



# Monitoring of Food Affordability and Diet Quality

Anna Herforth, Ph.D.

UC Davis World Food Center

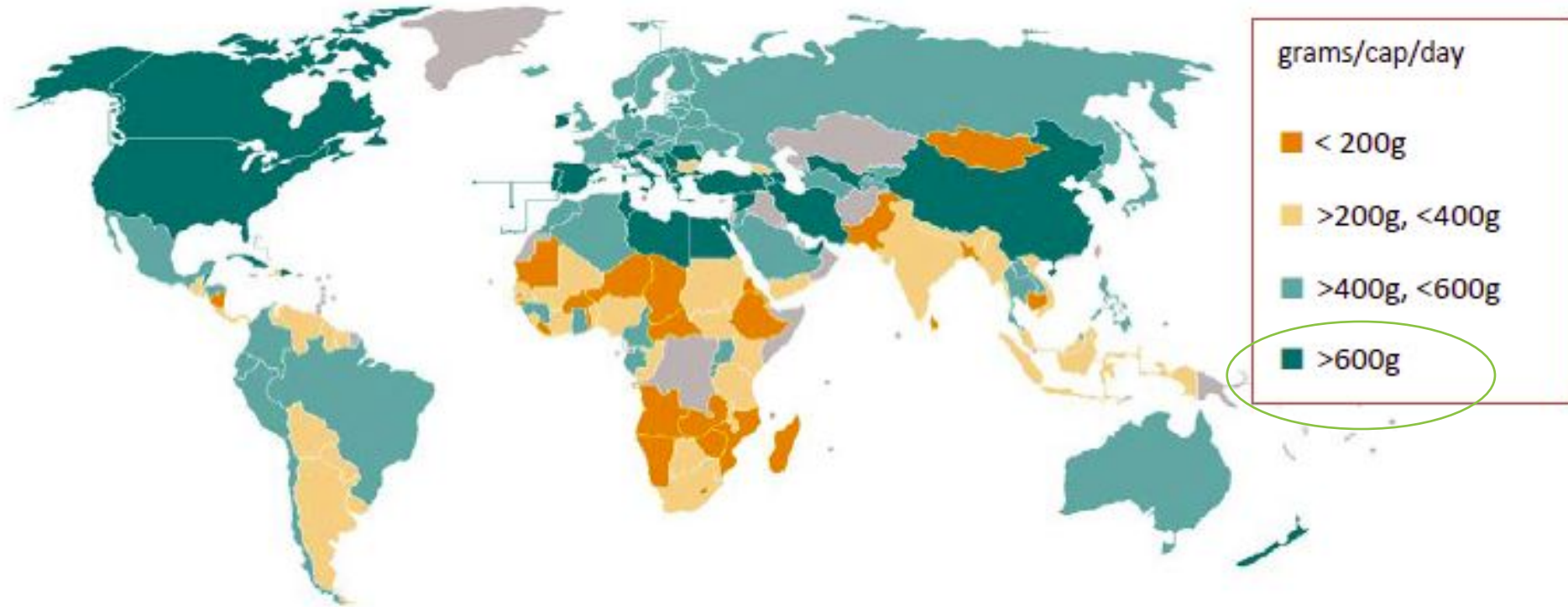
June 3, 2017



# Problems

- Dietary risks are the number one risk factor within the global burden of disease, and including within “developing” countries.
- By 2020, it is estimated that nearly 75% of deaths and 60% of DALYs will be attributed to NCDs, mostly due to dietary or diet-related causes (Lim et al., 2012).
- It is possible for everyone to eat enough calories, but impossible for everyone to eat healthy diets.

