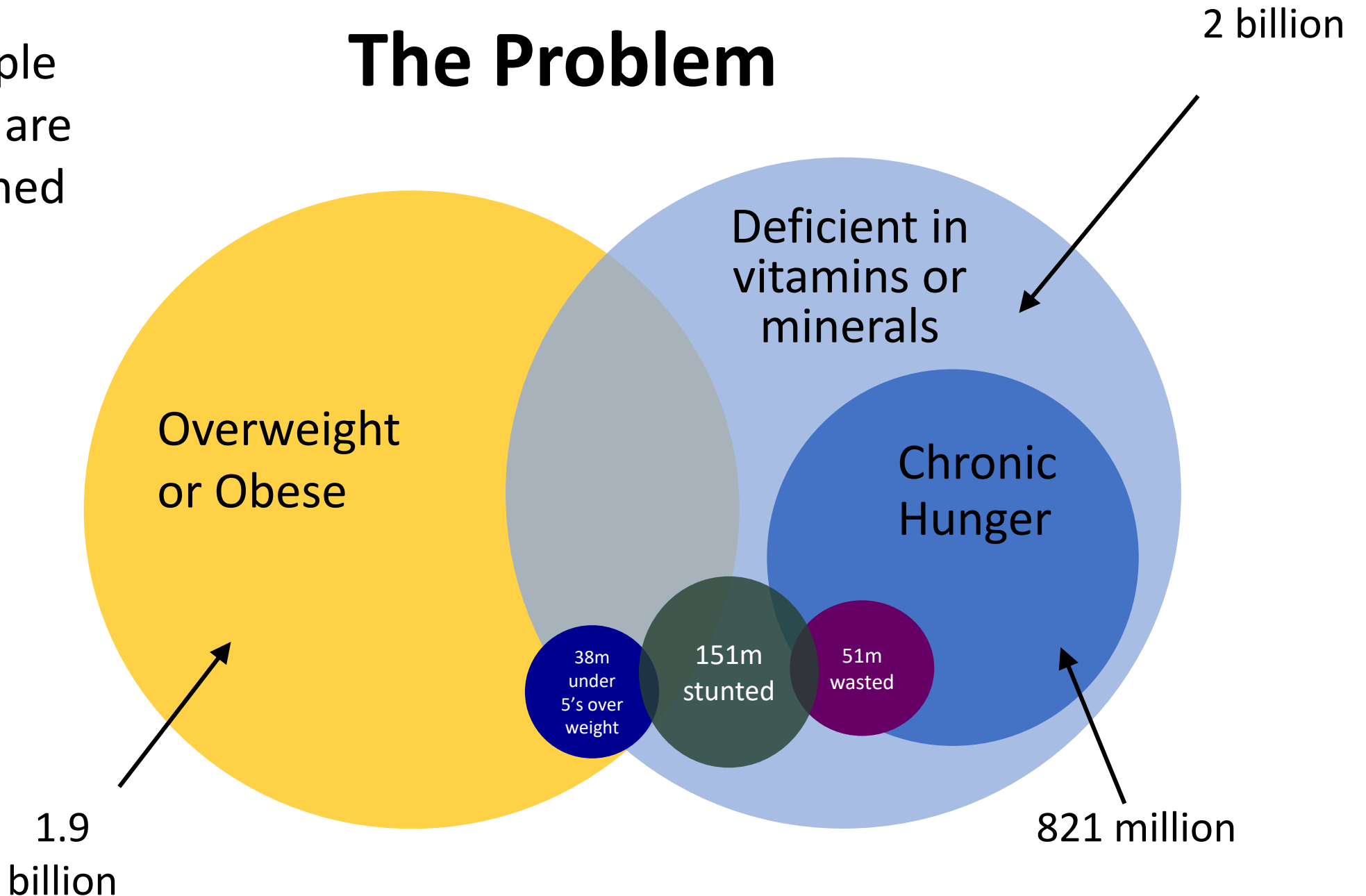
European Parliament

February 5, 2020

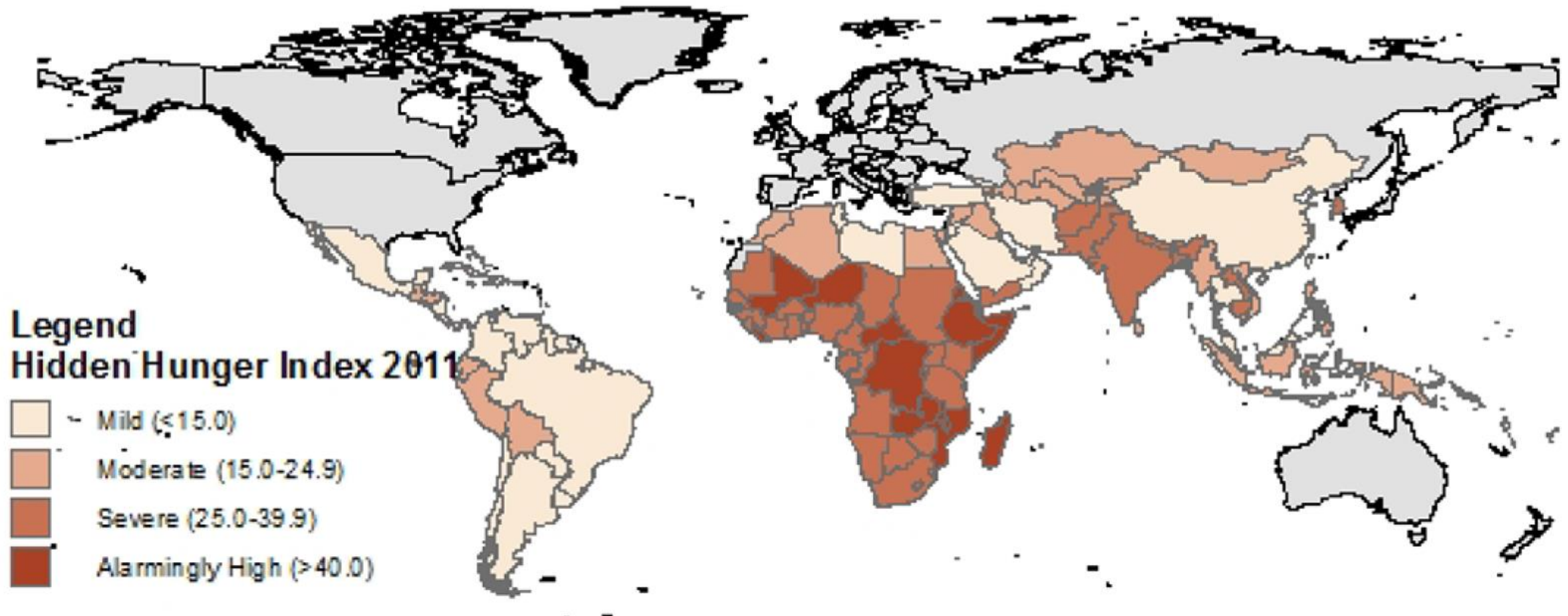


The Problem

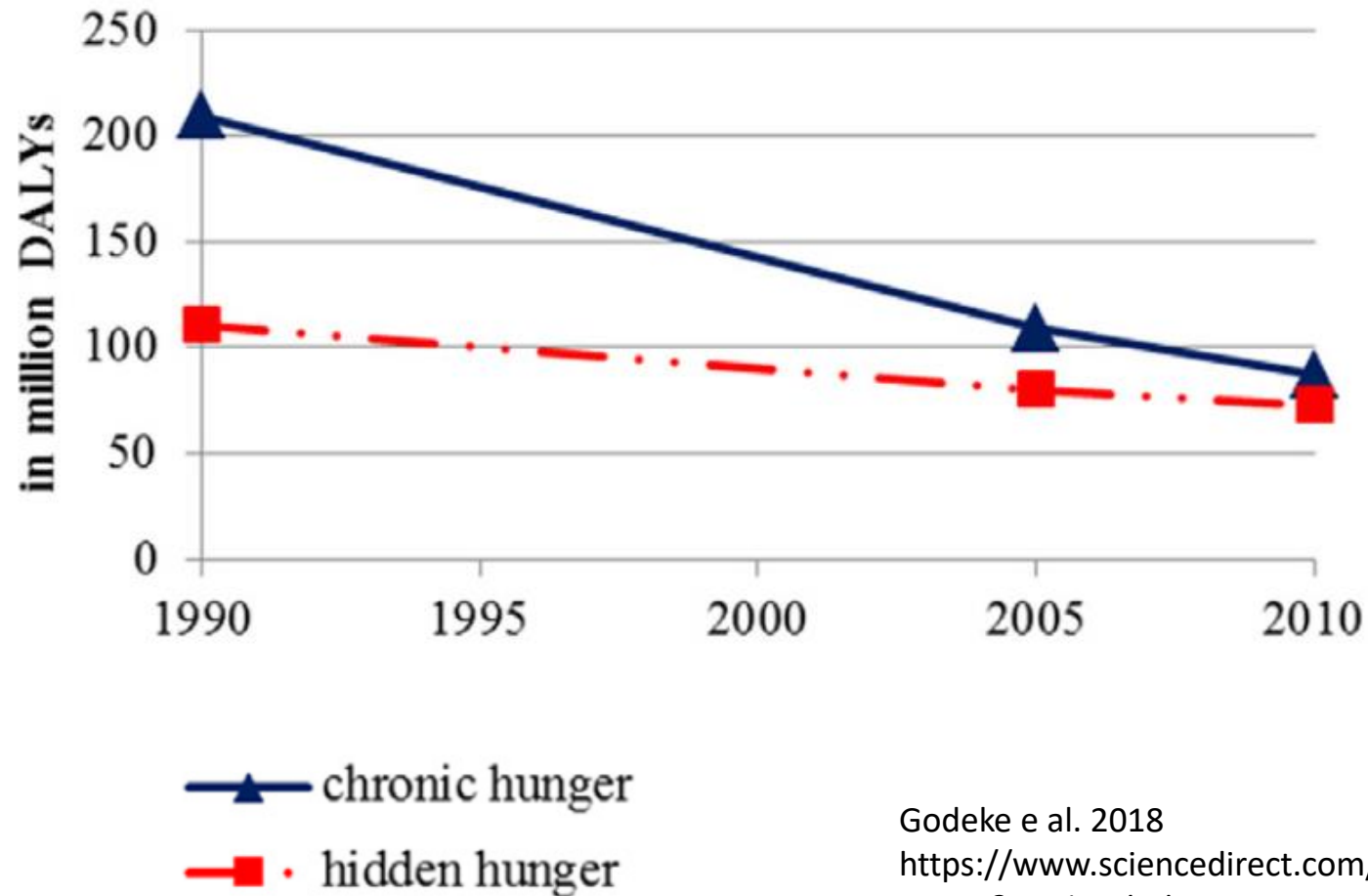
1 in 3 people
worldwide are
malnourished



Micronutrient Malnutrition (also known as “Hidden Hunger”) remains a massive problem in Africa and Asia



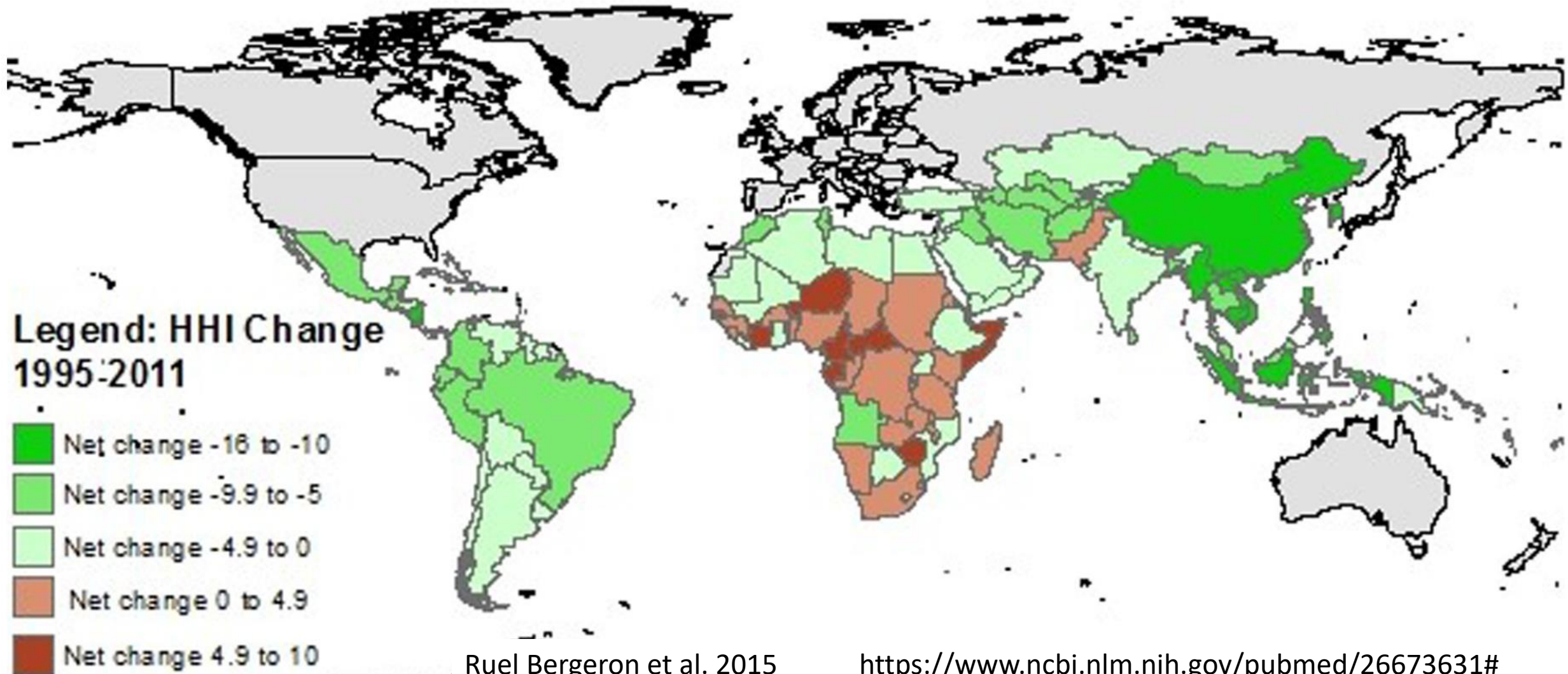
Hidden hunger will soon become a bigger mortality & morbidity problem than chronic hunger -- and it is declining more slowly



