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# AGRICULTURE, FOOD SYSTEMS AND NUTRITION LINKAGES: *LESSONS LEARNED AND EMERGING PRIORITIES*

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# THE BURDEN OF MALNUTRITION



**1 in 4 children** globally are stunted and will not reach their full **physical** or **cognitive** potential

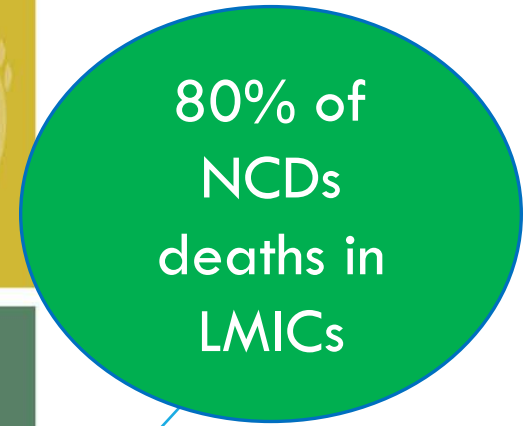


An estimated **2 billion** people worldwide are **deficient** in key **micro-nutrients**



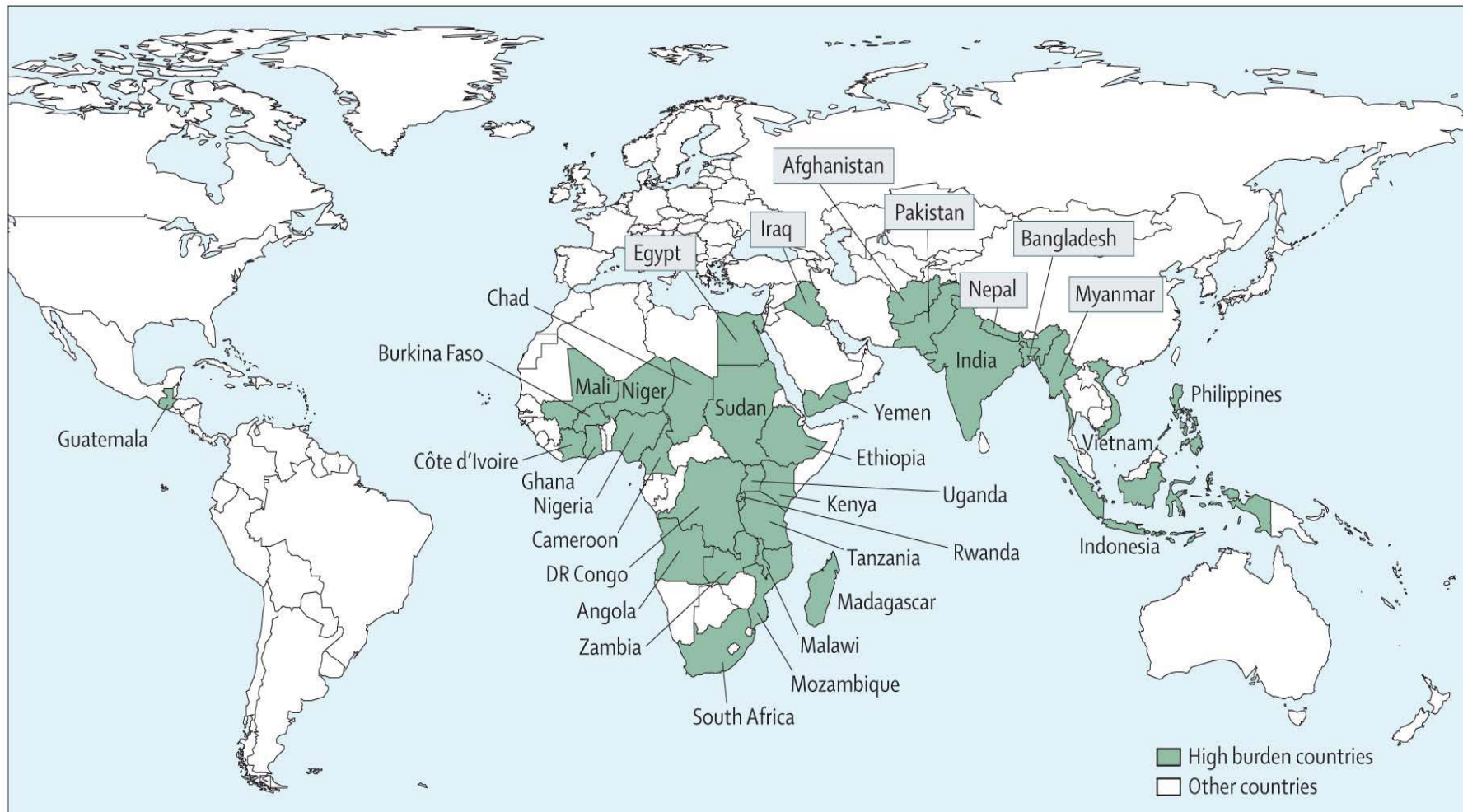
**60**

A **quarter** of all deaths from **non-communicable diseases** occur under the age of **60**