**Figure 2.7 Fruit and vegetable supply per capita, 2009**

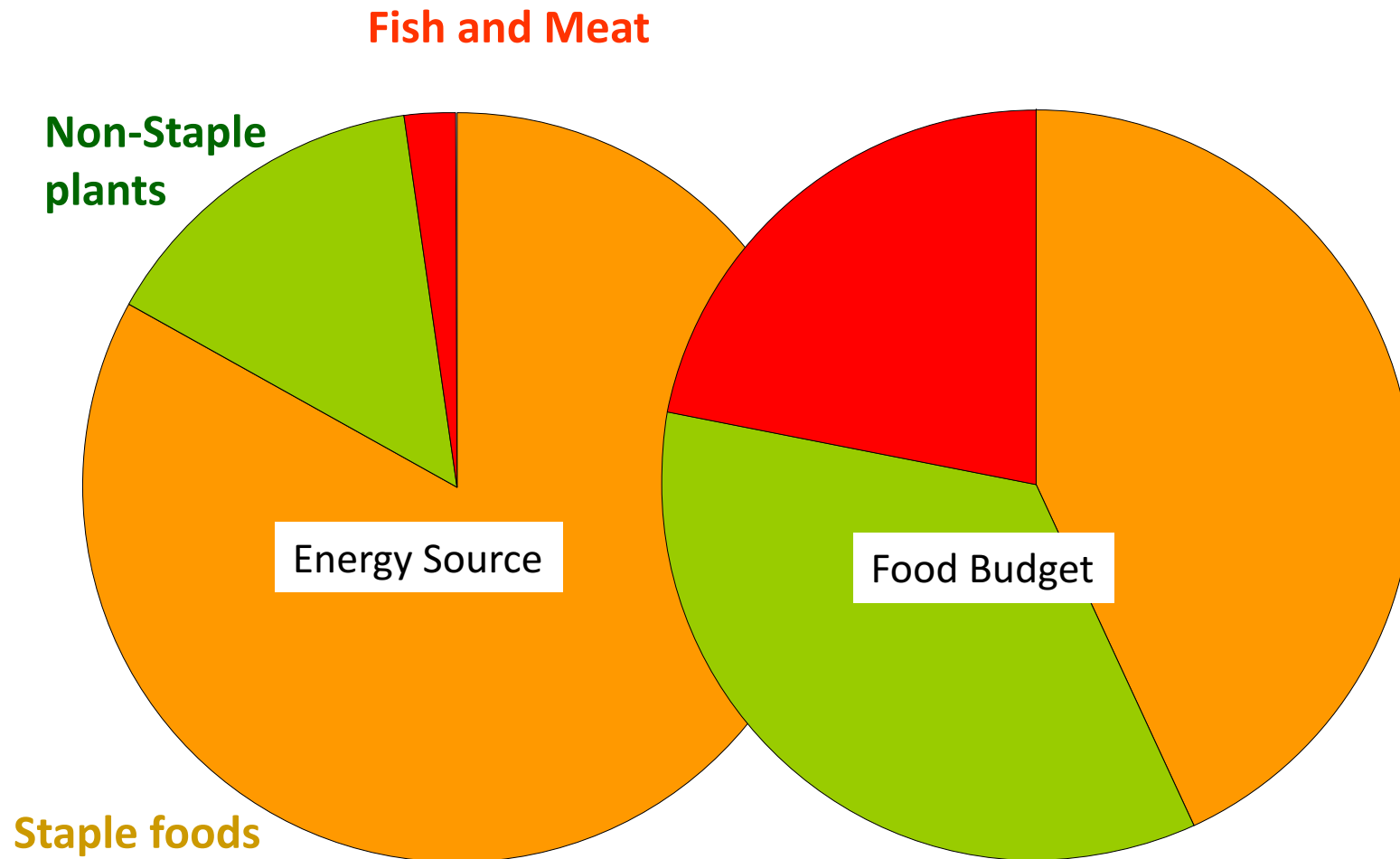


*Source: FAOSTAT. Map from Wikimedia commons.*

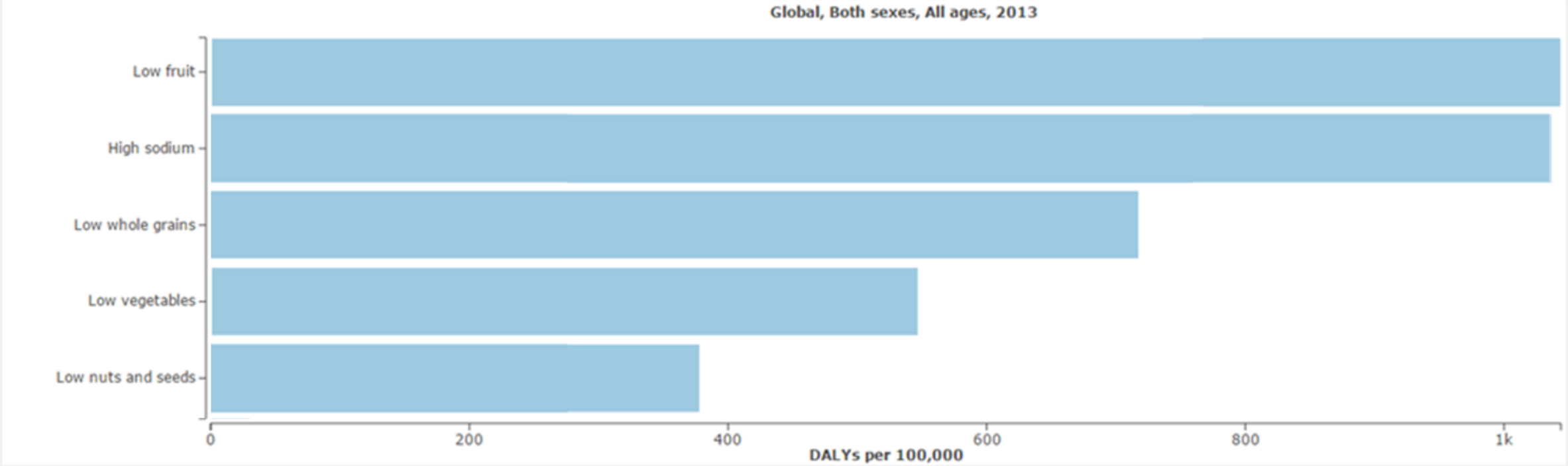
*Note: FAO database contains small island states not visible at this resolution.*