Godeke e al. 2018

<https://www.sciencedirect.com/science/article/pii/S2211912417301578?via%3Dihub>

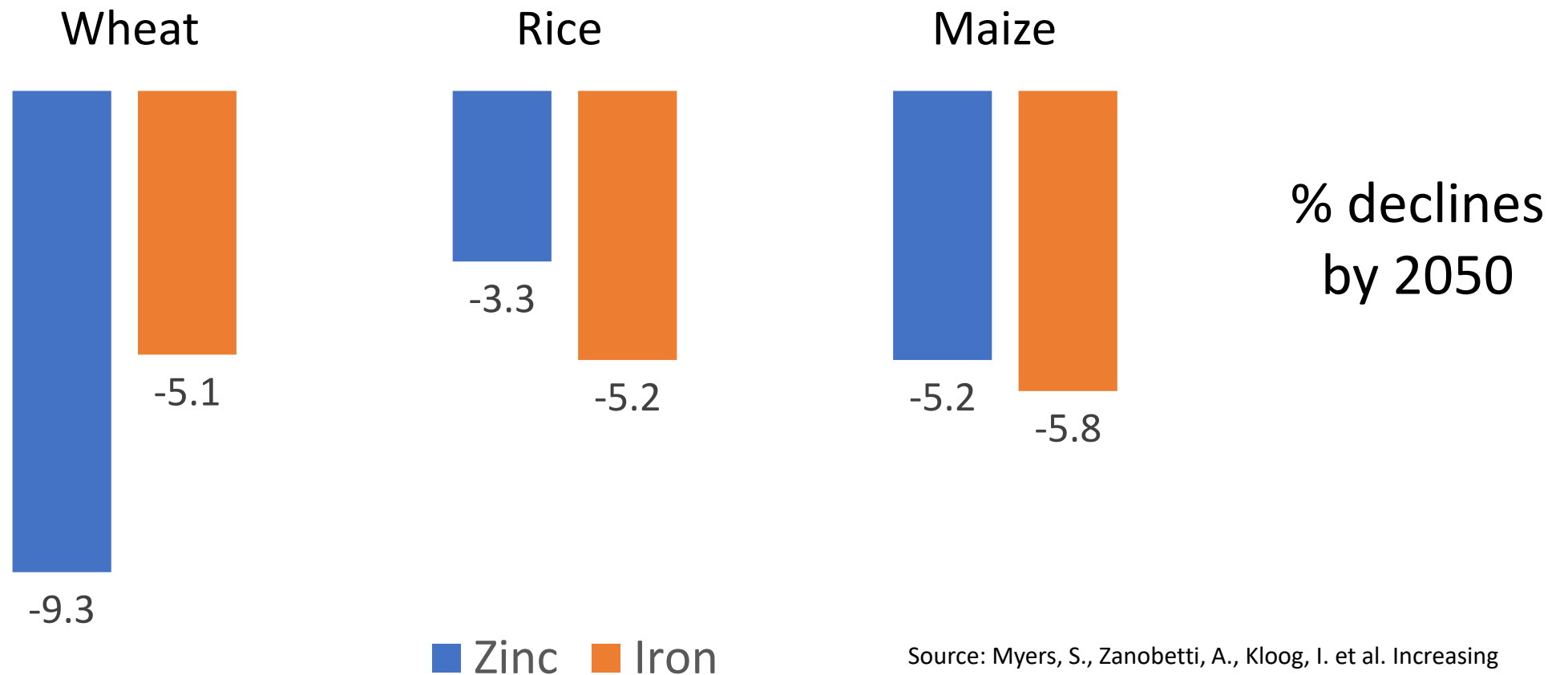
And in Africa, Micronutrient Malnutrition is increasing!



Ruel Bergeron et al. 2015

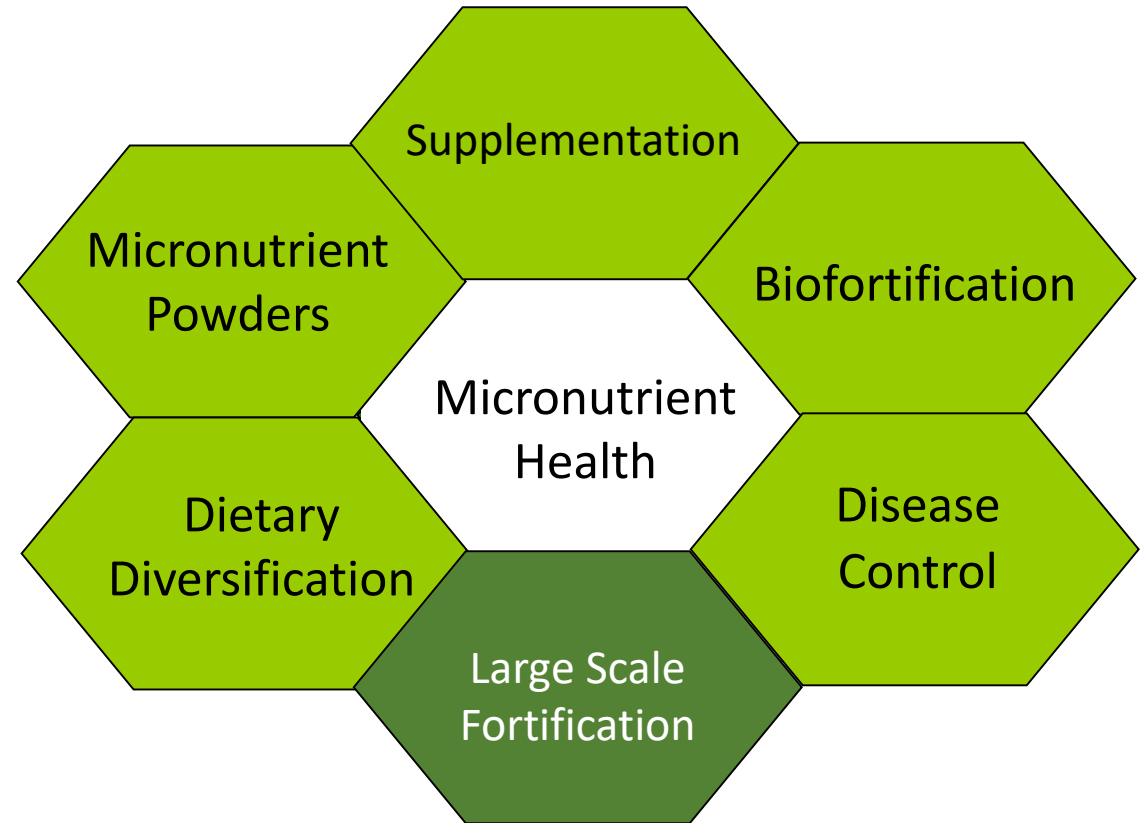
<https://www.ncbi.nlm.nih.gov/pubmed/26673631#>

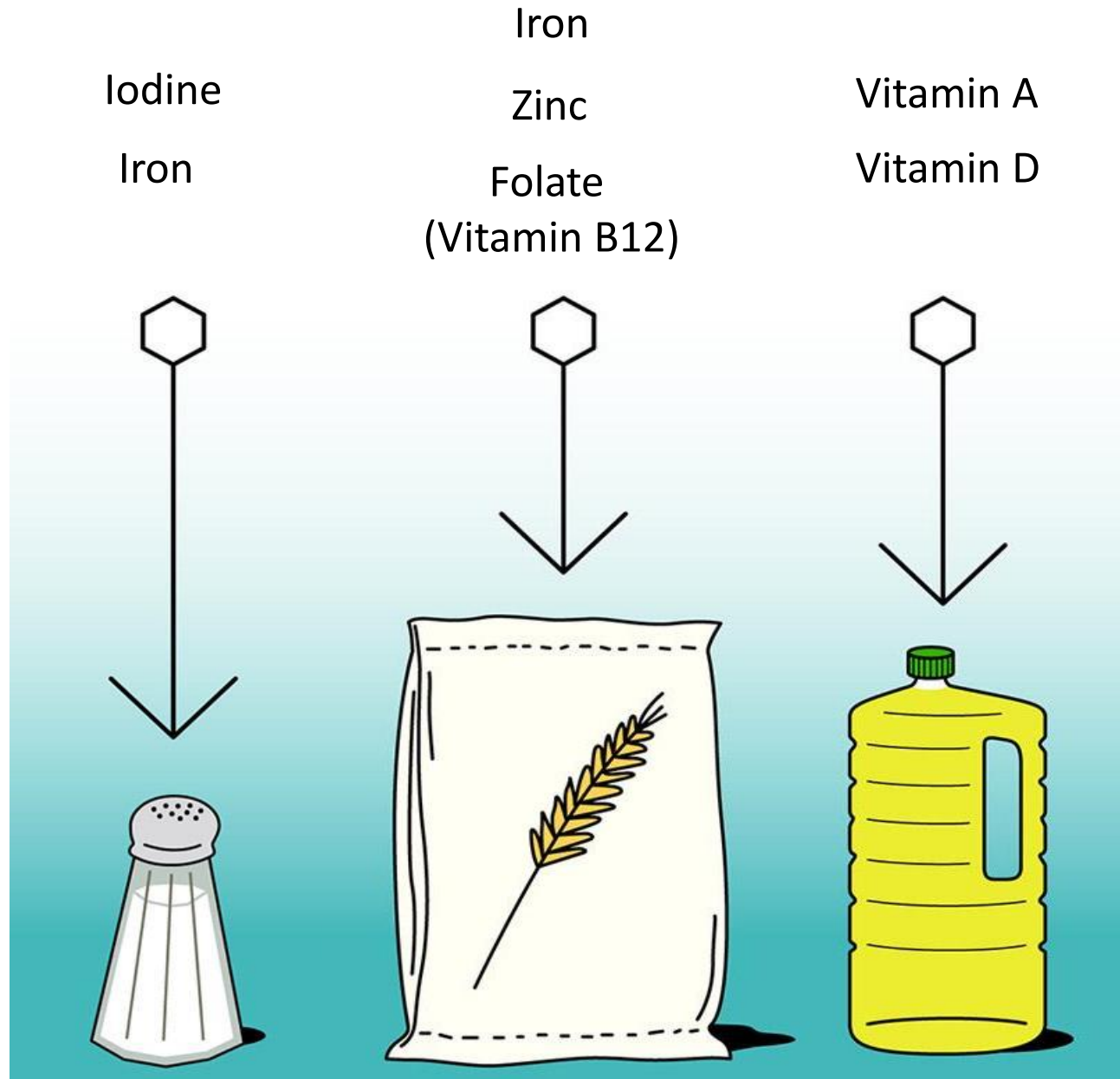
And hidden hunger is increasing as a risk:
climate change is reducing the nutrient content of major cereals



Source: Myers, S., Zanobetti, A., Kloog, I. et al. Increasing CO₂ threatens human nutrition. Nature 510, 139–142 (2014) doi:10.1038/nature13179

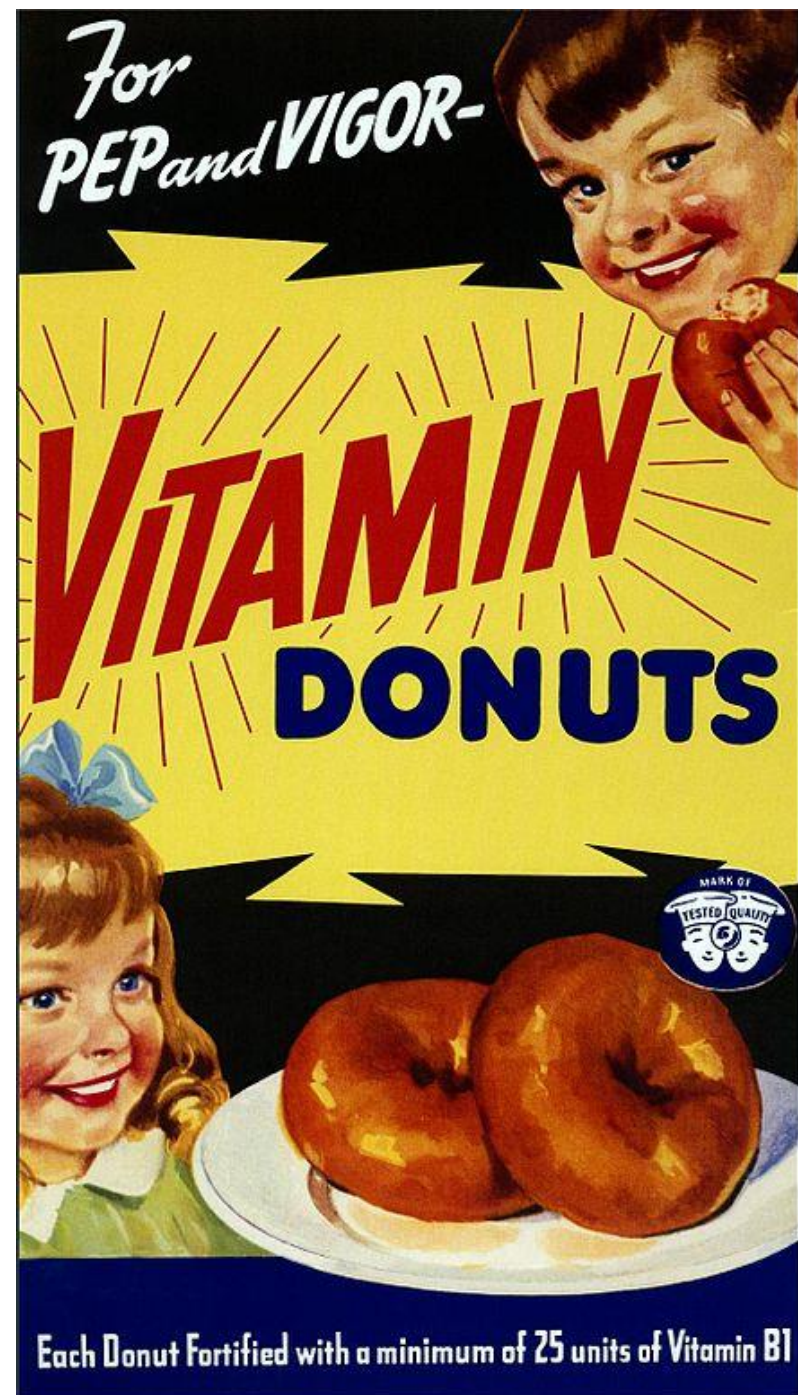
Strategies to Reduce Micronutrient Malnutrition





This is what we
mean by
Large Scale
Fortification

Not this...