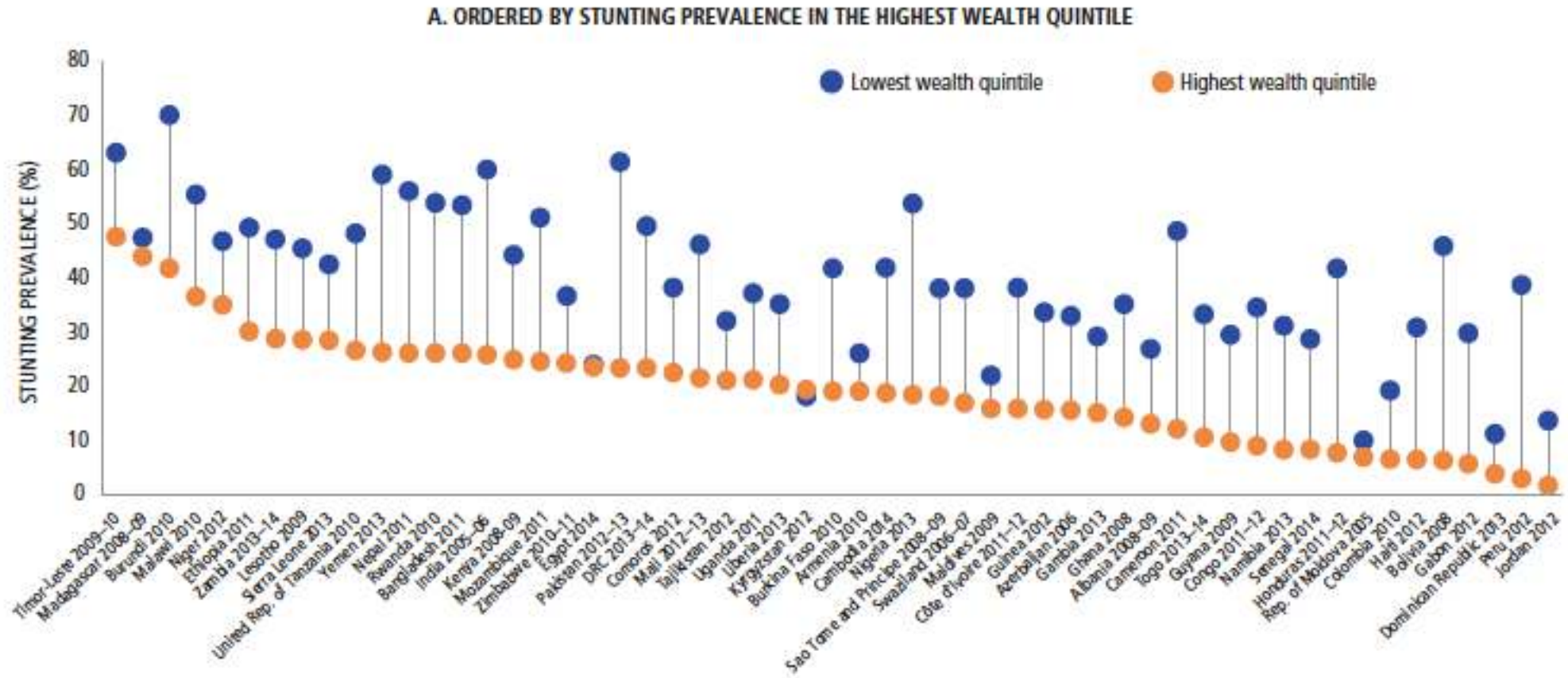


**80%** of **NCDs** deaths in **LMICs**

# HIGH GEOGRAPHIC INEQUITY: 34 COUNTRIES ACCOUNT FOR 90% OF GLOBAL BURDEN OF UNDERNUTRITION



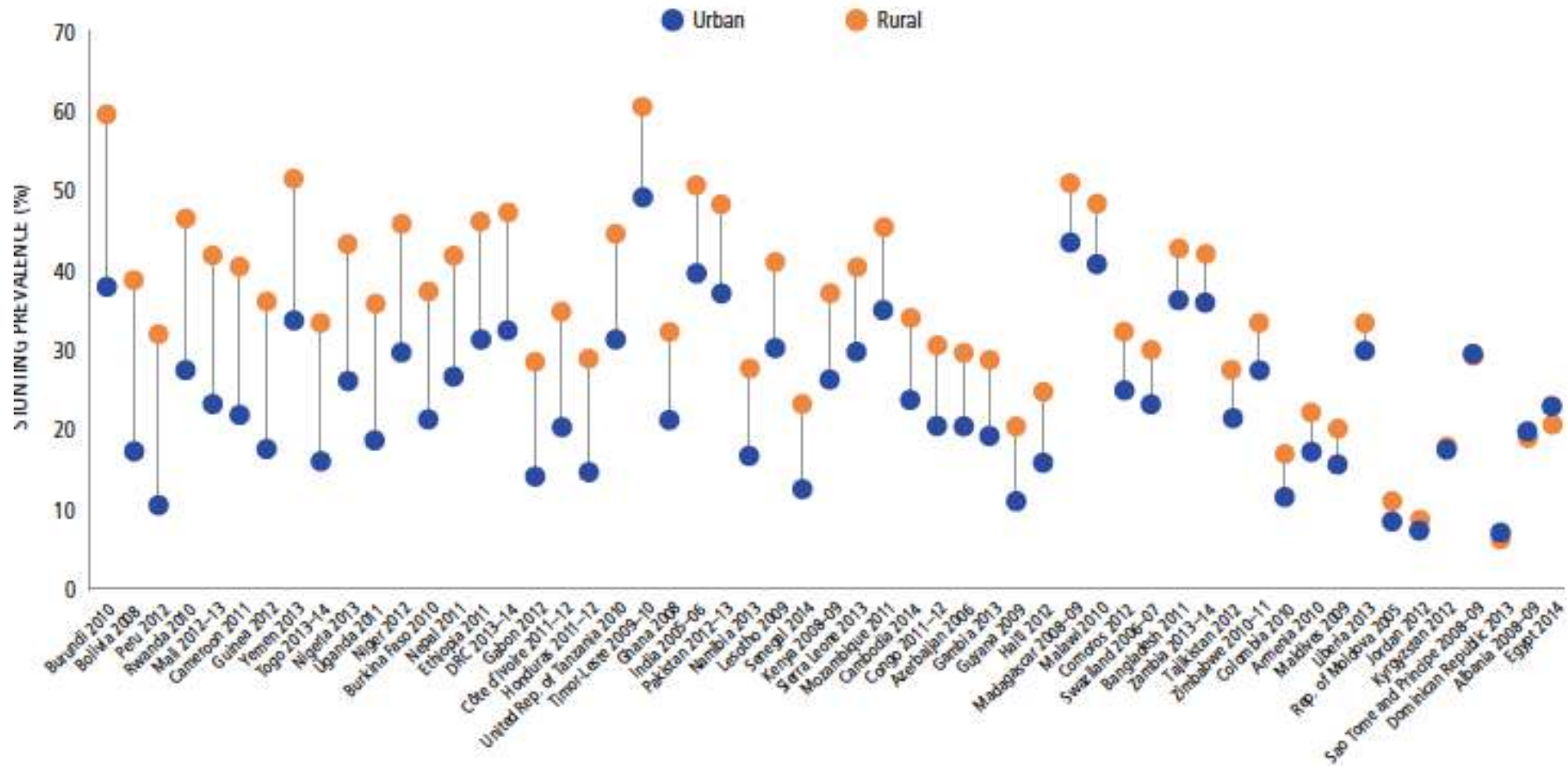