Source: Keats and Wiggins 2014; 2009 data from FAOSTAT

# Affordability



# Top dietary problems globally

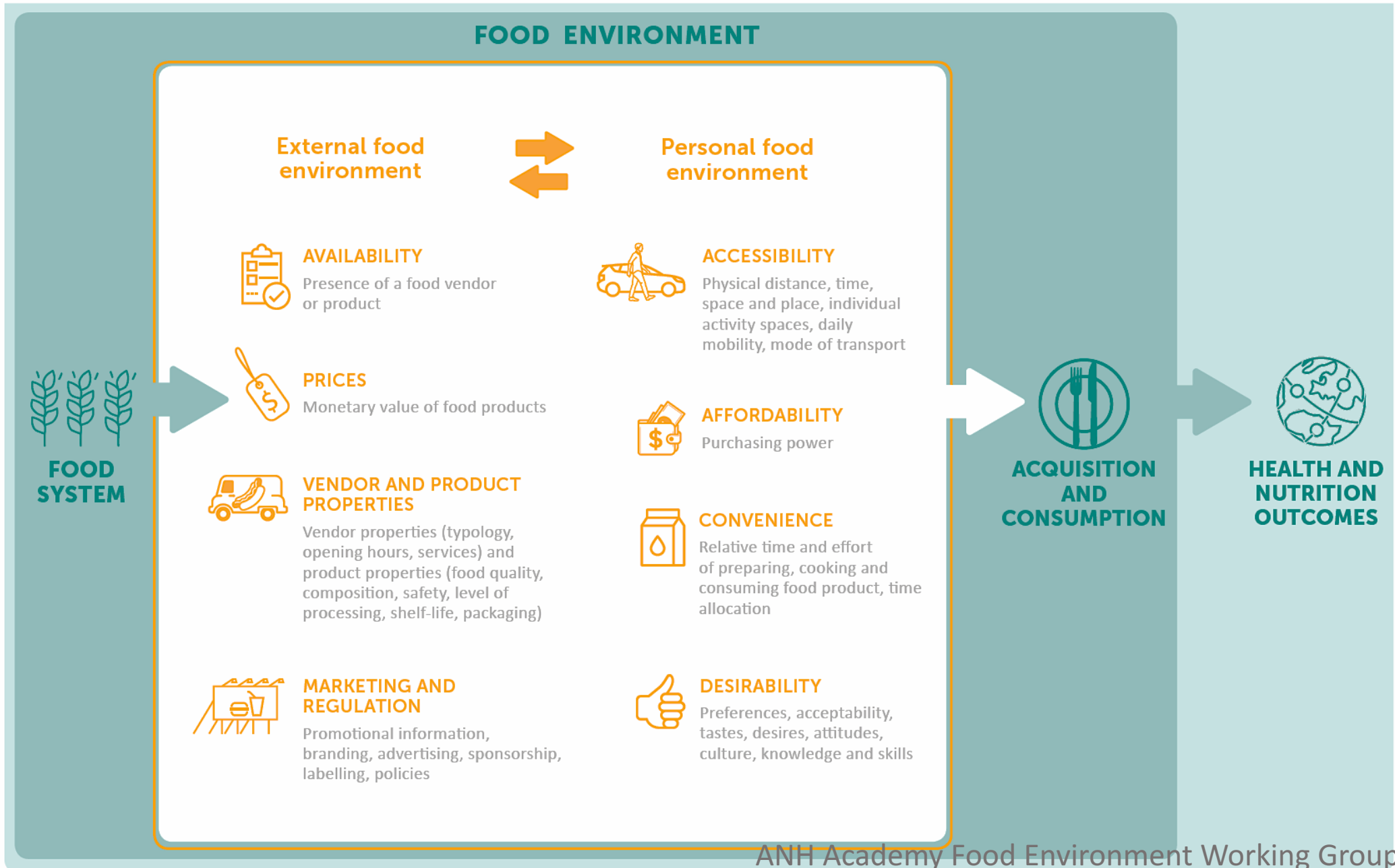


Source: Global Burden of Disease Study, GBD-compare tool

# Food environment

The interface between food systems and diets, encompassing the range of foods available, affordable, convenient, and desirable to people.

Figure 3: The ANH-FEWG food environment conceptual framework





South Texas, USA. Washington Post 11/9/2013



Roma Ostiense - A Herforth

Howrah, Calcutta - A Herforth

Off the menu





Photo: Anna Herforth, at Nsawam market, Ghana



# CFS vision

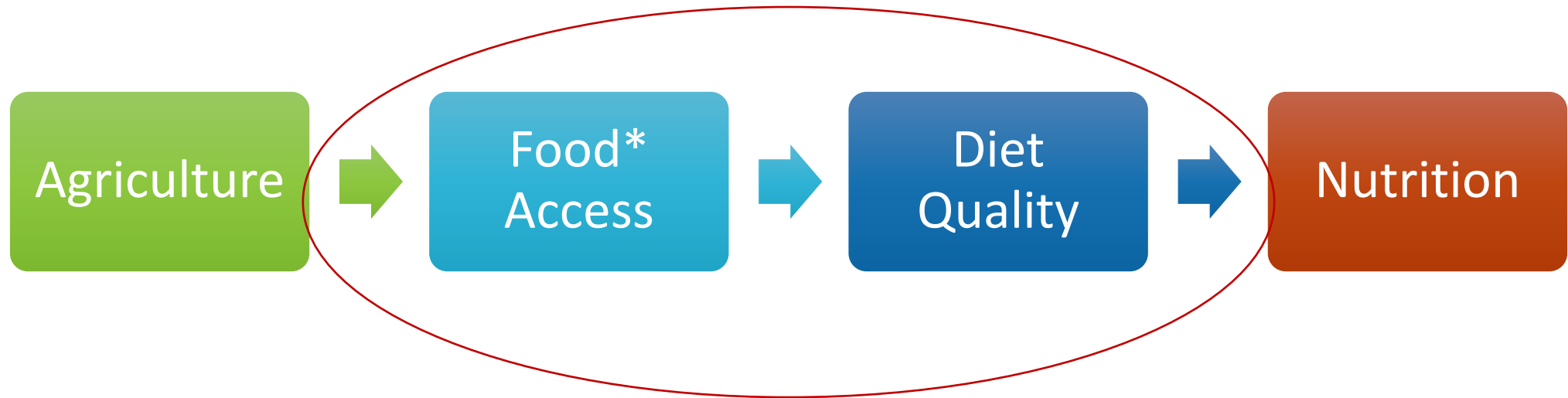
*A world free from malnutrition in all its forms,  
where all people at all stages of life and at all times have  
access to adequate food and enjoy diversified, balanced and healthy diets  
for an active and healthy life.*

Needs to be reflected in food metrics

Measure the change you wish to see in the world.