Large Scale Fortification Works—at Scale



34% reduction in anemia



74% reduction in the odds of goiter

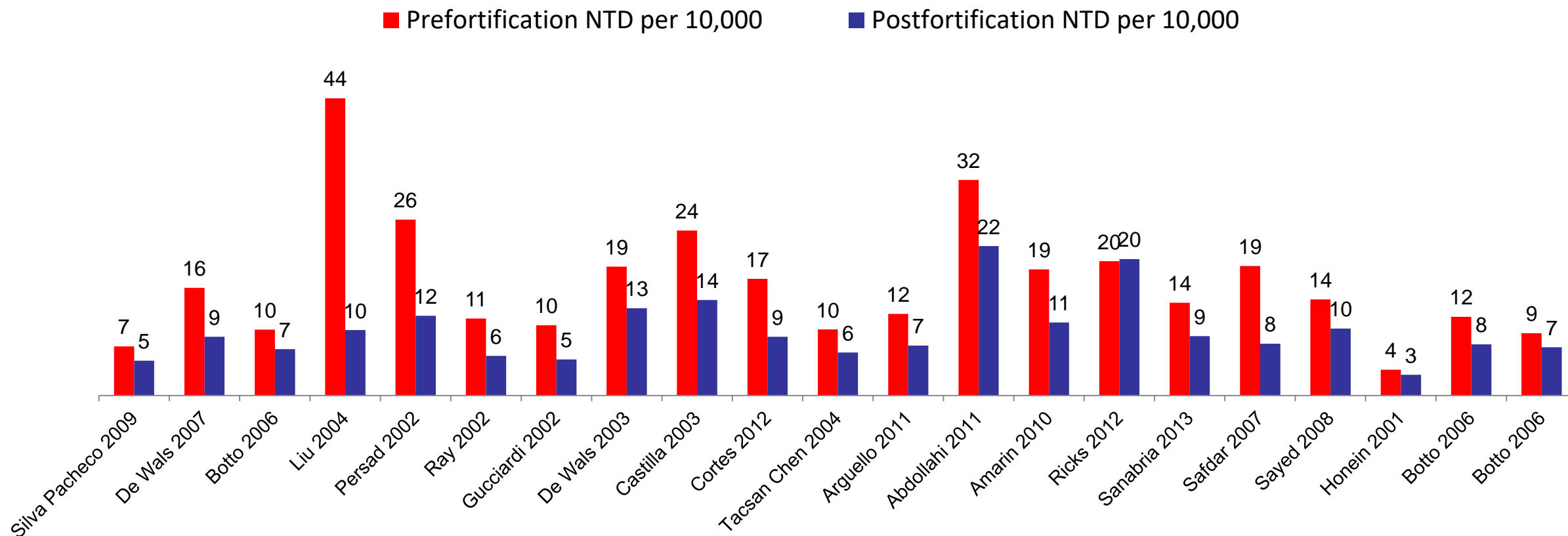


41% decrease in odds of neural tube defects



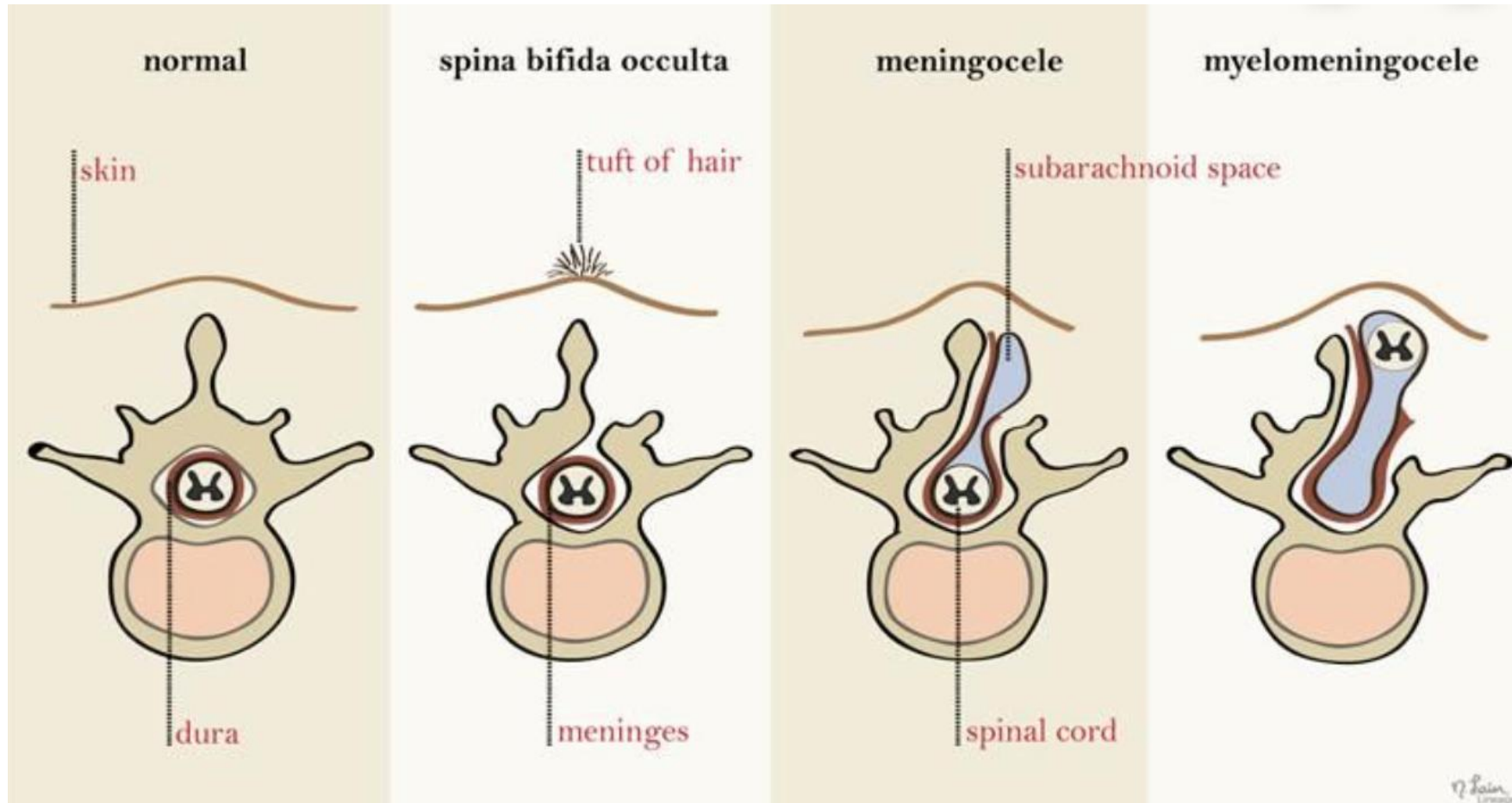
Reduction in vitamin A deficiency (VAD) for three million children, significantly reducing risk of mortality

Neural Tube Defects are Significantly Reduced by Fortification with Folate



Studies from: Brazil, Canada, Chile, Costa Rica, Iran, Jordan, Peru, Saudi Arabia, South Africa, USA

Neural Tube Defects are Devastating for the Infant, Child and Adult



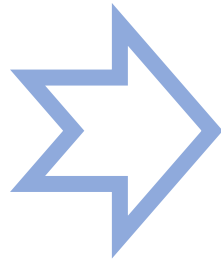
Symptoms include: paralysis and urinary and bowel control problems, blindness, deafness, intellectual disability, lack of consciousness, and, in some cases, death

Fortification is a Low Cost, High Return Investment

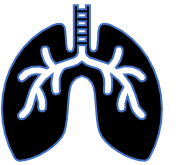
“One of the most
compelling investments
is to get nutrients to the
world's
undernourished.”

-Copenhagen Consensus,

Nobel Laureate Vernon Smith's
recommendation



Every \$1 invested in fortification
generates \$27 in return from averted
disease, improved earnings &
enhanced work productivity



Iodized Salt

- Incremental Cost per person per year: \$ 0.05
- Benefit Cost ratio: 30:1

Wheat and Maize fortified with Iron and Folate

- Incremental Cost per person per year: \$ 0.12
- Benefit Cost Ratios
 - 46:1 for Folate
 - 8:1 for Iron



Fix Nutrition
and we Drive
all SDGs
Forwards

And yet so much of the world's staple food remains unfortified



Every country with a colour is without mandatory fortification for at least 1 staple food -- sometimes by as many as 3 staple foods

Vehicles include Oil, Salt, Wheat, Maize and Rice

What is the current status of EC supported fortification programming?

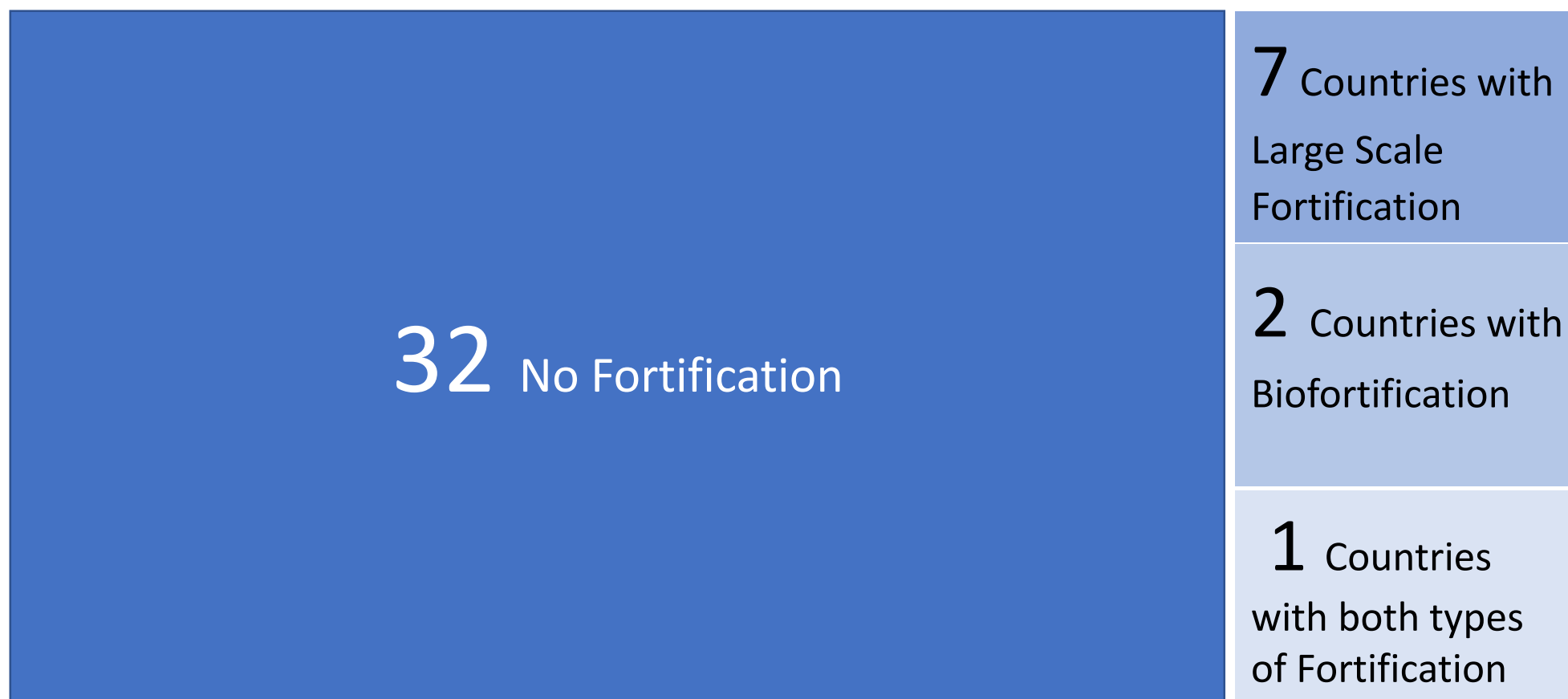
THE NEW EUROPEAN
CONSENSUS ON
DEVELOPMENT ‘OUR
WORLD, OUR DIGNITY,
OUR FUTURE’

“24. The EU and its Member States will work to ensure access for all to affordable, safe, sufficient and nutritious food.”