# HIGH SOCIOECONOMIC INEQUITIES PERSIST



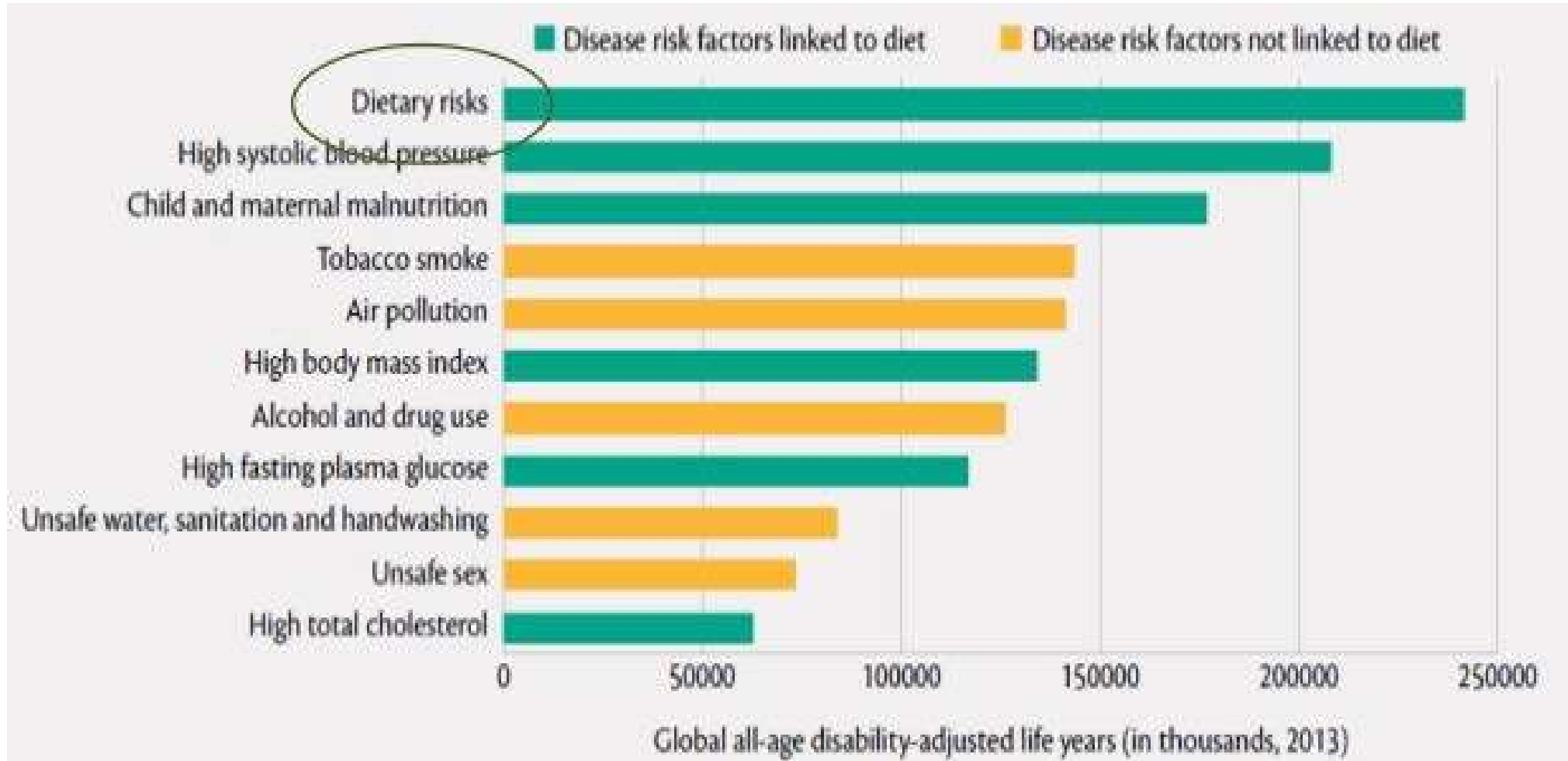
Source: Global Nutrition Report 2016

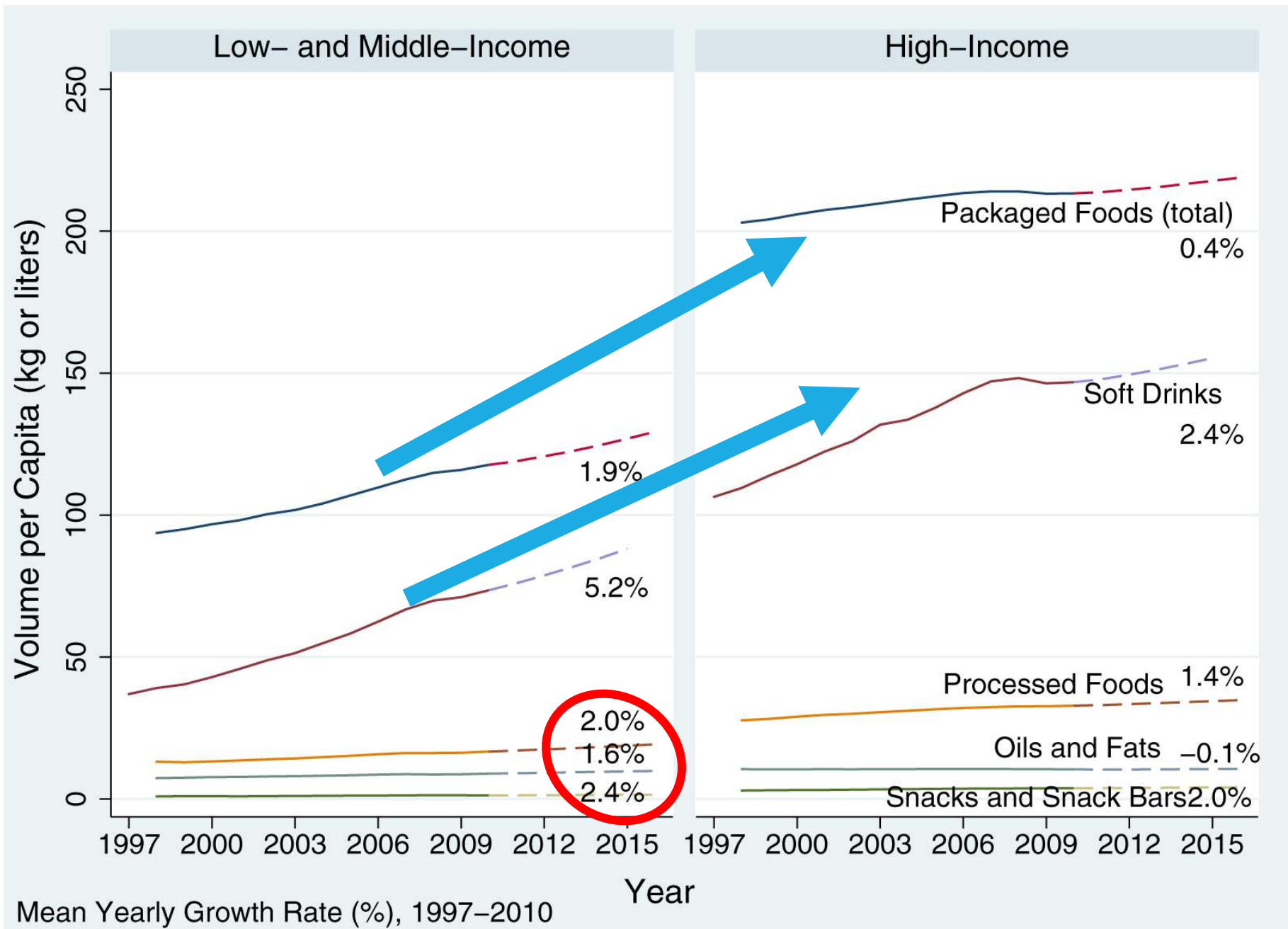


# CHILD STUNTING PREVALENCE, ORDERED BY THE SIZE OF THE GAP



# POOR DIETS ARE A TOP RISK FACTOR