*-not Gandhi*

# Existing metrics are inadequate



*\*Nutritious food to meet dietary needs*



KEY RECOMMENDATIONS FOR  
**IMPROVING NUTRITION THROUGH  
AGRICULTURE AND FOOD SYSTEMS**



**1**

**Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious and safe foods through environmentally sustainable production, trade, and distribution.**

The focus needs to be on horticulture, legumes, and small-scale livestock and fish – foods which are relatively unavailable and expensive, but nutrient-rich – and vastly underutilized as sources of both food and income.

**2**

**Monitor dietary consumption and access to safe, diverse, and nutritious foods.** The data could include food prices of diverse foods, and dietary consumption indicators for vulnerable groups.

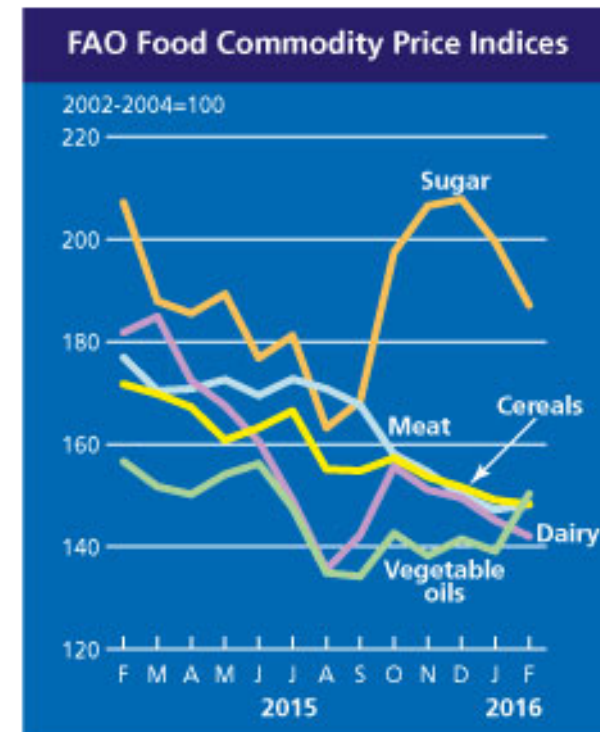
# “Food Prices”

- Usually reflect either starchy staples, or a basket of foods most often purchased
- **Does not mean the price of foods that human beings need to have adequate nutrition or thrive.**



30 | January 2016

he Market Monitor



# Needed: Food prices that reflect nutritious diets

- Agriculture and food systems can make nutritious diets more available and affordable.
  - But, governments and projects have no information system that tracks prices of nutritious foods.
- Countries can use existing food price monitoring systems better to understand availability and prices of nutritious foods.
- International agencies could monitor these across countries.

# Indicators of Affordability of Nutritious Diets in Africa (IANDA)

- Tufts University, University of Ghana, Sokoine University (Tanzania), Johns Hopkins University
- Funded by an IMMANA grant (DFID)
- **Goal: To use existing food price data systems to monitor the affordability of nutritious diets**



# MoFA in Ghana

- Has a mandate to monitor and ensure food security
  - Agreed: This mandate extends to nutritious food.
- Tracks food prices regularly in 164 markets in all districts
  - Missing: several important nutritious foods in Ghanaian diets
- Piloted an expanded food list
- Decision: scale up nationwide, to enable tracking of prices of nutritious diets.



MoFA enumerator  
collecting food price  
data

Visiting markets with  
Ghana Ministry of  
Food and  
Agriculture staff



# Ghana as a pioneer

- This process could be replicated in other countries, based on existing data collection systems.
- Relevance: The price of **nutritious** food can be used to inform programs and policy.
  - Most expensive (limiting) food groups, and foods most important to nutrient adequacy, can be prioritized in programs and policies.

# Indicators Developed

- Indexes:
  - Cost of a Diverse Diet (CoDD)
  - Nutritious Food Price Index (NFPI)
- Absolute cost:
  - Cost of Nutrient Adequacy (CoNA)
  - Cost of a Recommended Diet (CoRD)

# What is a “Recommended Diet”?

- No global dietary guidelines.
- Scaling up: Using national FBDGs would take significant time to create a different indicator for each country/region, and would limit international comparability.
- Are there any universal recommendations we could use?

- Diet: the #1 risk factor within the global burden of disease
- Yet no indicators of **diet quality** are tracked across countries.
  - Nor within most countries.

# Existing sources of dietary data?

- DHS and MICS
  - Only young children age 6-23 months, & only in 60 countries
- Household Consumption and Expenditure Surveys (HCES)
  - No individual-level data
  - Highly variable
- National dietary intake surveys
  - Best case scenario: NHANES, collected every year, nationally representative sample
  - Existing data being compiled by GIFT and GDD
- WHO STEPS survey
  - May not be representative or consistently carried out by countries
  - Countries do not always share data
- *None are immediately feasible or satisfactory to fill the data gap!*

# Proposal to develop a new Diet Quality module in the Gallup World Poll

- In 2005, Gallup launched the World Poll to collect high-quality data worldwide with a consistent methodology that allows Gallup to annually cover at least 98% of the population over age 15.
- Nationally representative surveys in >160 countries
- Allows for comparisons across countries, trends over time, and understanding differences by gender, age, and income level
- Gallup World Poll successfully implemented FIES for the last two years
- Team
  - Andrew Rzepa, Pablo Diego-Rosell, Anna Herforth, Terri Ballard, Patrick Webb
  - Advisory board



# Desired characteristics of a diet quality module

- Reflective of the most critical pieces of diet quality across countries
- Covers both adequacy and protection against diet-related disease
- Standardized and comparable across cultures
- Simple to administer and score
  - doesn't require intensive analysis such as conversion of foods to nutrient content
- Easily interpretable


# Goal / Premise

- We are not seeking to measure diet quality comprehensively.
- Rather, we seek indicators that give a strong indication of diet quality.