- Only **1.2%** of the 2013-2020 EUR 3.5 bn commitment to nutrition is for food fortification
- The New European Consensus on Development recognises that all forms of malnutrition must be considered as part of the EU’s support to achieve SDG2

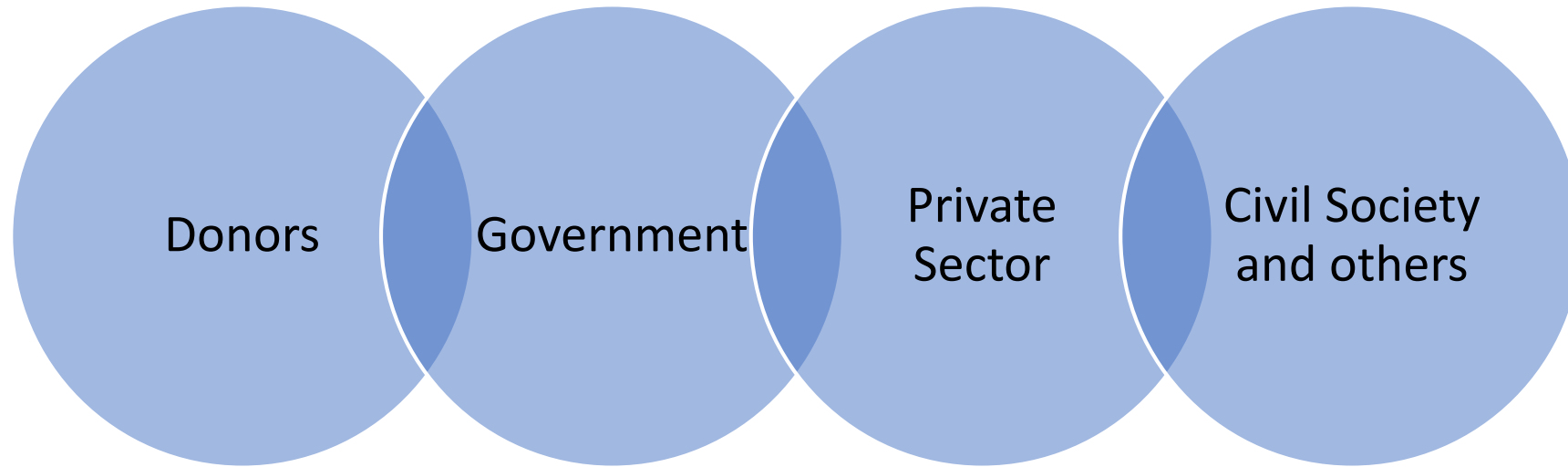
In fact, Fortification only features in <25% of EC Nutrition Focus Countries

42 Countries where EC working on nutrition



Addressing The Unfinished Agenda:

The Second Global Summit On Food Fortification, Bangkok, March 22-23, 2020



The Summit is an official milestone on the road to the Nutrition for Growth Summit (N4G)

Second Global Summit on Food Fortification (GSFFII)

Tokyo Nutrition for Growth Summit 2020

Summit provides a basis for new fortification commitments from governments, donors, and private sector at N4G Japan 2020



Summary

Micronutrient Malnutrition ...

... is decreasing slowly at a global level

... is increasing in Africa

... can be addressed cost effectively at scale by fortification to

- prevent human tragedy
- generate large cost benefit ratios in economic terms
- power all the SDGs

Fortification...

... is underutilized globally

... is underinvested in by the EC

... commitments can be developed at the Second Global Summit on Fortification in preparation for the Japan Global Nutrition Summit

**Thank
you!**



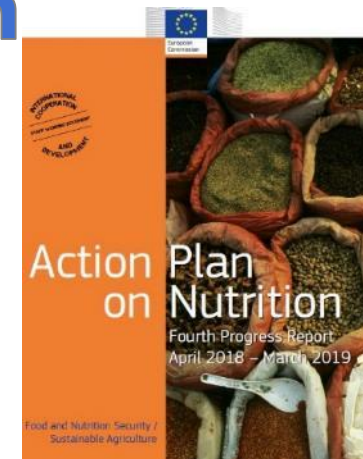
EC's Investments in Nutrition

EC Action Plan for Nutrition

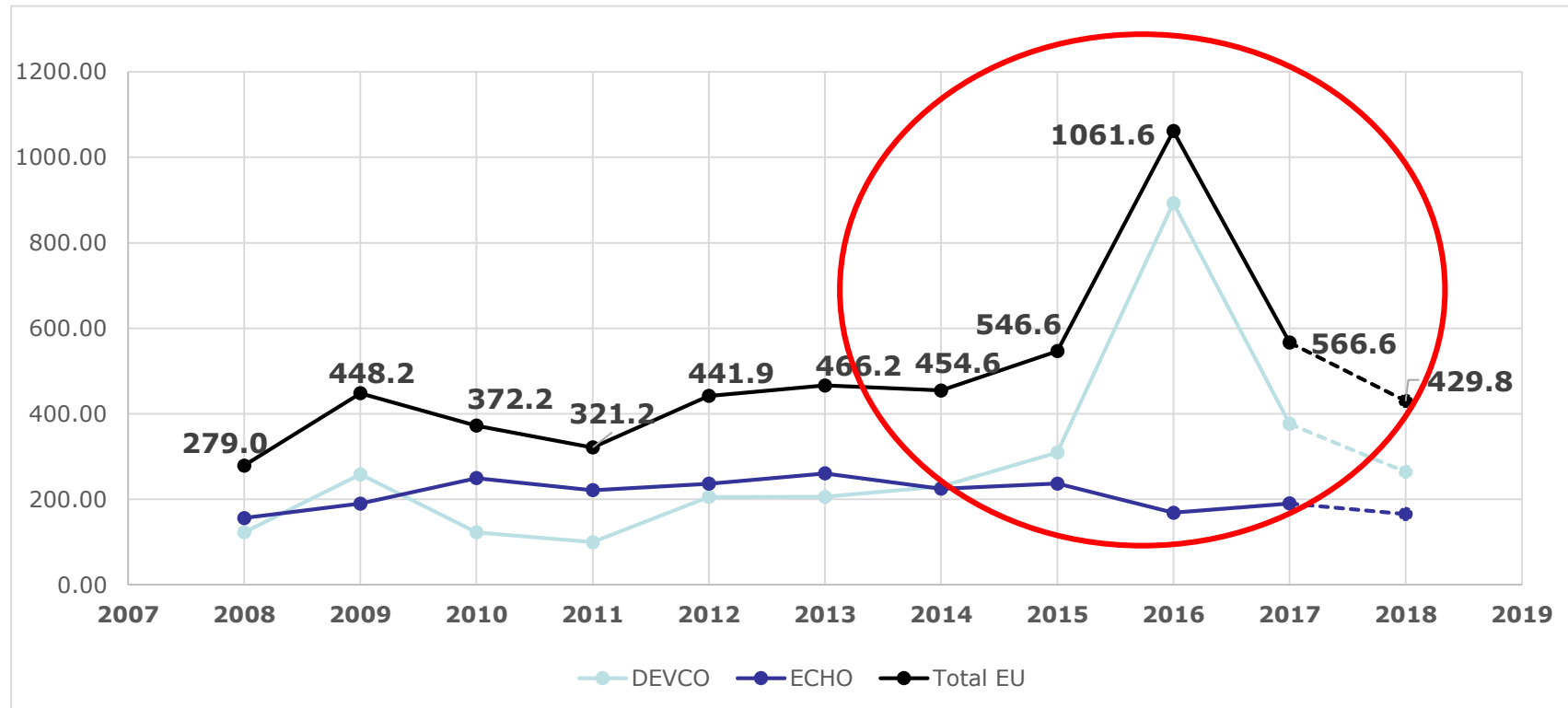
Our two **commitments** in
nutrition:

To support 40 partner
countries in reducing
the number of stunted
children by at least
7 million by 2025

To invest
€3.5 billion between
2014 and 2020 in
nutrition



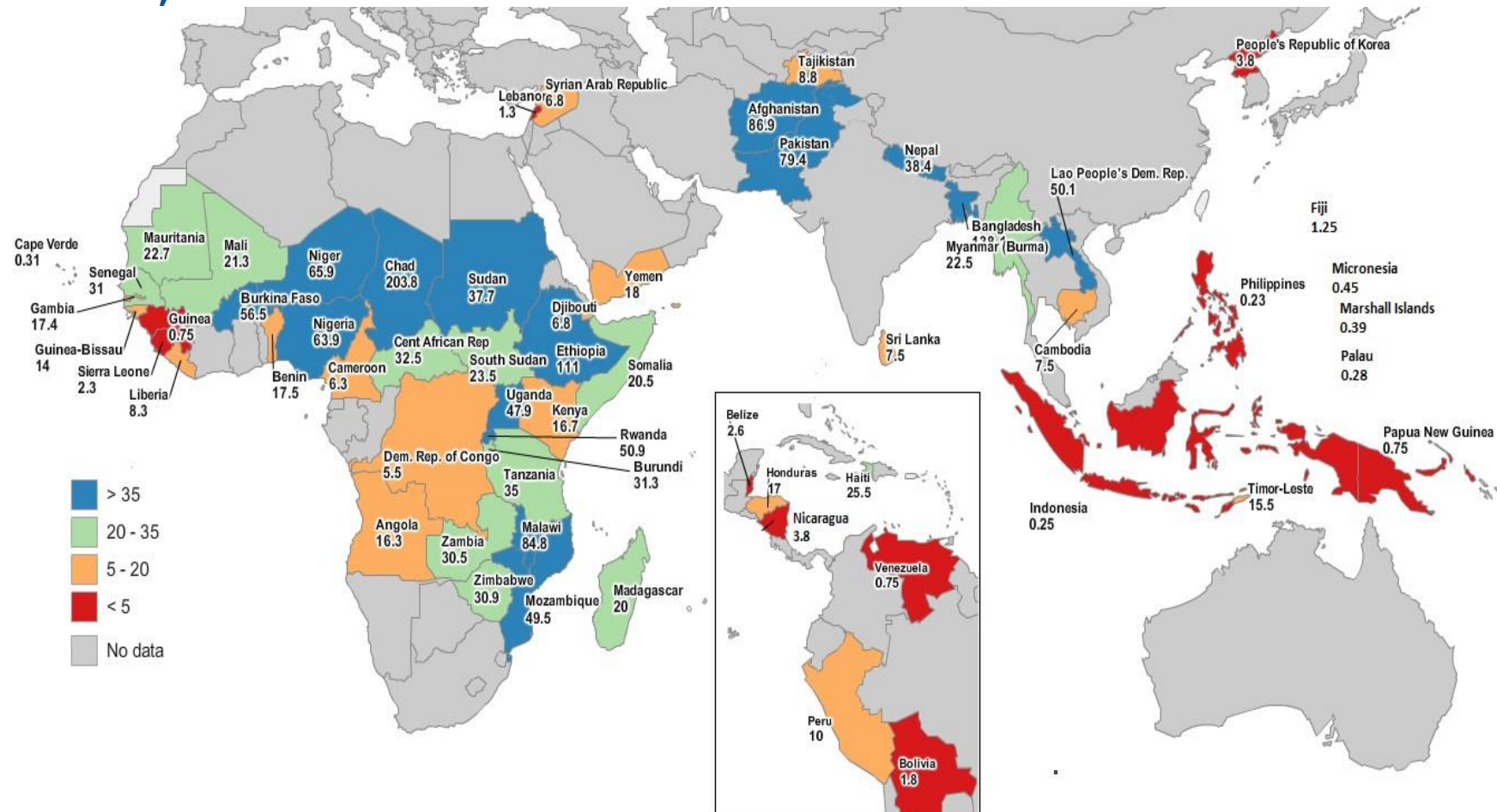
EU Nutrition commitments, 2008-2018, Euro (millions)



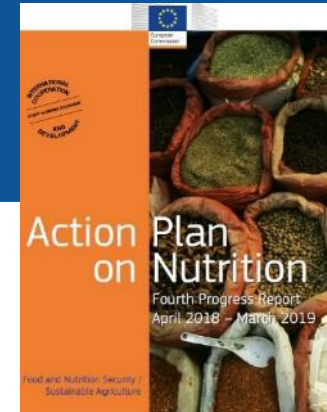
Since 2014, EUR 3.1 billion has been committed to nutrition, equivalent to 87% of the EUR 3.5 billion target: On-track to reach the target by 2020