FOR DISEASE





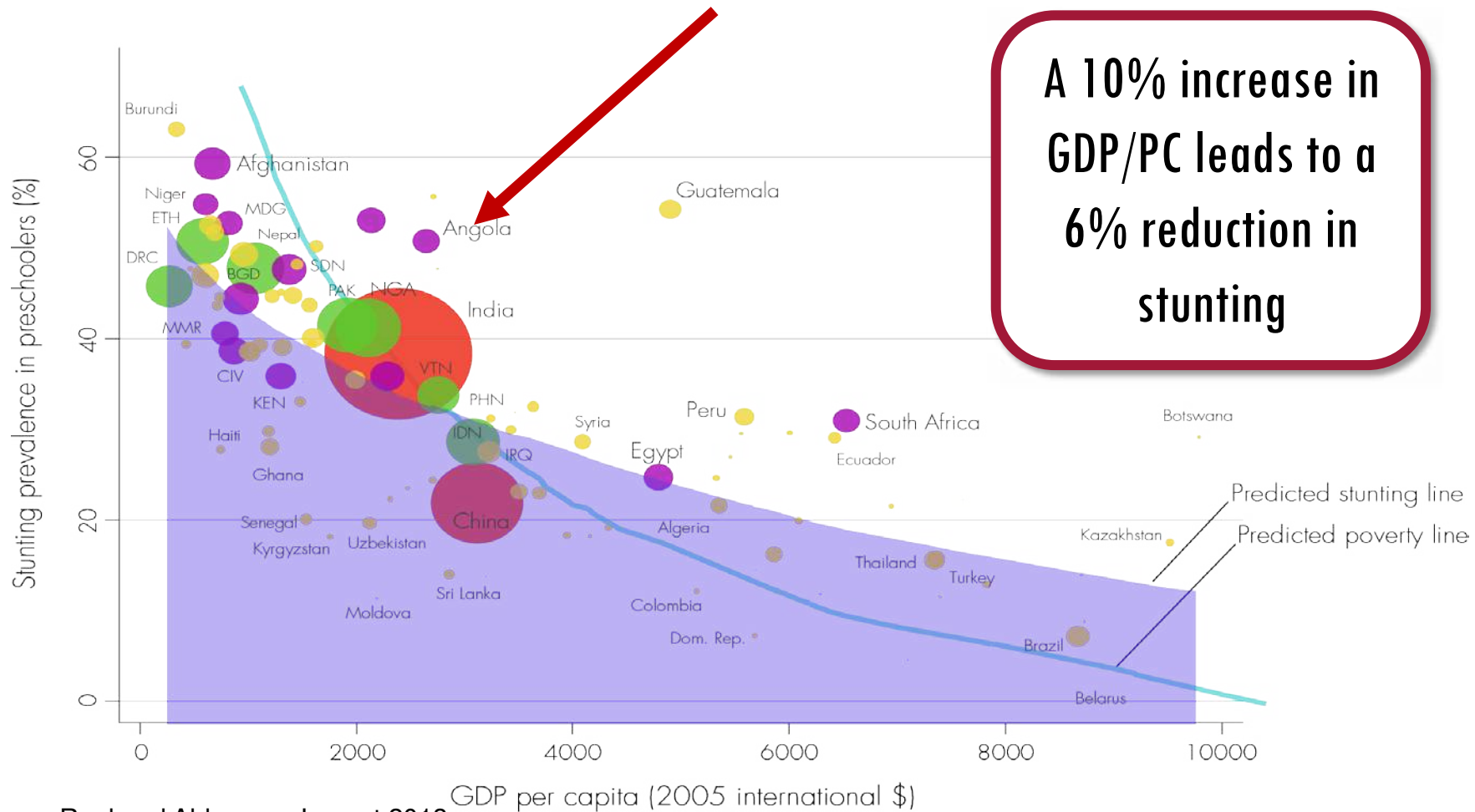
**What to  
do?**





# INCOME GROWTH DOES REDUCE UNDERNUTRITION

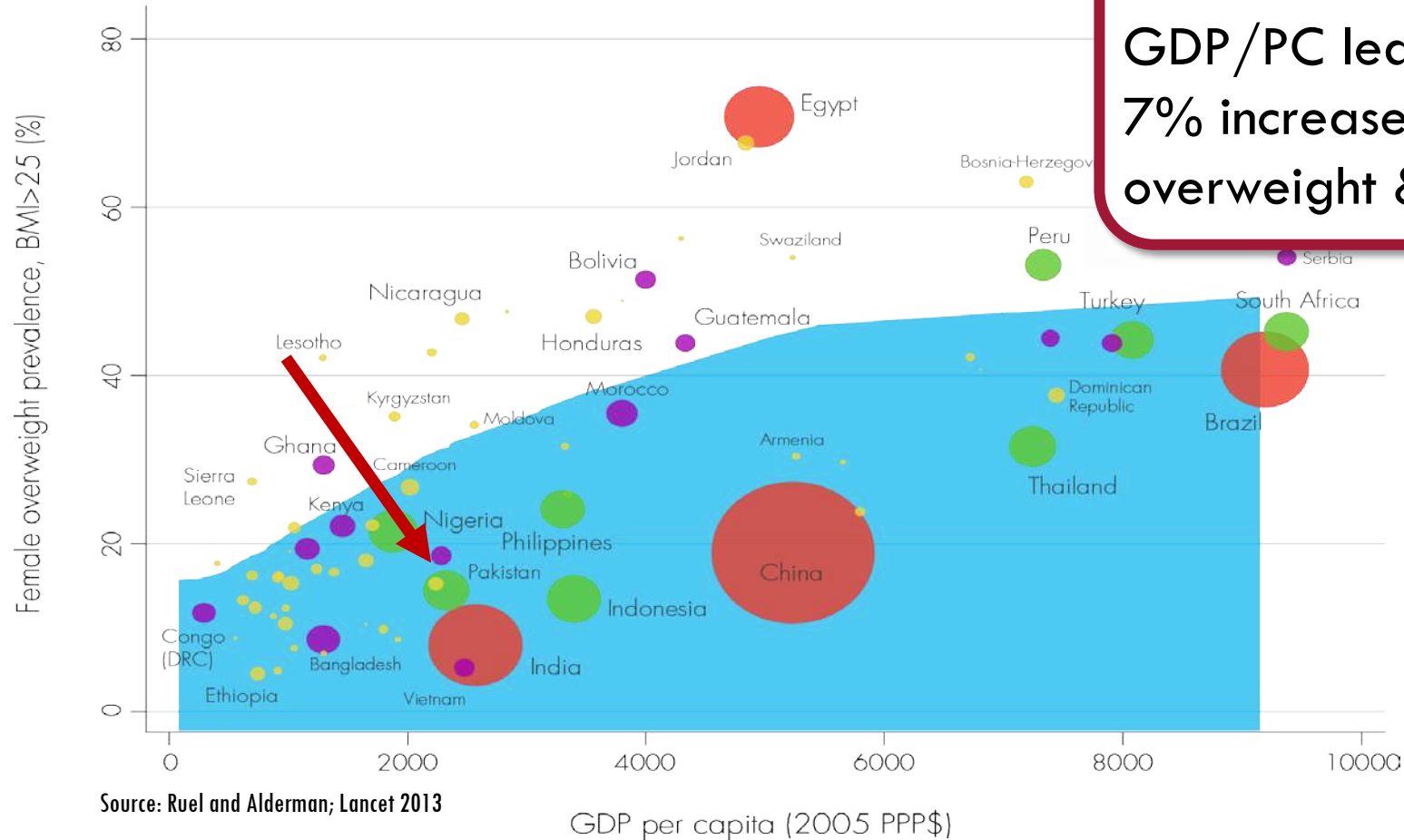
Prevalence of stunting in children aged 0-5 years and GDP per person