# What are healthy diets - review

- What should cross-culturally valid diet quality indicators measure?
  - International dietary guidance
  - National food-based dietary guidelines
  - Diet patterns used frequently in literature
    - e.g. DASH, Mediterranean
  - Global Burden of Disease study

GALLUP®

2016  
 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC

## Seeking Indicators of Healthy Diets

It Is Time to Measure Diets Globally. How?

# WHO: Healthy Diet Fact Sheet

- A healthy diet protects against malnutrition in all its forms
  - Includes adequacy, and protection against diet-related NCDs.
- Fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice).
- At least 400 g (5 portions) of fruits and vegetables a day.
- Limits on free sugars, fats (especially trans fats and saturated fats), and salt.
  - These are often found in ultra-processed foods --> Low in healthy diets.

# FBDGs

- 88 countries
  - Europe 33
  - North America 2
  - Near East 4
  - Latin America and the Caribbean region 27
  - Asia and the Pacific 16
  - Africa 6

Food and Agriculture Organization of the United Nations

About FAO | In Action | Countries | Themes | Media | Publications | Statistics | Partnerships

العربية 中文 English Français Русский Español

## Food-based dietary guidelines

Background Regions Resources Capacity development

Food-based dietary guidelines (also known as dietary guidelines) are intended to establish a basis for public food and nutrition, health and agricultural policies and nutrition education programmes to foster healthy eating habits and lifestyles. They provide advice on foods, food groups and dietary patterns to provide the required nutrients to the general public to promote overall health and prevent chronic diseases.

FAO assists Member Countries to develop, revise and implement food-based dietary guidelines and food guides in line with current scientific evidence. FAO also carries out periodic reviews on progress made in the development and use of dietary guidelines, tracking changes in their overall focus and orientation. More than 100 countries worldwide have developed food-based dietary guidelines that are adapted to their nutrition situation, food availability, culinary cultures and eating habits. In addition countries publish food guides, often in the form of food pyramids and food plates, which are used for consumer education [Read more](#)

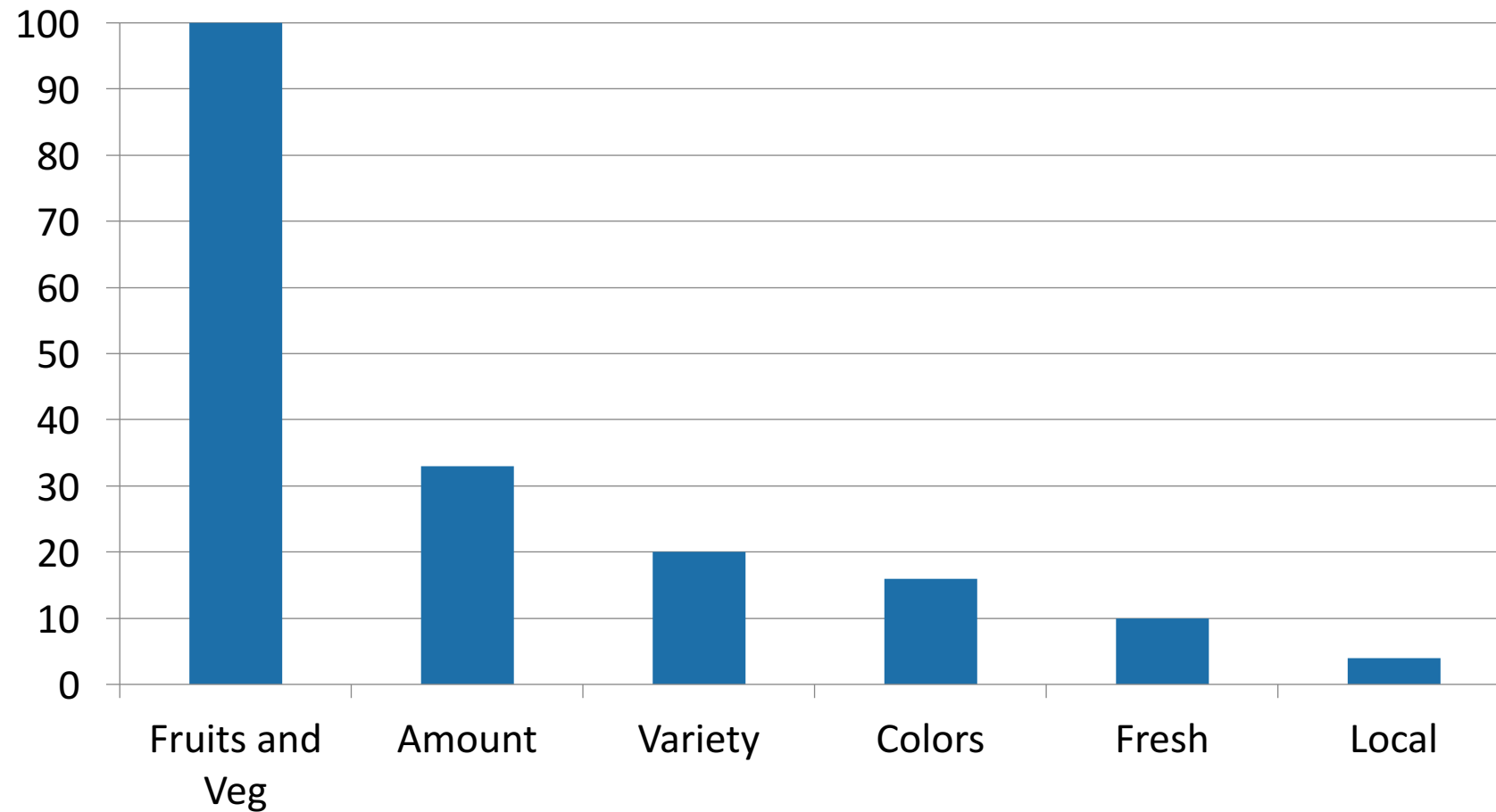
Please note that individual country pages are only available in English.