Map of total EC's nutrition commitments

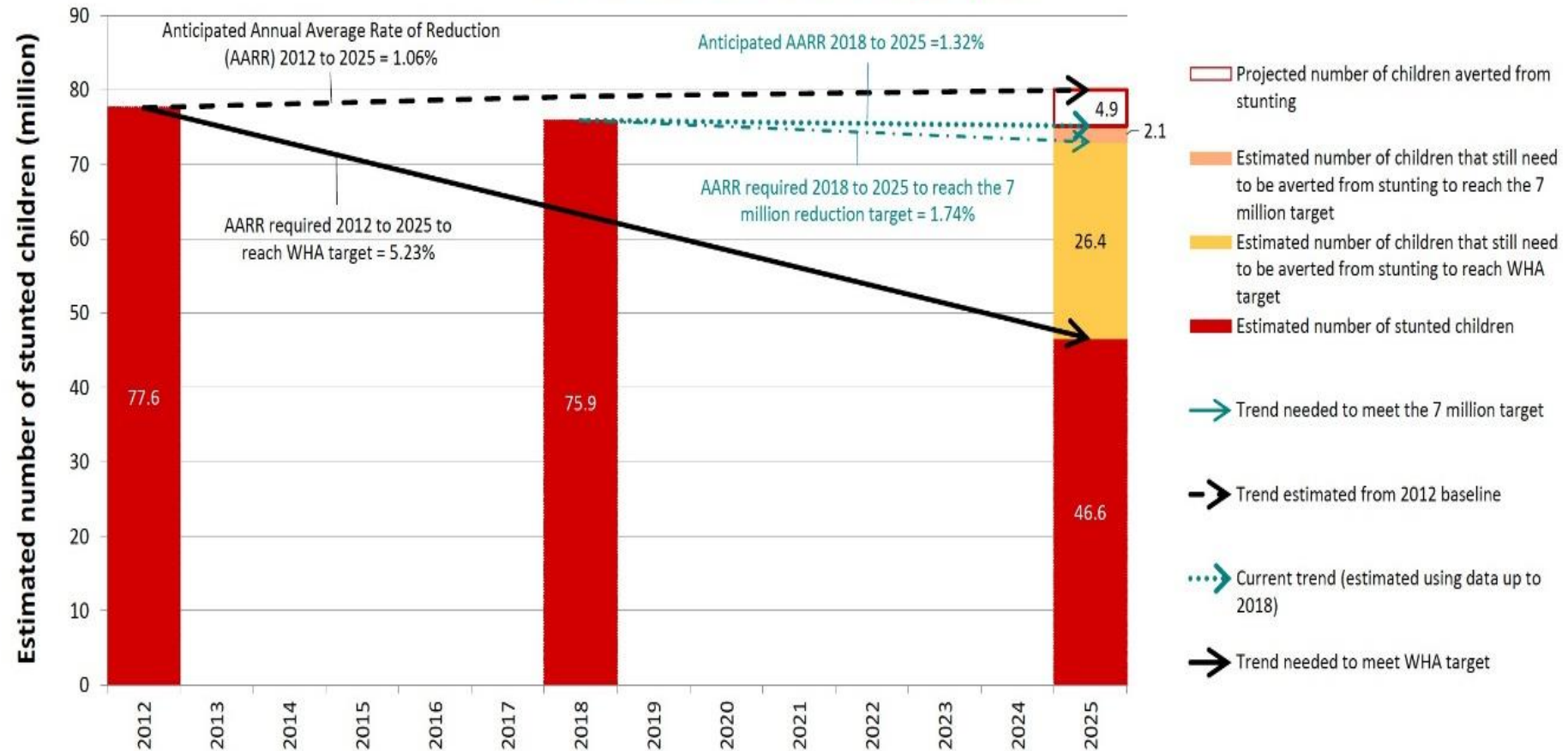
2014-2018, Euro millions



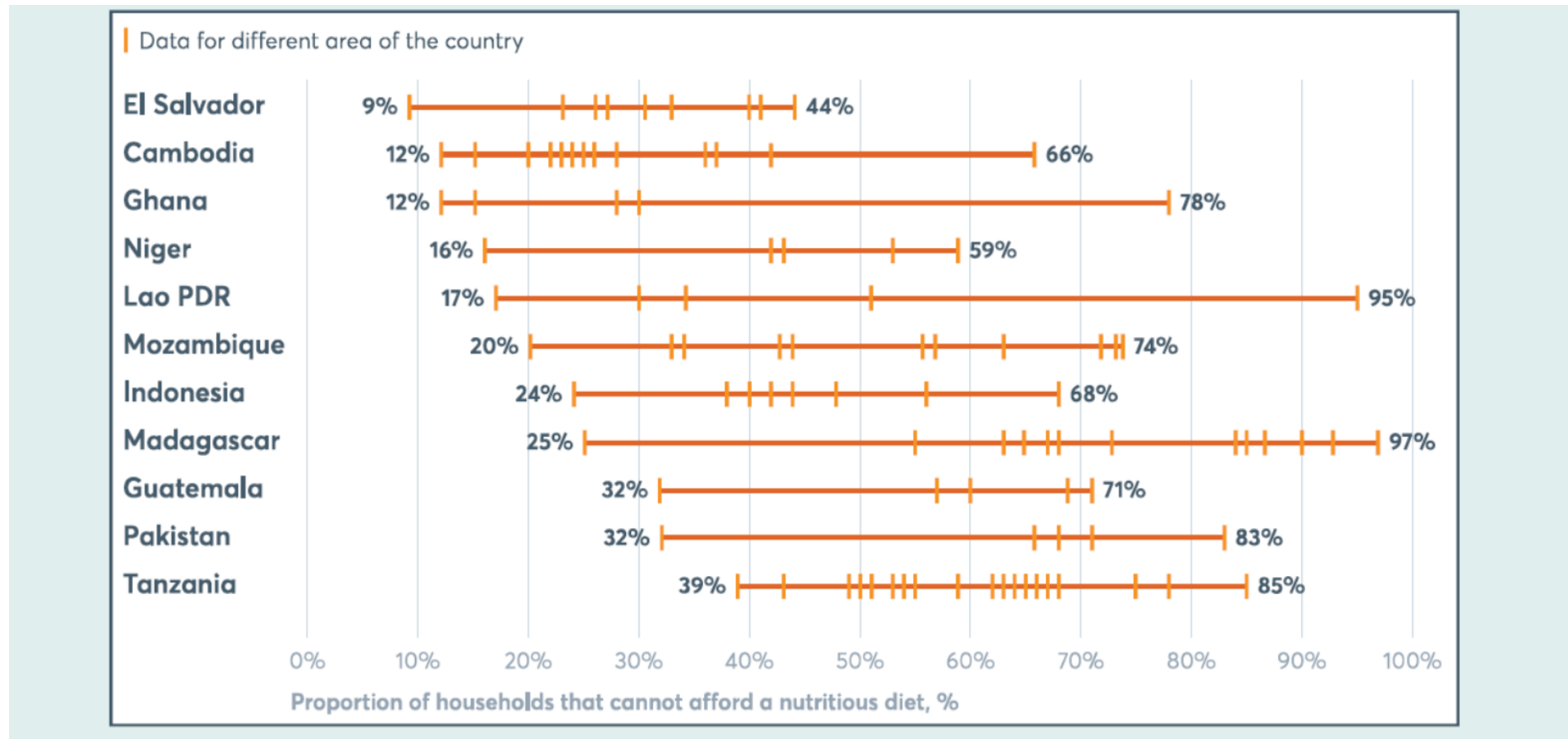
Stunting reduction



Stunting progress in the 40 countries prioritised by the Commission for nutrition, showing projected trends to reach the Commission's and the WHA targets by 2025



Many households cannot afford a nutritious diet



EC support to food fortification

- **Capacity building** at national level with government bodies (policy, quality control) : Kenya, Gambia
- **Research** : at the global level but also at country level, like for example in Kazakhstan
- **Technical support to SMEs** - small scale local production of fortified food : Niger, Chad, Madagascar
- **Technical support at the community level** : Ethiopia, Sudan, DRC

ETHIOPIA : Sustained Diet Quality Improvement by Fortification Orange-fleshed Sweet potato



Madagascar : Improving the nutritional status of the most vulnerable by strengthening local production of fortified food



CHAD : Supporting women producers of local fortified foods for children between 6 and 23 months (project AFOR)



Thank you!





REPUBLIC OF KENYA



MINISTRY OF HEALTH



Country perspective: Strengthening Kenya National Food Fortification Program

Prof. Daniel Ndaka Sila

Project Manager: EU funded fortification project

Jomo Kenyatta University of Agriculture and Technology

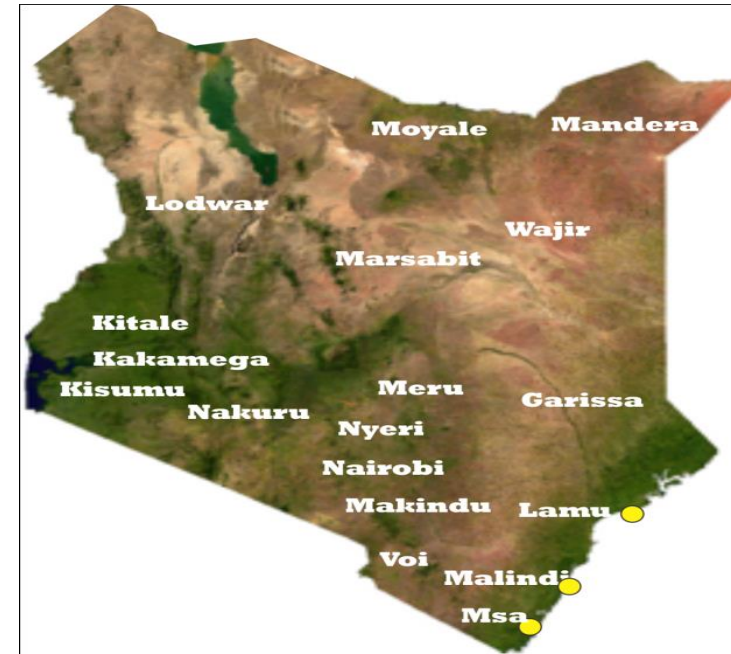
P.O Box 62000-00200, Nairobi

Email: dsila@jkuat.ac.ke

"Strengthening national capacities in food fortification"