Source: Ruel and Alderman; Lancet 2013

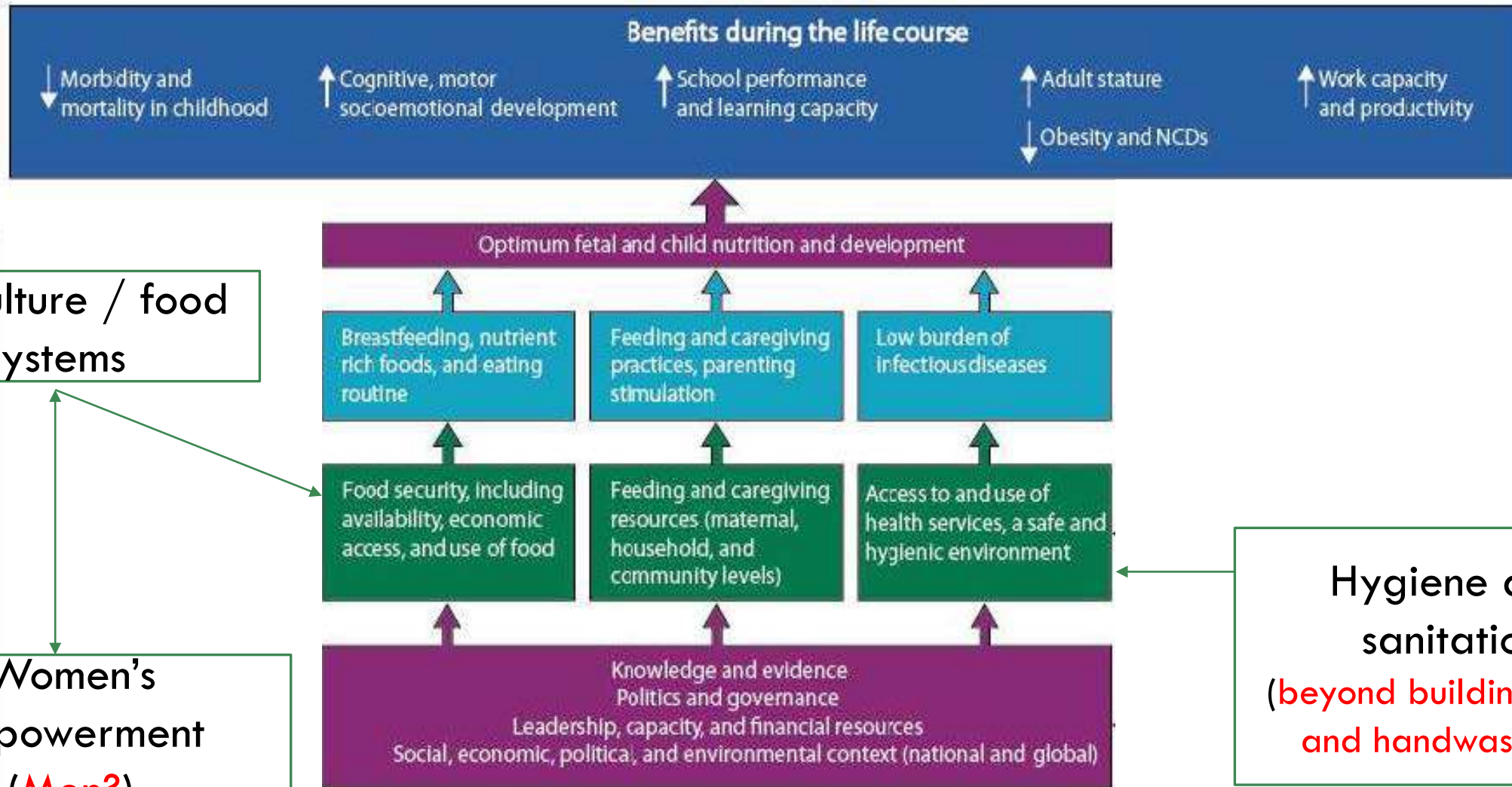
# INCOME GROWTH CAN ALSO HAVE UNINTENDED CONSEQUENCES

Prevalence of women overweight or obese (BMI > 25) and GDP per person, for low-income and middle-income countries



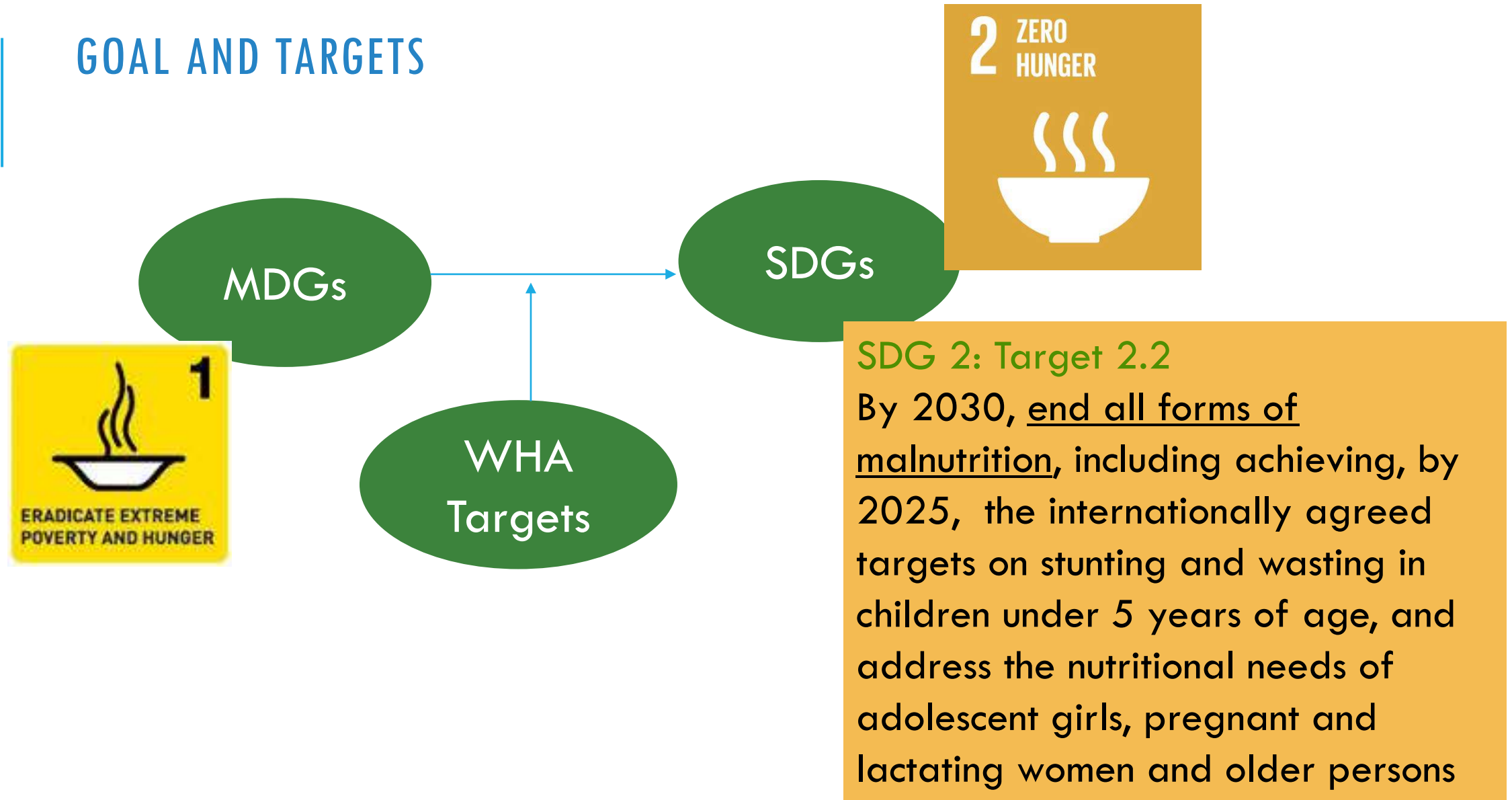
Source: Ruel and Alderman; Lancet 2013

# INCREASED ATTENTION TO THE UNDERLYING DETERMINANTS



Source: Adapted from Bhutta et al; 2013

## GOAL AND TARGETS





# THE RAPIDLY CHANGING LANDSCAPE

# RAPID CHANGES AFFECTING THE UNDERLYING AND BASIC DETERMINANTS OF NUTRITION STATUS



Climate change/environmental fragility

Rapid urbanization and rural transformation

Changing food system governance, production & distribution

Shifting grounds for women and men as they respond to evolving risks and opportunities