Africa	Europe	Latin America and the Caribbean	Latest publications
<ul style="list-style-type: none"><li>Benin</li><li>Namibia</li><li>Nigeria</li><li>Seychelles</li><li>South Africa</li></ul>	<ul style="list-style-type: none"><li>Albania</li><li>Austria</li><li>Belgium</li><li>Bosnia and Herzegovina</li><li>Croatia</li><li>Cyprus</li><li>Denmark</li><li>Estonia</li><li>Finland</li><li>France</li><li>Georgia</li><li>Germany</li><li>Greece</li></ul>	<ul style="list-style-type: none"><li>Antigua and Barbuda</li><li>Argentina</li><li>Bahamas</li><li>Barbados</li><li>Belize</li><li>Brazil</li><li>Chile</li><li>Colombia</li><li>Costa Rica</li><li>Cuba</li><li>Dominica</li><li>Dominican Republic</li><li>El Salvador</li></ul>	<p><b>Plates, pyramids, planet</b> Developments in national healthy and sustainable dietary guidelines: a state of play assessment</p> <p><b>Plates, pyramids, planet.</b> Developments in national healthy and sustainable dietary guidelines: a state of play assessment</p>

# Most common messages across countries

- Consume fruits and vegetables (95% of countries in key messages; 100% of countries in graphic images)
- Limit consumption of:
  - salt (70%)
  - various fats/ fatty foods (63%)
  - sugars (51%)
- Few countries specified recommended amounts of “protein foods” or necessary types (substitutable)

# Guidance on fruit and vegetable consumption



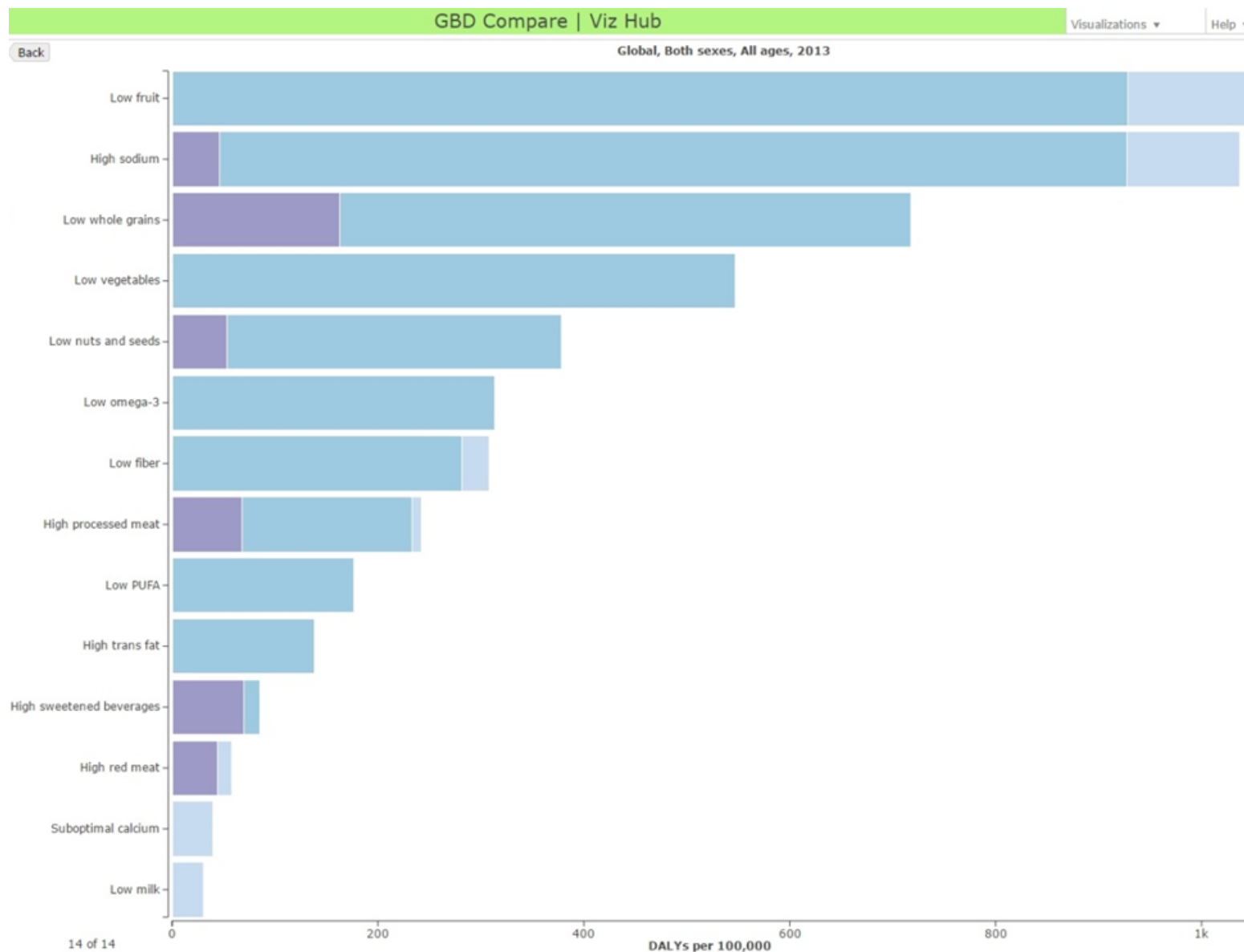
Source: Arimond et al., in preparation

# GDD and GBD

- The Global Dietary Database (GDD)
  - compiles over 1,000 dietary intake surveys from 178 countries
  - Provides the dietary data for:
- Global Burden of Disease (GBD) study
  - started in 1990
  - aims to determine comparable cross-country, regional and global estimates of the burden of diseases, injuries and risk factors