Position of Kenya in Africa



Area: 582 644 km²

Population: 47.5 million, 2019

Economy: Agriculture & Tourism



Eating Pattern In Kenya -Starchy Staples



Githeri



Ugali



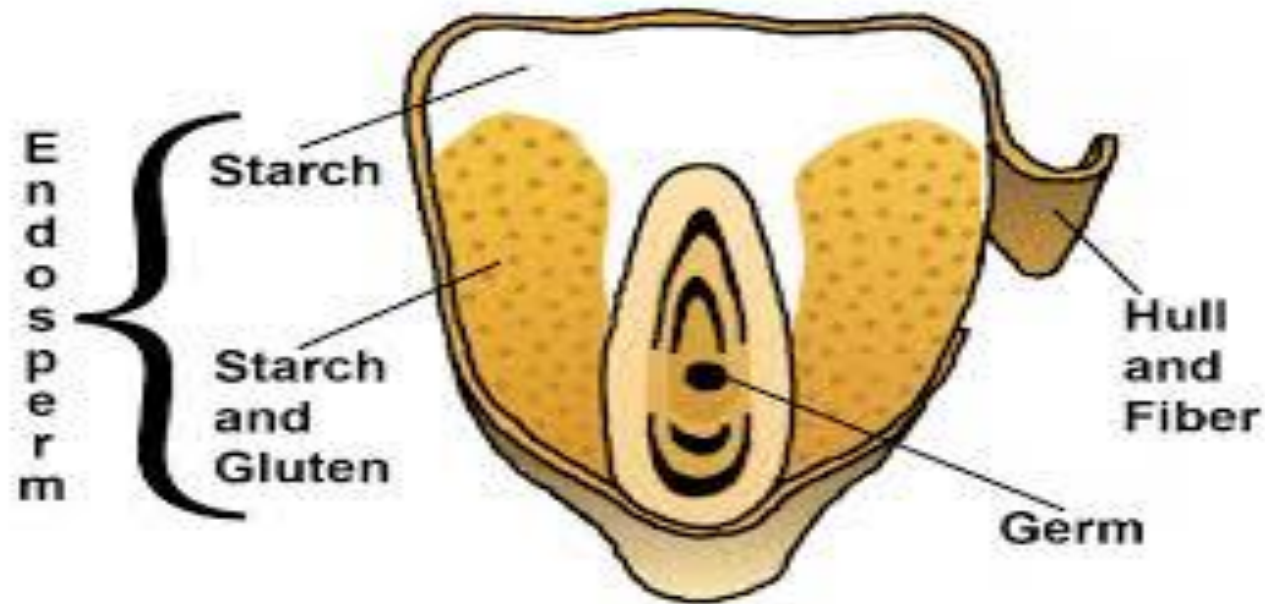
Chapati



Rice

Most Starchy staples: Poor in proteins, micronutrients and vitamins

Maize flour milling process



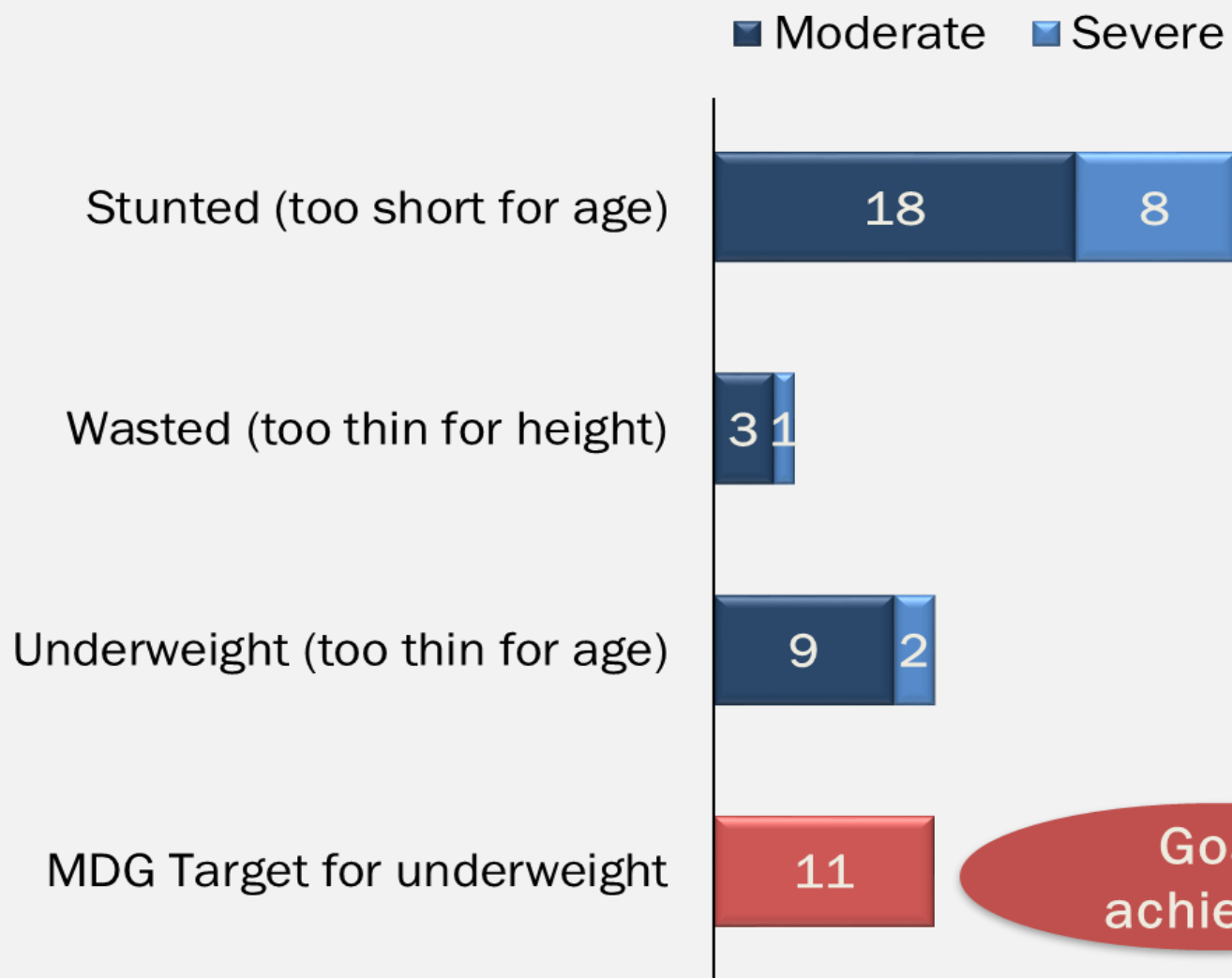
Whole meal → Polished → Degermed

Shelf life stability/consumer preference

Elimination of mineral and vitamins of health benefit

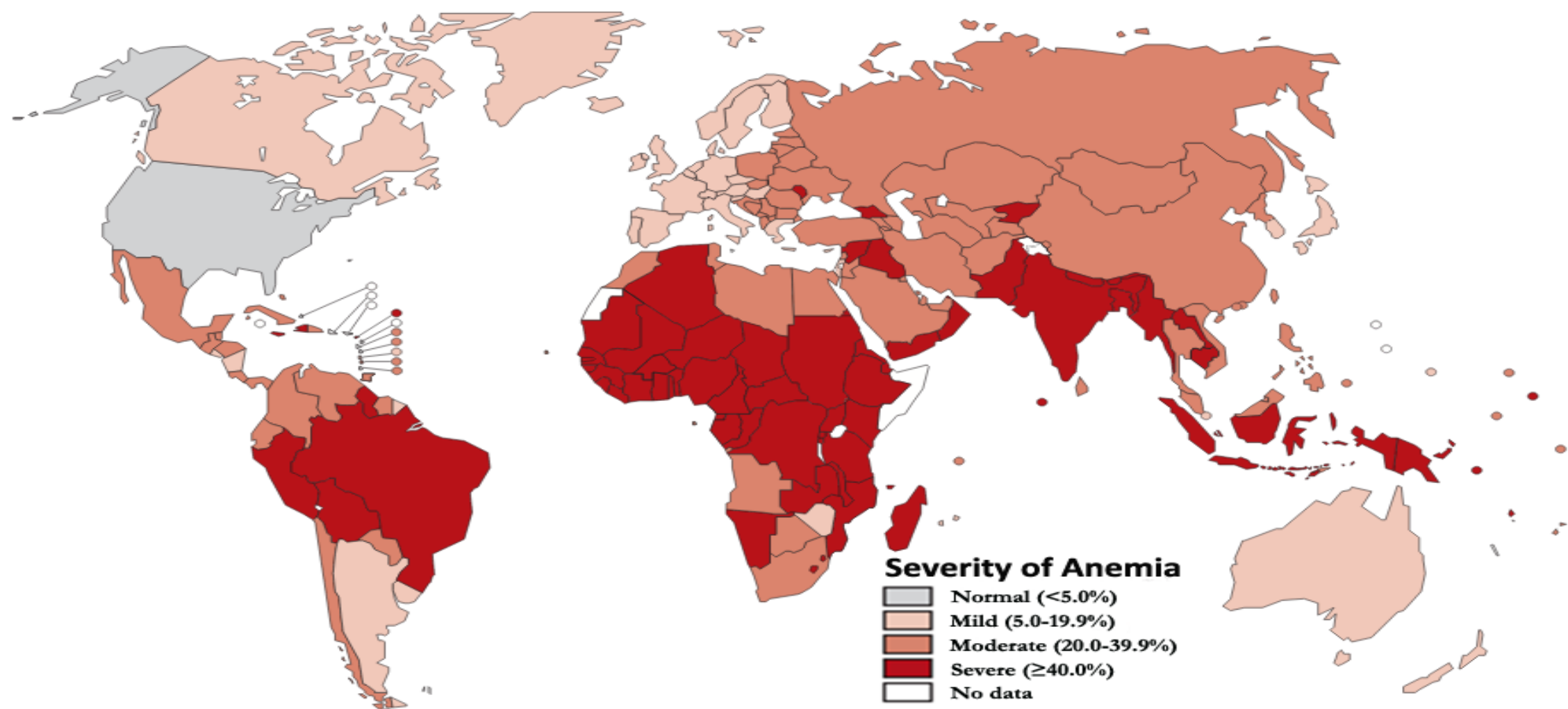


Nutrition Situation in Kenya (KDHS, 2014)



Percentage level and severity of malnutrition by indicator

Worldwide Prevalence of Anemia, by severity



Micronutrient Status in Kenya: KNMS 2017

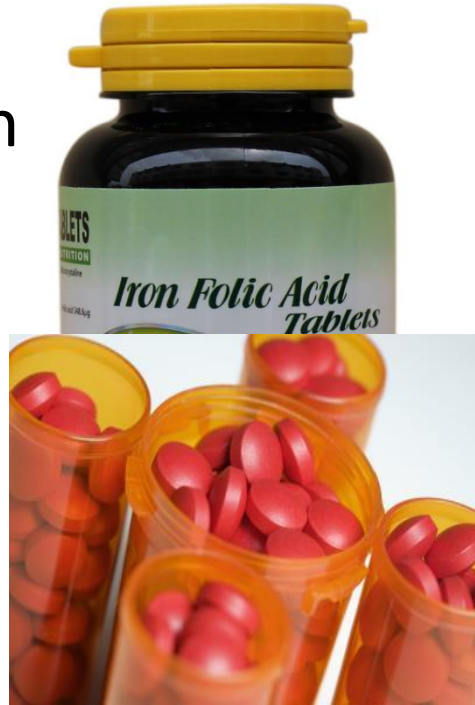
Nutrition indicator	KNMS 1999	KNMS 2011
Children 6-59 months		
Anemia (%)	69	26.3
Iron deficiency (%)	20	21.8
Vitamin A deficiency (%)	84	61.8
Zinc deficiency (%)	50	81.6
Non Pregnant Women of Reproductive age		
Anemia (%)	48	21.9
Iron deficiency (%)	29	21.3
Vitamin A deficiency (%)	10	9.8
Zinc deficiency	52	79.9
School Age Children		
Iodine deficiency	24 (2004)	22.1
Goiter (%)	16 (1994)	6 (2004)

Salt iodization: mandatory from in 1978



Interventions by MoH & Partners

Supplementation



Fortification of staple foods



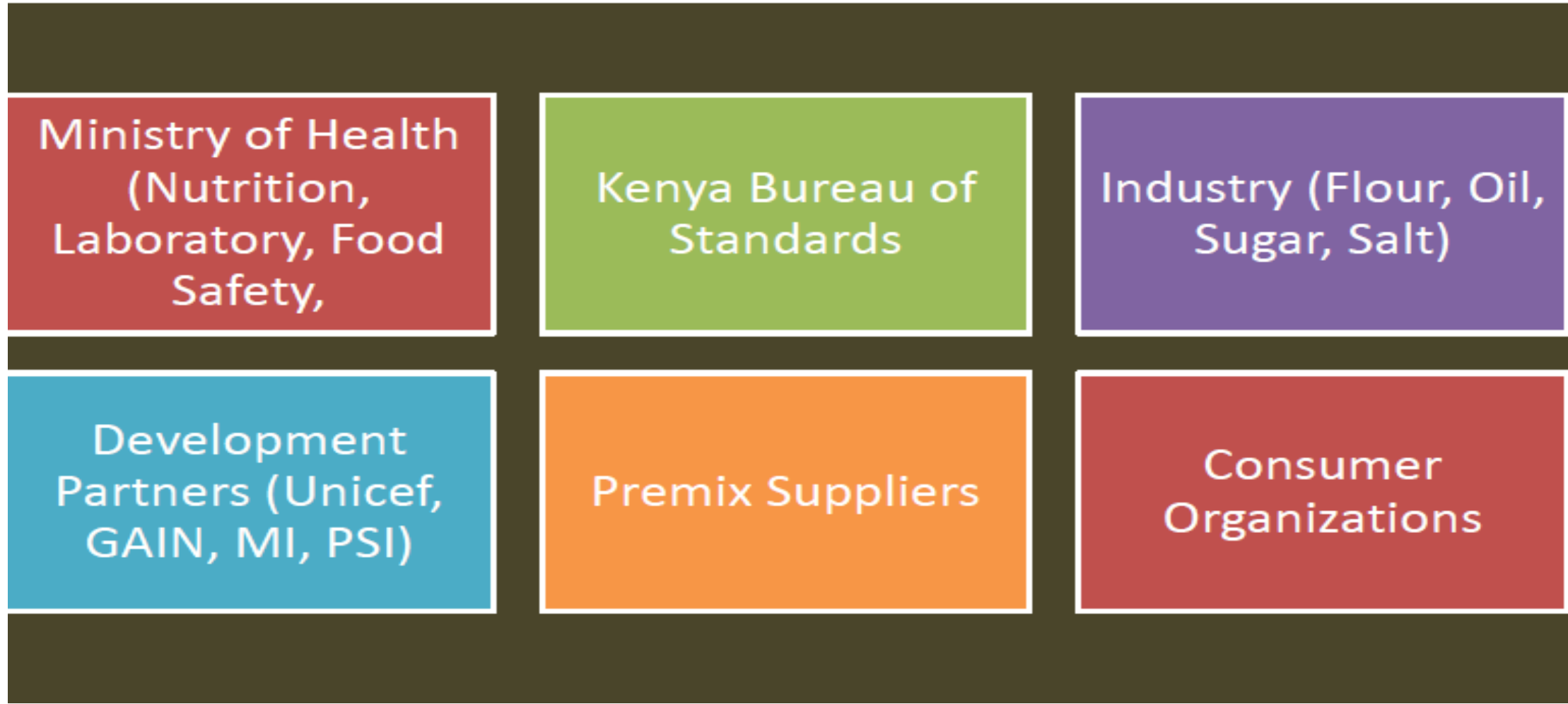
Nutrition education on diet diversification



Biofortification of some foods



Kenya National Food Fortification Alliance Members (KNFFA), 2006



Maize Flour Fortification in Kenya



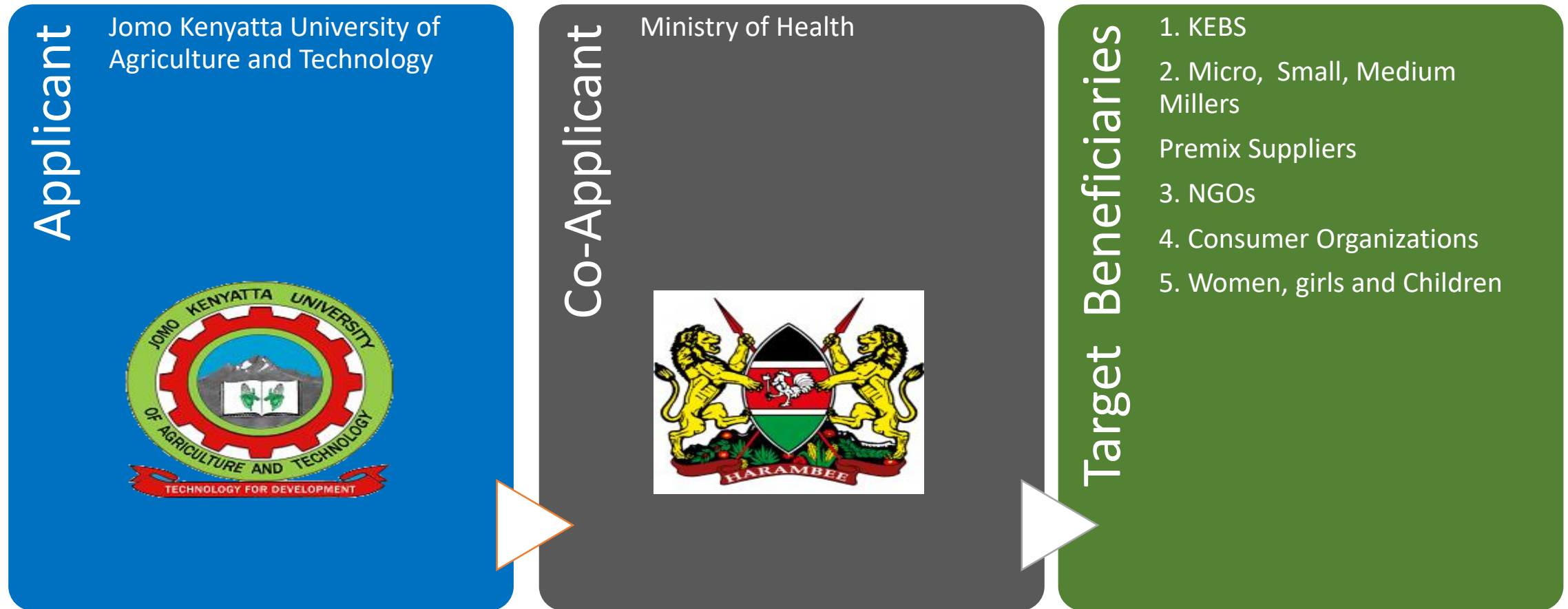
- ❖ Maize is a staple food in Kenya
- ❖ Accounts for 90% of caloric intake of the population
- ❖ Consumed in form of thick porridge (ugali)



The Regulation/ Act of Parliament:

Kenya Foods, Drugs and Chemical Substance Act (CAP 254, Notice No 62, June 2012) amended in 2012 to include mandatory fortification of all *packaged maize meal, wheat flours and edible fats & oils* with specific vitamins and minerals.