# THE BIG QUESTIONS

## THE 2 BIG QUESTIONS

1. How do we make our agriculture-food systems sustainable and healthy to all people in this rapidly transforming context?
2. How do we make nutritious diets physically and economically accessible in an equitable and just way?



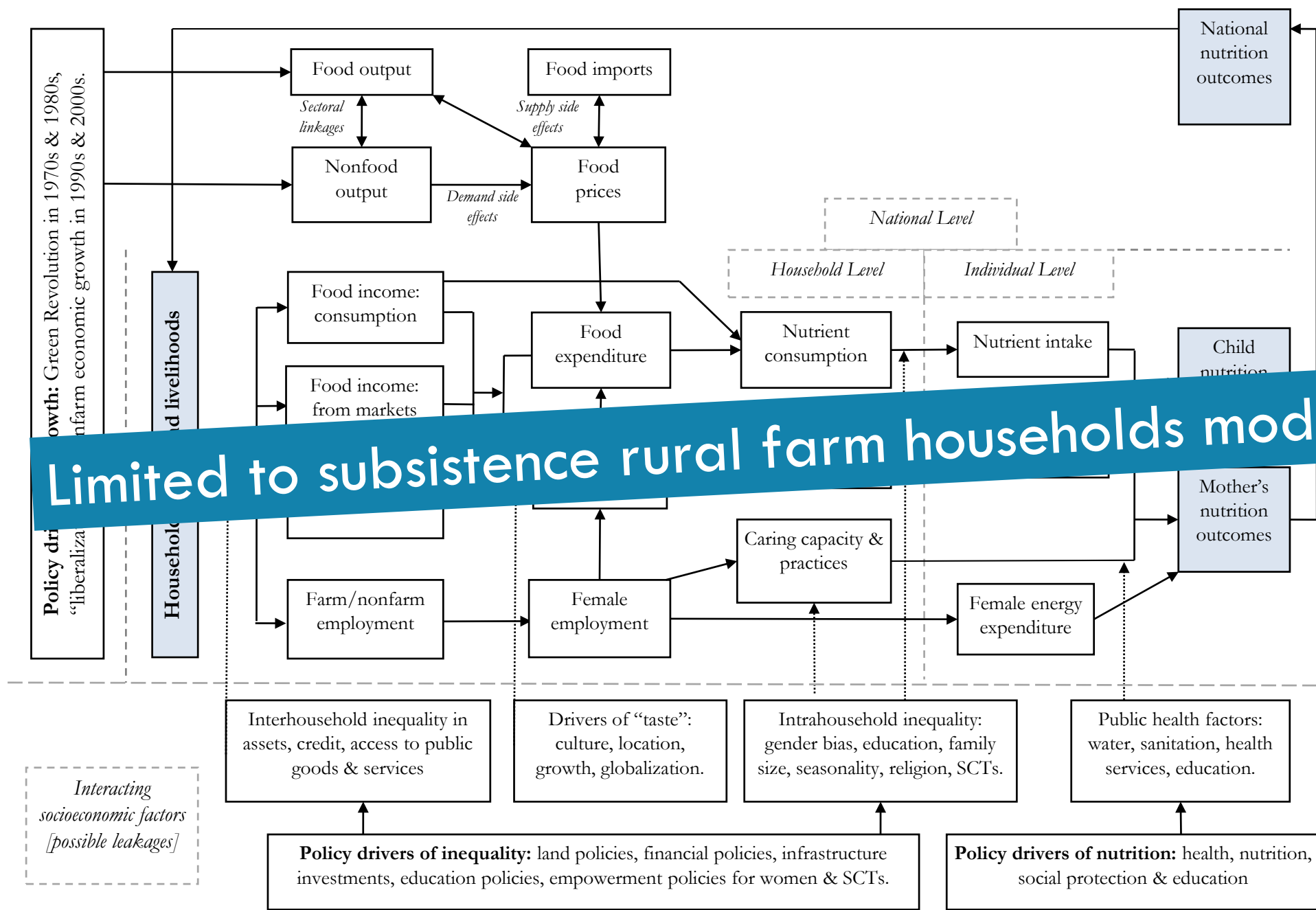
**INCREASED MOMENTUM TO INFORM ACTION:  
*LEVERAGING THE ROLE OF AGRICULTURE FOR NUTRITION***