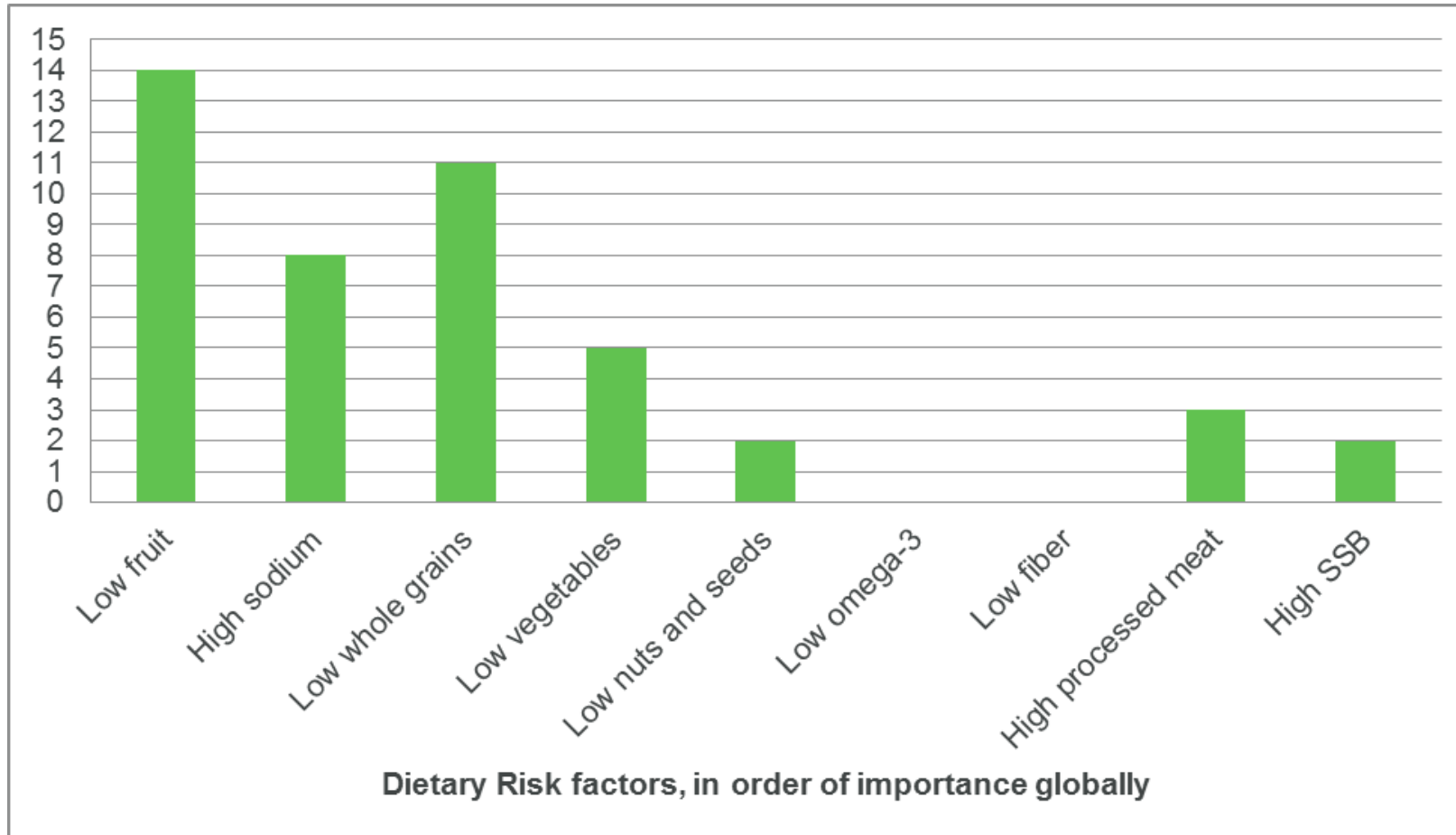


# Dietary risk factors globally, all ages



Source: GBD-compare tool

Number of regions where each global dietary risk factor is one of the top three dietary risk factors in-region



# Hope for cross-cultural validity

- “The exact make-up of a diversified, balanced and healthy diet will vary depending on individual needs (e.g. age, gender, lifestyle, degree of physical activity), cultural context, locally available foods and dietary customs. But **basic principles of what constitute a healthy diet remain the same.**”
  - WHO Healthy Diets Fact Sheet

# Summary of dietary guidance around the world

- **Emphatic:**
  - **Eat an abundant variety of fruit and vegetables.**
  - **Do not eat ultra-processed foods, including SSBs, processed meats and salty and sugary snacks.**
  - **Do not eat industrially-produced trans fats (in margarine or processed foods).**
- Advice that comes up in most guidance and evidence includes:
  - Eat whole grains.
  - For fats and oils, use unsaturated vegetable oils.
- What to do about protein:
  - Legumes and nuts are highly recommended; fish is highly recommended nutritionally but not environmentally feasible for all; milk/yogurt is generally positive depending on lactose tolerance and food culture; little to say about eggs and unprocessed poultry; unprocessed red meat is generally negative; and processed meats are not advisable.