EU Food Fortification Project: 2017 - 2022



Vehicle: Fortification of Maize Flour

Regional Approach: Western Kenya, North Rift , South Rift, Eastern & North Eastern, Nairobi and Central, Coast

National Reference Laboratory: JKUAT

Project Objectives

1. To improve and **strengthen the governance** and the legal structures for food fortification programmes in Kenya.
2. To **scale up the current national food fortification** programmes for common staple foods and enhance the technological capacity of the key stakeholders.
3. To **improve the implementation** of existing and new food fortification programmes in Kenya.
4. To **raise knowledge, awareness** and consumption of fortified foods among the poor and vulnerable, women, girls and children.
5. To **improve monitoring and evaluation** of existing and new programmes.

Governance and operation: KNFFA Meetings

2018 KNFFA Meetings Calendar

Date	Day	Time
18 th January 2018	Thursday	9:00-11:00 am
17 th April 2018	Tuesday	9:00-11:00 am
17 th July 2018	Tuesday	9:00-11:00 am
16 th October 2018	Tuesday	9:00-11:00 am

2019 KNFFA Meetings Calendar

Date	Day	Time
22 nd January 2019	Tuesday	9:00-11:00 am
30 th April 2019	Tuesday	9:00-11:00 am
23 rd July 2019	Tuesday	9:00-11:00 am
22 nd October 2019	Tuesday	9:00-11:00 am



KNFFA Meeting , Venue: Ministry of Health 23rd July, 2019

Members

1. Ministry of Health,
2. Government: KEBS, National Public Health Labs, KEMRI, Food Safety Unit
3. Industry: Maize flour, Wheat flour, Salt, Fats and Oils
4. Premix Suppliers
5. NGOS: GAIN, Technoserve, UNICEF
6. JKUAT

Strategic Plan: Fortification

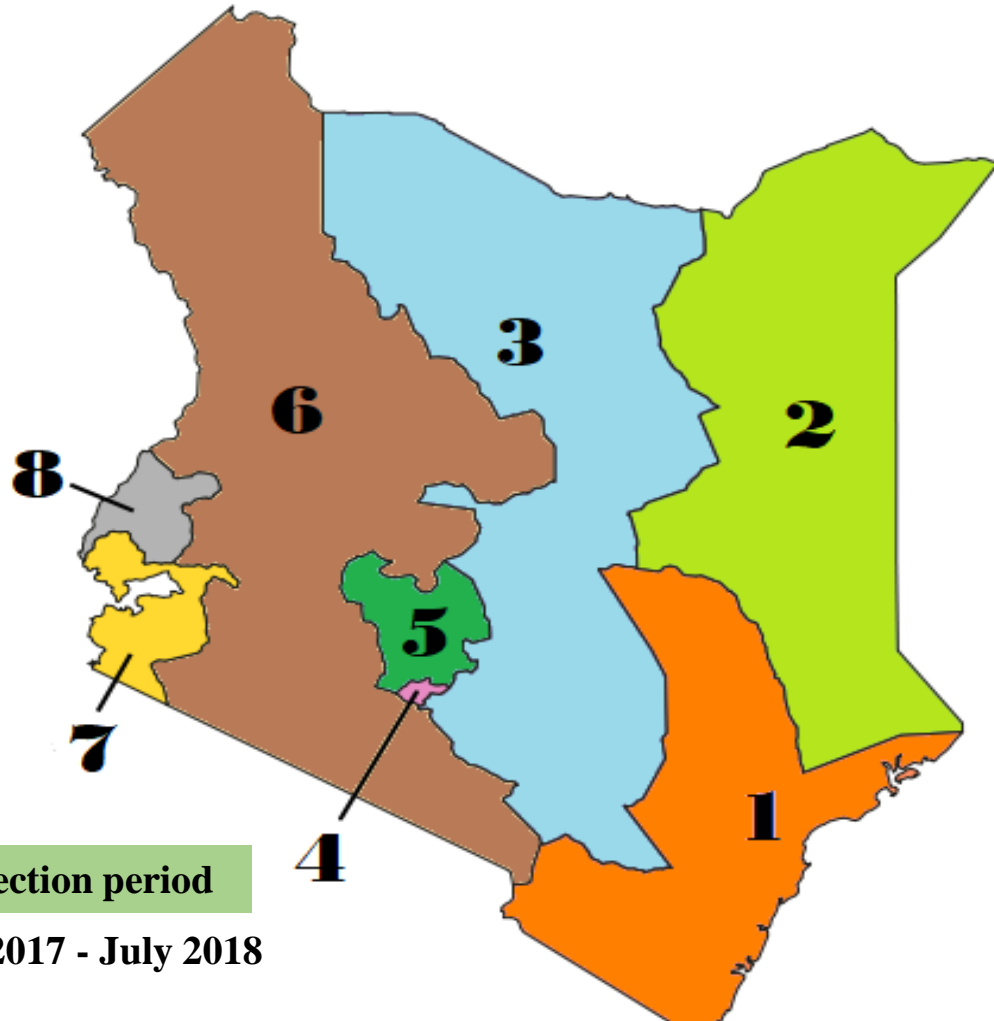


- Road map for the next 5 years: vehicle for change
- Annual targets for M&E
- Consolidated effort
- Coordinated centrally through Ministry of Health

Baseline Status 2017: Industry

Study sites

Commercial maize millers (n=76) across the country sampled from 6 regions



Key:

- 1: Coast Region
- 2: North Eastern Region
- 3: Eastern Region
- 4: Nairobi
- 5: Central Region
- 6: Rift Valley Region
- 7: Nyanza Region
- 8: Western Kenya Region



No. of millers surveyed per region

Region	No. of millers
Nairobi/Central	28
Eastern/North-Eastern	19
South Rift	13
North Rift	7
Coast	6
Western/Nyanza	3

Data collection period

October 2017 - July 2018

Baseline study: 76 Industries Visited

Food Fortification Practice

51% fortifying

- ☐ 100% in large scale
- ☐ 46% in medium scale
- ☐ 24% in small scale



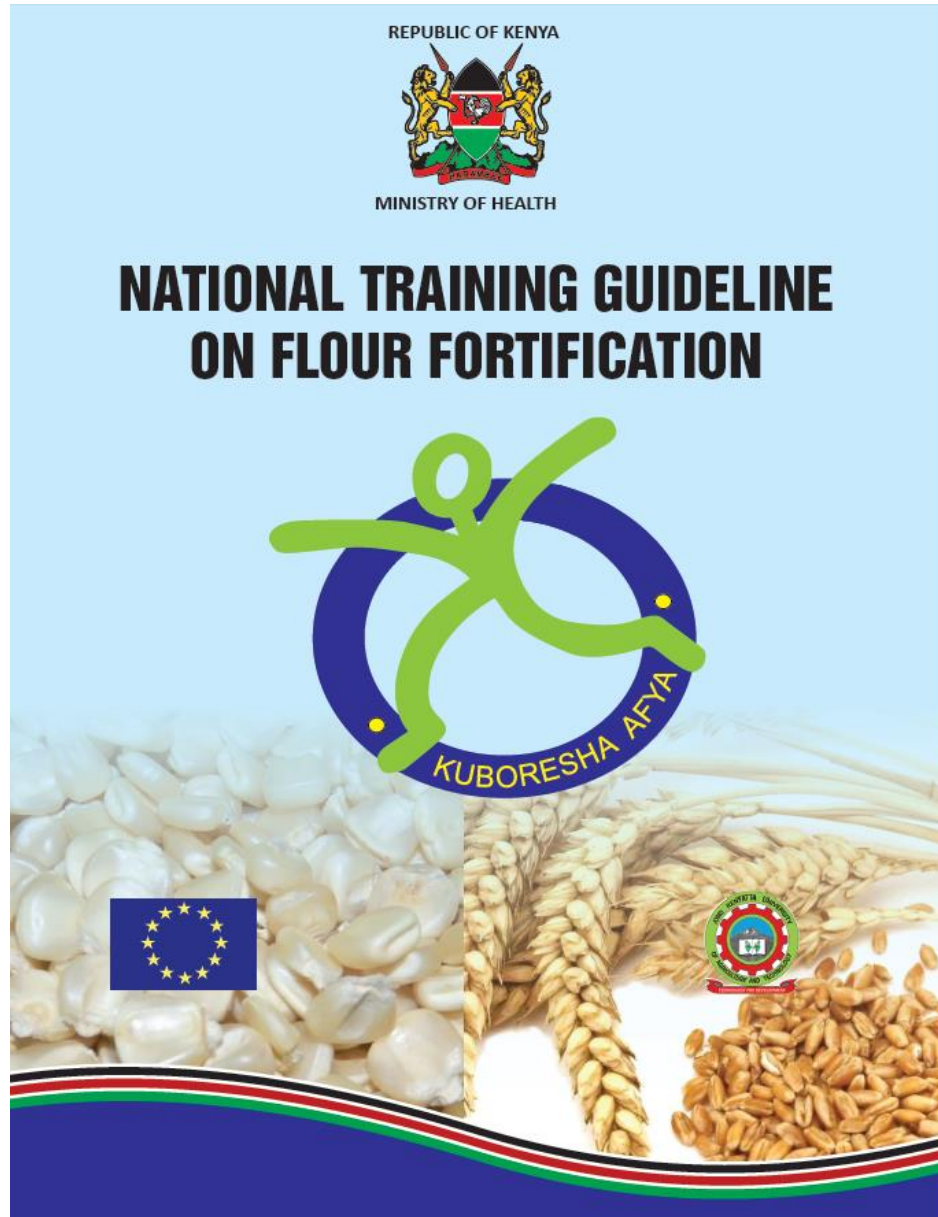
61% with both fortification & KEBS logo

Disparity: 10% with logo not fortified

Gaps/ Challenges Identified

- ❖ Inadequate technical know-how among stakeholders
- ❖ Poor/inadequate industry infrastructure
- ❖ Insufficient fortification technologies
- ❖ Inadequate quality assurance and quality control (QA/QC) structures
- ❖ Inadequate food safety measures
- ❖ Poor access to premixes

Development of the Fortification Training Guideline



Fortification training guideline development committee at Gelian Hotel, Machakos on 13th to 15th August 2018.

Capacity building in numbers

S/No.	Intervention Category	Number of People	Period
2.	Industrial players; Millers/QA	156	2019
3.	Public Health Officer	163	2019/2020



Maize millers training , Nakuru - June 2019



Training Public Health Officers, Kiambu - Jan 2020

PhD students



Mr. Mwai John

Topic: Compliance of packaged maize meal with food fortification standards in Kenya: A case of barriers and enablers



Mr. Francis Aila

Topic: Iron Bioavailability from fortified maize flour

Masters students



Ms. Sylvia Khamila

Topic: Effectiveness and compliance status of fortified maize flour by commercial mills in Kenya.