# 1. DEVELOPMENT OF CONCEPTUAL PATHWAYS AND FRAMEWORKS

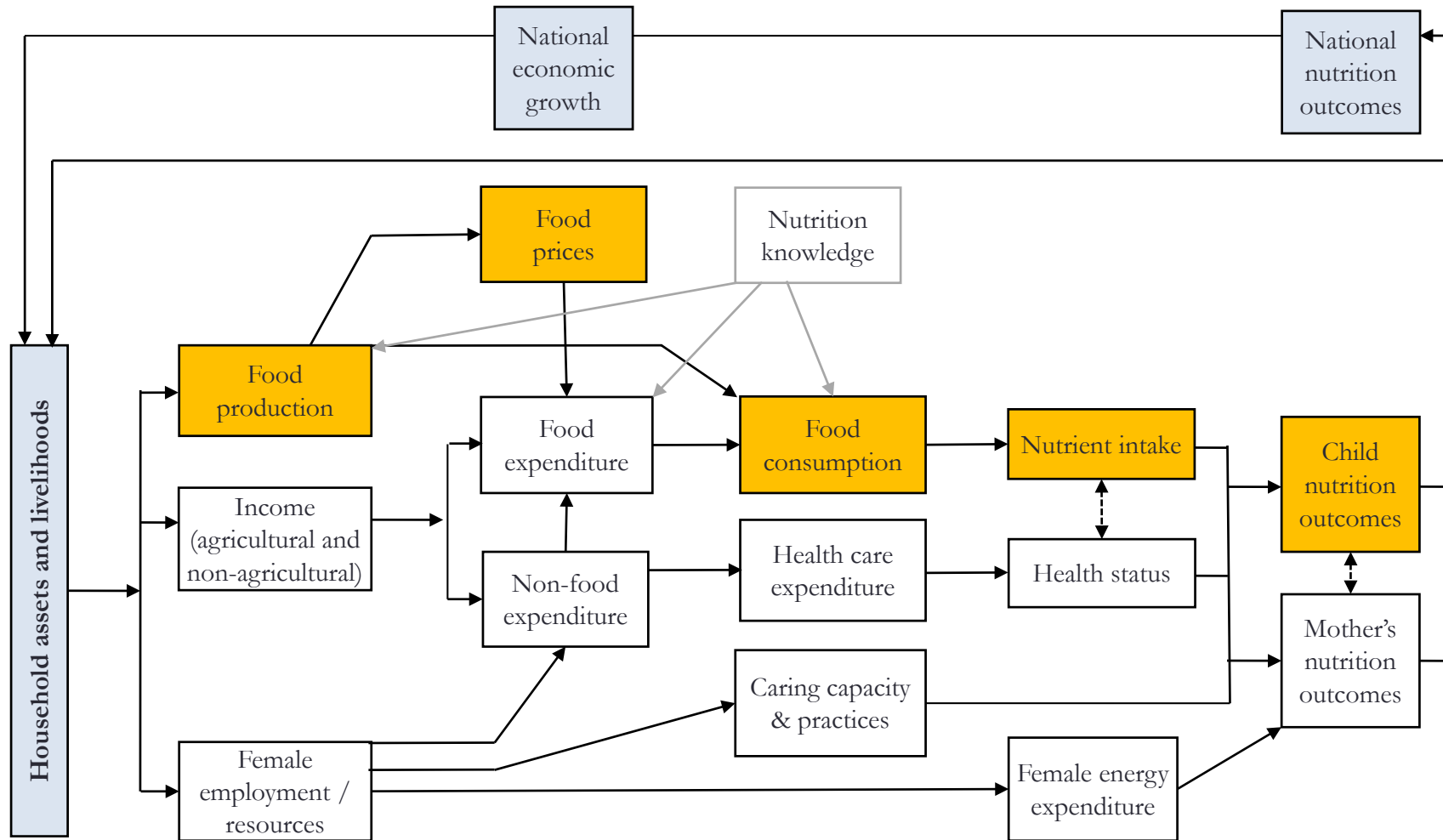
Agriculture is fundamental to structural transformation of economies and poverty reduction

But  
Pathways to nutrition are diverse & interconnected

1. Agriculture as a source of food
  2. Agriculture as a source of income and expenditures
  3. Agricultural policy and food prices
- Gender dimensions**
4. Women's status and intra-HH resource allocation
  5. Women's ability to manage young child care
  6. Women's own nutritional status & intergenerational implications for nutrition

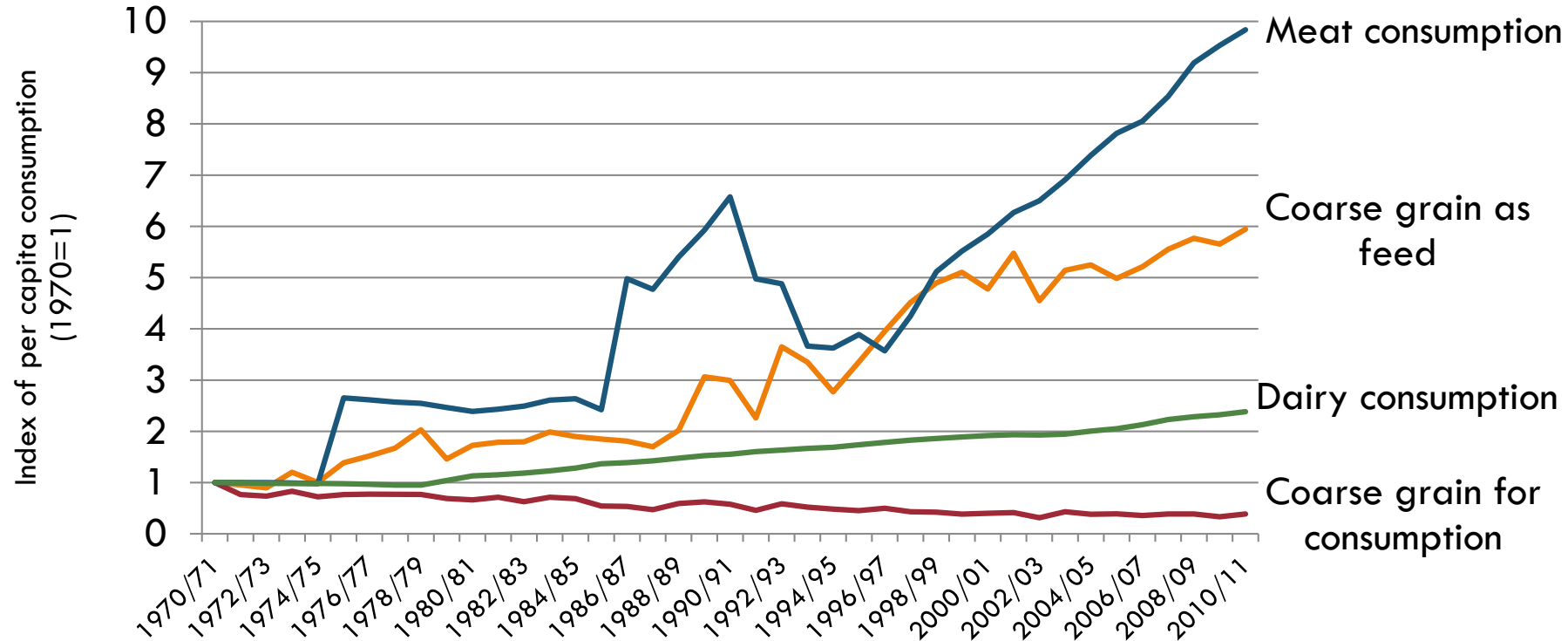


Source: Headey, Chiu and Kadiyala (2012); Kadiyala et al (2014)





# FOOD PRICES PATHWAY: AN EXAMPLE FROM INDIA



- Dietary diversification >> coarse grains for meat and dairy production >> Rising coarse grain prices

## 2. EVIDENCE GENERATION: EMERGING EVIDENCE OF THE IMPACT OF AGRICULTURE INTERVENTIONS

- Impact/correlations on agriculture production, income and diet related outcomes (several)
- Impact on wasting and anemia (Olney et al 2012)
- No impact on stunting
- Markets seem to play a counter-intuitive role (Headey and Hoddinott 2014)
- Ambiguous impacts of women's time allocation on child nutrition (Johnston et al 2015)
- Better data, methods, metrics and analytics urgently needed

### 3. INNOVATIONS IN EVIDENCE GENERATION

- Stepping out of disciplinary comfort zones
  - From evaluating homestead food productions to livestock and dairy value chains; innovative agriculture extension systems for nutrition
  - From subsistence based agriculture rural models to food systems based models in rapidly transforming contexts
  - Embracing environmental fragility/change and what this means for nutrition and vice-versa
- Development, testing and validation of innovative conceptual frameworks, methods and metrics
  - Innovative Methods and Metrics for Agriculture and Nutrition Action (IMMANA)

## 3.1. IMMANA

To accelerate the development of a robust scientific evidence base needed to guide policy investments in agriculture for improved nutrition and health:

1. Engage with the research community to stimulate development of innovative methodological approaches and novel metrics (competitive research grants)
2. Train young researchers in developing and applying cutting-edge methods (early career research fellowships)
3. Facilitate a global research network to strengthen interdisciplinary dialogue, sharing and learning for evidence-based policy making and programme design (Agriculture, Nutrition and Health Academy)