Source: *In Defense of Food*, M Pollan



Food and Agriculture  
Organization of the  
United Nations

FCRN |   
Food Climate Research Network

## Plates, pyramids, planet

Developments in national healthy and sustainable dietary guidelines: a state of play assessment

# Principles of sustainable diets

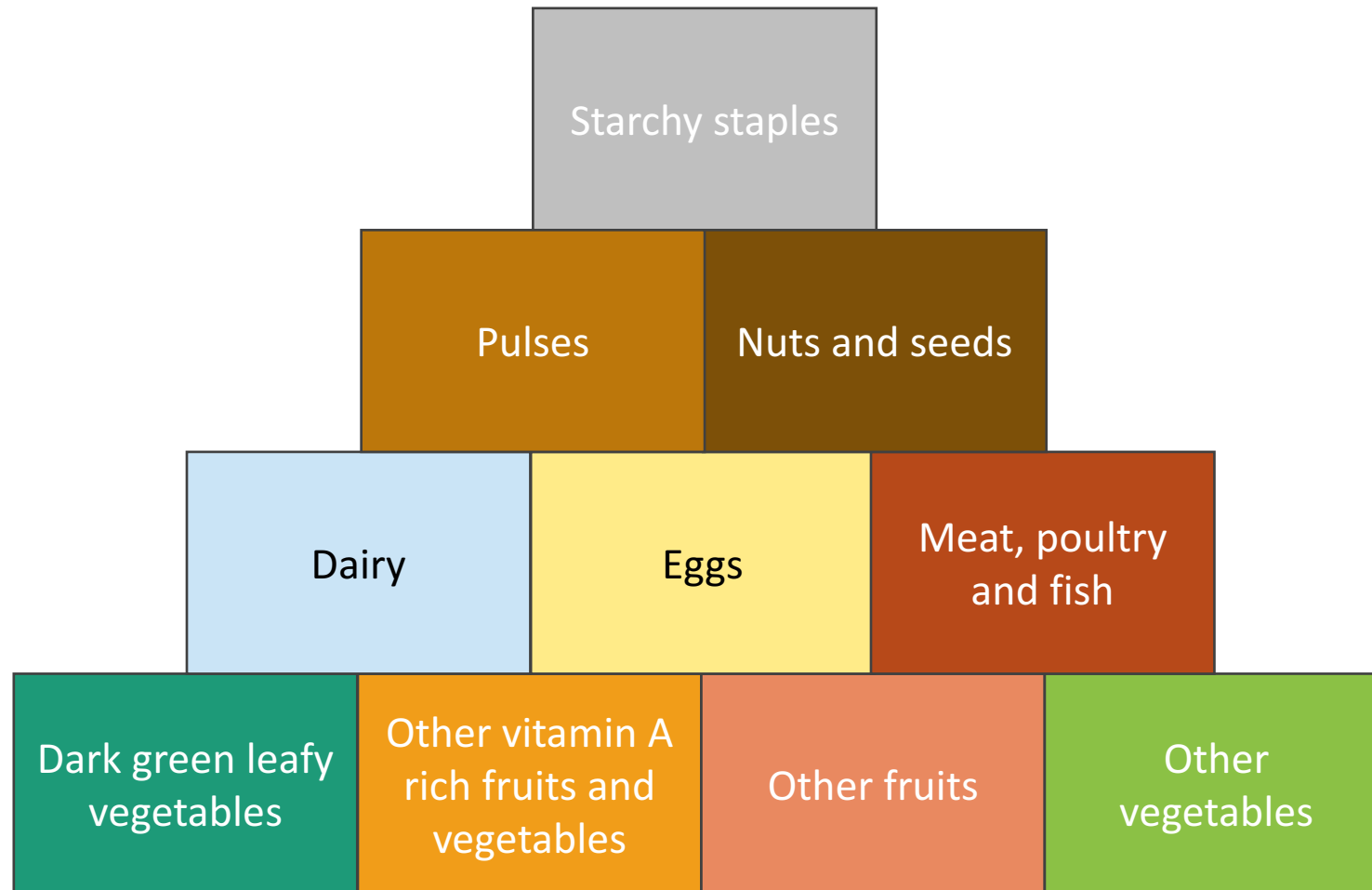
- **Diversity**
- **Based on minimally processed tubers and whole grains, legumes, fruits and vegetables, seeds and nuts**
- Meat, if eaten, in moderate quantities and all animal parts consumed
- Dairy products or alternatives eaten in moderation
- Small quantities of fish and aquatic products sourced from certified fisheries
- **Very limited consumption of foods high in fat, sugar or salt and low in micronutrients (i.e. ultra-processed foods)**
- Tap water in preference to other beverages

# Proposed dietary elements to measure

- Health-Protective Diet
  - Indicator to be developed based on:
    - Consumption of fruits and vegetables
      - AND/OR plant foods in general, including fruits, vegetables, whole grains, legumes and nuts
    - Consumption of ultra-processed foods
- Adequacy
  - Use established indicator: MDD-W




# Minimum Dietary Diversity – Women (MDD-W)



# Summary: Diet Quality monitoring

- Proposal for a diet quality module to implement in Gallup World Poll
  - Would monitor diet quality in 160 countries
- Proposed elements of the module
  - Adequacy (through the MDD-W indicator)
  - Diet patterns that protect health
- Need support – SDC is funding half the cost

GALLUP®

2016  
 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC

## Seeking Indicators of Healthy Diets

It Is Time to Measure Diets Globally. How?

# Updates needed to current global food metrics

1. Food prices should reflect the price of what people need to eat
2. We need to start measuring diets across countries.
  - *Access to and consumption of healthy diets are core to shared vision for food*
  - *Without information, these areas are policy-invisible*