Ms. Priscilla Kissangi

Topic: Compliance of wheat flour fortification in curbing micronutrient malnutrition in Kenya



Ms. Linda Amaya

Topic: Knowledge, Attitude and Practices (KAP) Study on Food Fortification in Kenya



Ms. Brenda Ruto

Topic: Evaluation of the extraction and stability of vitamin A, B-vitamins, iron and zinc in commercially available maize flour brands in Kenya

Food Fortification Lab: EU funded



Groundbreaking for Food Fortification Reference Laboratory
on 4th May 2018



Food Fortification Lab Equipment

HPLC



SOXHLET EXTRACTOR



GC-MS



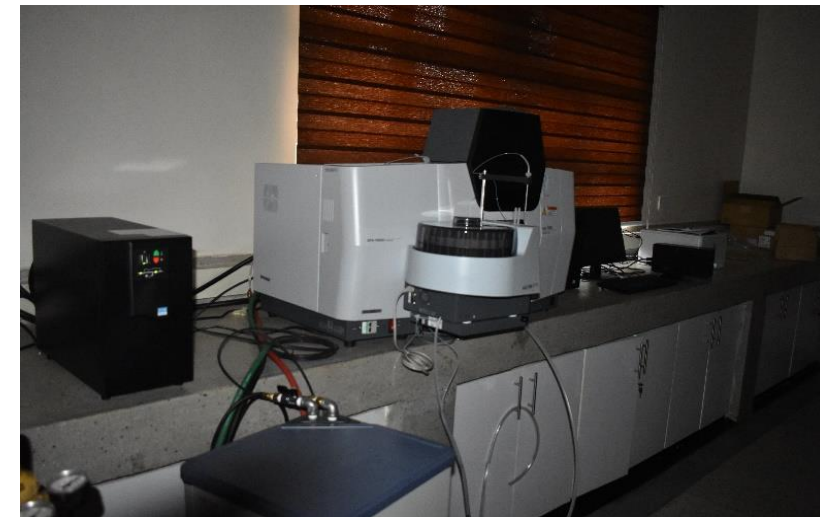
FT-NIR



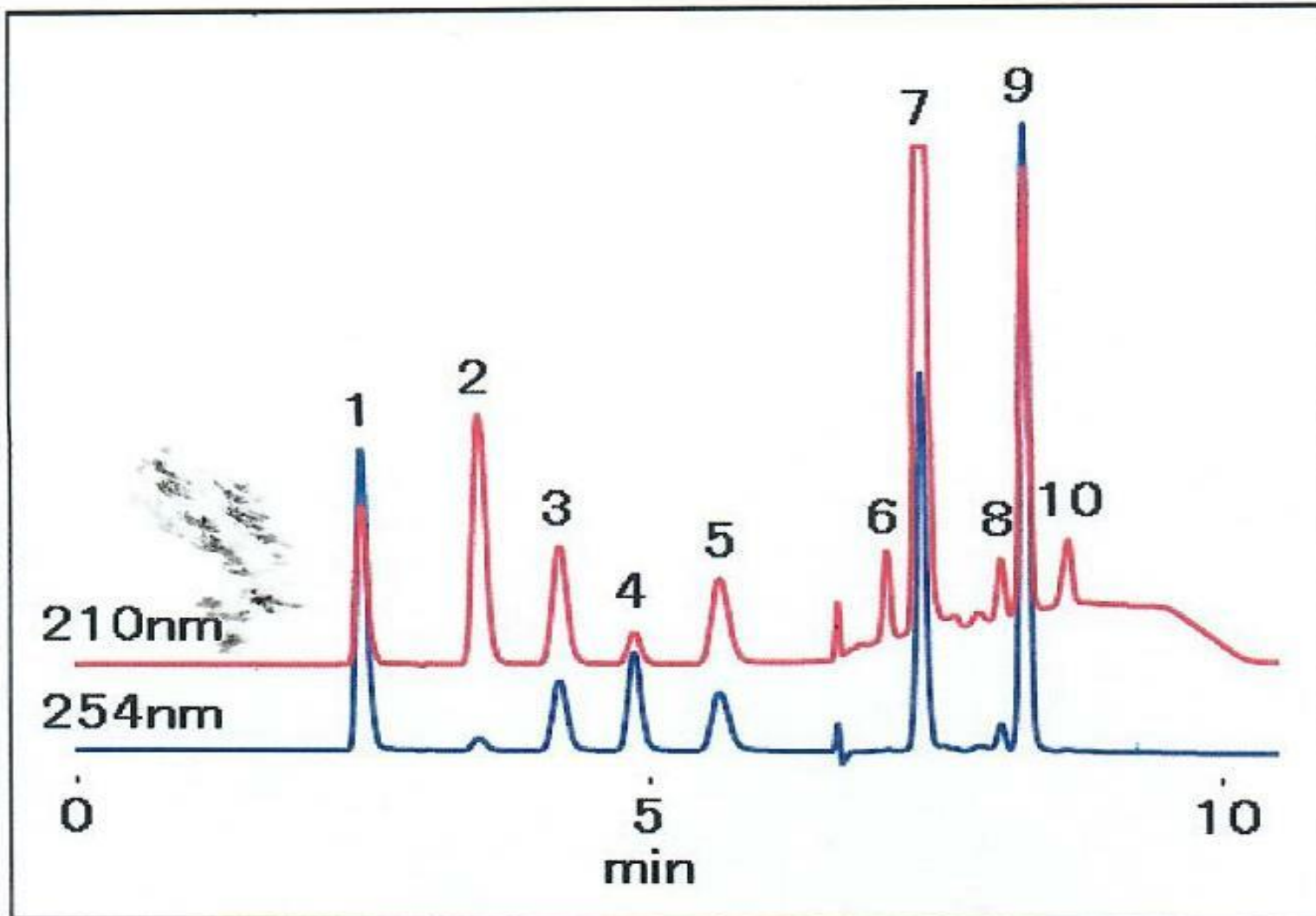
UV-VIS



AAS



Analysis of Vitamin B complex in 1 run



Sample : 5μL
(in 250mM H₃PO₄ aq.)

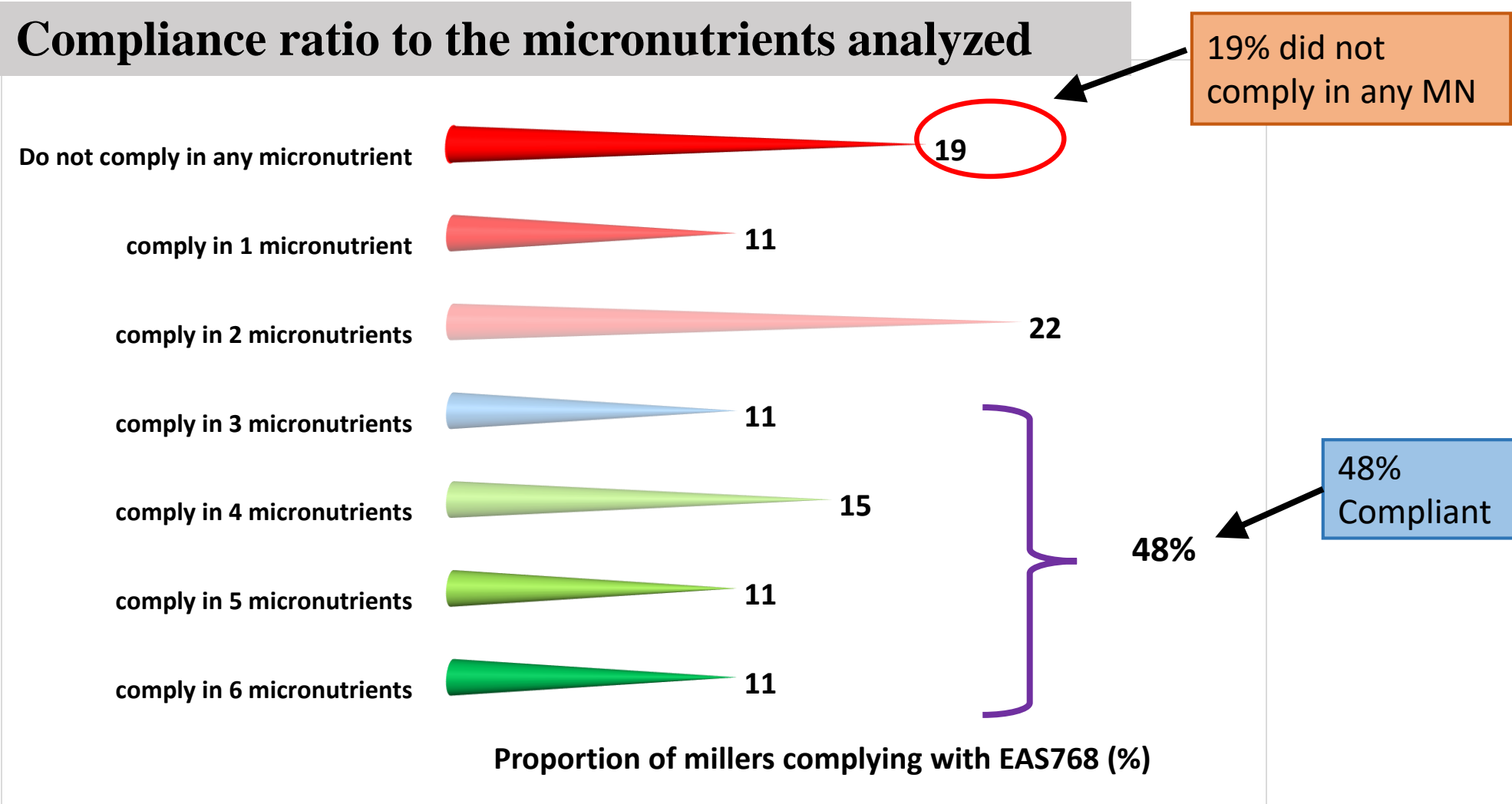
1. Vitamin B₁ 200μM
2. Vitamin B₆ 200μM
3. Niacinamide 200μM
4. Vitamin C 200μM
5. Vitamin B₃ 200μM
6. Vitamin B₅ 200μM
7. Vitamin B₁₂ 200μM
8. Folic acid 20μM
9. Vitamin B₂ 200μM
10. Biotin 400μM

Analysis time

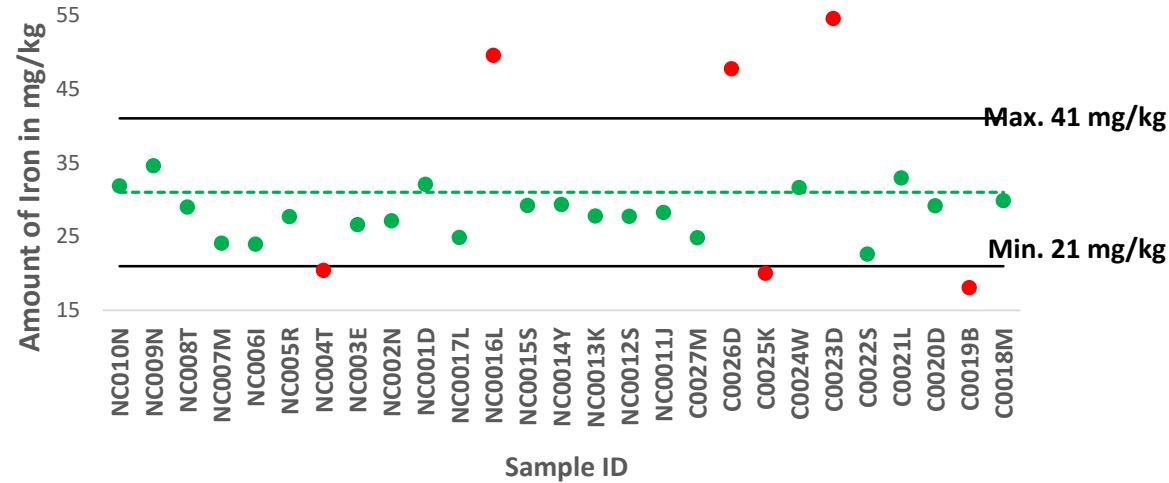
From 10 days to 10 min

Compliance to standards for fortified flour

Vitamin A
Vitamin B2
Vitamin B3
Vitamin B9
Iron
Zinc

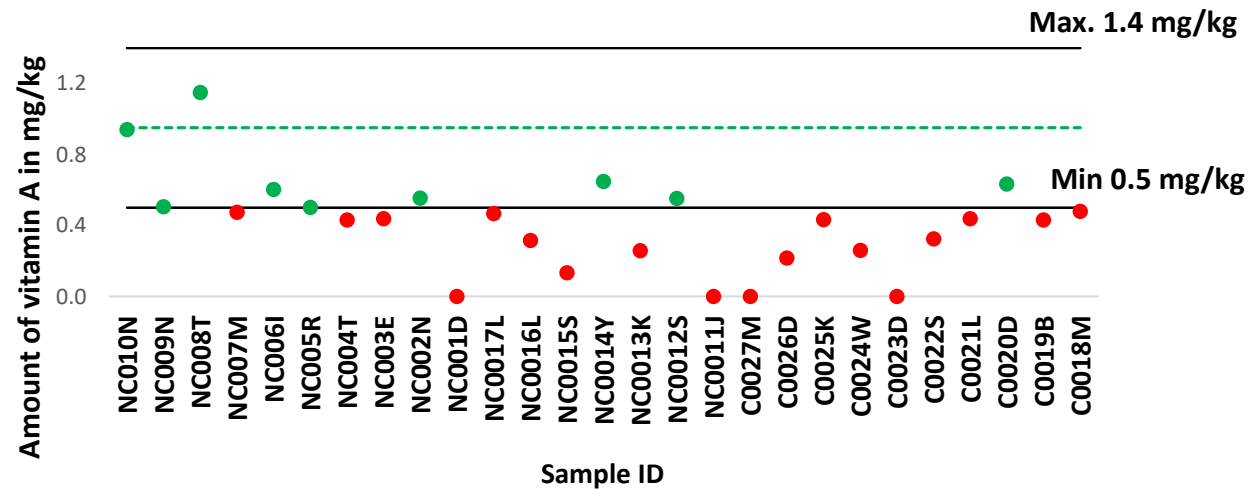


Iron levels in fortified maize flour and compliance to standards



- High compliance (78%) was observed for samples from Nairobi/Central region

Vitamin A (Retinol) levels in fortified maize flour and compliance to standards



- Above a third (47%) - Nairobi/central compliant
- Only 10% - Coast region complied

Challenges

- Compliance at industry still low
 - Poor knowledge of millers and Quality Assurance personnel
 - Infrastructural support weak (dosers, lab capacity)
- Low level of knowledge of government regulators
- Enforcement capacity weak: Kenya Bureau of Standards (KEBS), National Public Health Labs (NPHL), Ministry of Health (NDU, FSU)
- Monitoring and Evaluation Poor at National and County level (Last KNMS, 2011)
- Inadequate evidence
- Funding by Government low: no budget allocation in most Counties
- Consumer awareness low



Republic of Kenya



Ministry of Health



THANK YOU!



Food Fortification Advisory Services
Funded by the European Union



Contact

www.2fas.org
www.landell-mills.com
www.gainhealth.org

Fadoi Chaouki, Programme Manager, DG DEVCO's Unit
C1 on Rural Development, Food Security and Nutrition:
Fadoi.Chaouki@ec.europa.eu

Dora Panagides, Team Leader, 2FAS:
dorap@landell-mills.com

Flavio Bellomi, Senior Project Manager, Landell Mills:
flaviob@landell-mills.com

Penjani Mkambula, Global Programme Lead Food
Fortification, GAIN:
pmkambula@gainhealth.org

THANK YOU