[www.lcirah.ac.uk/immana](http://www.lcirah.ac.uk/immana)



## ANH Academy activities

- An Annual Academy Week
- Technical Working Groups
- A virtual platform for interaction
- Face-to-face and online learning and sharing events

[www.ANH-Academy.org](http://www.ANH-Academy.org)

## The 1<sup>st</sup> ANH Academy Week

- 20-24 June 2016 in Addis Ababa
- Approximately 300 participants from 32 countries
- 2 days of face-to-face learning labs
- 3 day research conference

## The 2<sup>nd</sup> ANH Academy Week

Kathmandu, July 9<sup>th</sup>-13<sup>th</sup>, 2017

Call for abstracts now open



**CONCEPTUAL, METRICS AND DATA NEEDS:  
*SOME EXAMPLES OF TACKLING THE GAPS***



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## FOOD SYSTEM RELEVANT CONCEPTS, DEFINITIONS AND METRICS: SOME EMERGING TOPICS

- ANH Academy Working Groups:
  - Adapting concepts, frameworks and metrics applied in HICs in LMICs
  - Sustainable diets
    - Power, influence, values, context
    - Lag in cause and effect
    - Geospatial and temporal scales
  - Food environments
    - Static community environments to dynamic activity space
    - What constitutes “personal environment”?
  - Food safety

**What is  
food  
environment?**



Research motivated by obesogenic environments in high income countries with formal food markets

## WHAT IS FOOD ENVIRONMENT?

- Is it just another way of saying “food systems”?
- Is it a *part* of the food system?
- Is the *interface* between the food system and the consumer?
- Is it an *outcome* of the food system?
- At what level is this concept applicable?
  - Macro (global, national)
  - Meso (community/neighborhood; schools, workplaces etc)
  - Micro (household, individual levels)
- Myriad conceptualizations

## SOME LIMITATIONS IN CURRENT CONCEPTUALIZATION FOR LMICS

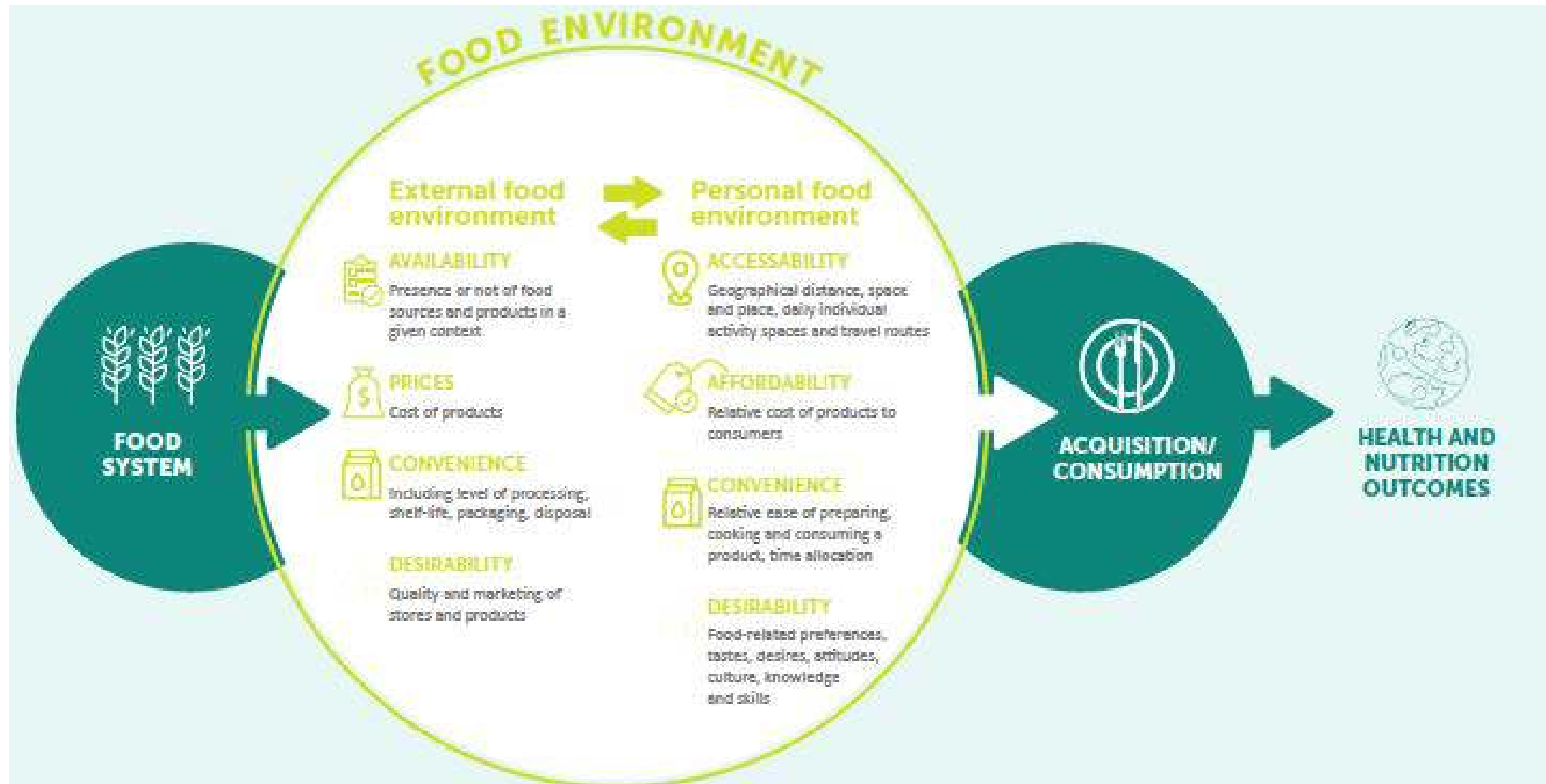
1. Issues defining community in a rapidly urbanizing context
2. Do not account for
  - personal perceptions
  - informal sources of foods
  - socio-spatial mobility and exposure

## ANH-ACADEMY FE WORKING GROUP DEFINITION

*“The food environment is the interface that mediates the acquisition of foods to consumers within the food system, influenced by physical, economic and socio-cultural domains that shape aspects such as the availability, accessibility, affordability, desirability and convenience of food sources and products.”*



# OPERATIONALIZING FOOD ENVIRONMENT: DIMENSIONS



## “CONVENTIONAL” NUTRITION MEASURES STILL SUFFER FROM METRICS AND DATA PROBLEMS: DIETS

- Coverage and quality of data on food consumption patterns, trends, and dynamics remains poor
- Diet quality metrics beyond dietary diversity needed
  - Caloric and nutrient density, safety
  - Relationship between metrics of food diversity and quality in food system domains with diversity and quality of diets consumed



**IN CONCLUSION ...**



## SUMMARY

- Low quality are the key modifiable risk factor for morbidity and mortality
- We need to demand much more of our agri-food systems to promote health
  - Diet quality is not even an SDG goal!
- We need better tools in our tool box:
  - Better frameworks, data, methodologies and metrics to assess trade-offs, synergies, impacts and pathways should continue to be developed





PHOTO: C.TURNER