Global Trends in Food Security and Nutrition:
The importance of food system approaches to making progress

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Chronic Undernutrition: Stunting

161 million children U5 (25%)
Multiple Micronutrient Deficiencies
“Globesity”: Overweight and Obesity

2.1 billion people are overweight or obese
The Causes of Malnutrition are Multi-Factorial

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**Intergenerational consequences**

**Long-term consequences:**
- Adult height, cognitive ability, economic productivity, reproductive performance, overweight and obesity, metabolic and cardiovascular diseases

**Short-term consequences:**
- Mortality, morbidity, disability

Inadequate dietary intake

Diseases

**IMMEDIATE causes**

Inadequate care and feeding practices

Unhealthy household environment and inadequate health services

**UNDERLYING causes**

Household food security

Household access to adequate quantity and quality of resources: Land, education, employment, income, technology

**BASIC causes**

Inadequate financial, human, physical and social capital

Social cultural, economic and political context

Demand for animal foods is increasing
Sugar consumption from SSBs has increased

Duffey & Popkin(2008) AJCN 88(suppl):1722S
Ultra Processed Foods Are in High Demand

Dietary share of ultra-processed food consumption and obesity in middle income countries

\[ y = 10.894e^{0.017x} \]
\[ R^2 = 0.7157 \]
Dietary risks are the leading cause of disease burden.
Dietary habits are shifting

- **Higher income countries**: increased portion sizes, away from home consumption, snacking, and caloric sweetened beverages

- **Lower income countries**: increased intake of vegetable fats (edible oils) and animal source food changes, convenience, snacking and packaged food preferences are increasing

Food System Dynamics and Drivers: Need to think about other Systems

- Urbanization & changing food environments
- Climate variability & change
- Rapid degradation of natural resources
- Escalating population growth and density
- Increasing incomes
- Evolving ICT
- Shocks to systems

High burden of stunting – conflict countries top the list

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Stunting prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timor-Leste</td>
<td>2009–2010</td>
<td>58</td>
</tr>
<tr>
<td>Burundi</td>
<td>2010</td>
<td>58</td>
</tr>
<tr>
<td>Niger</td>
<td>2011</td>
<td>51</td>
</tr>
<tr>
<td>Madagascar</td>
<td>2008–2009</td>
<td>50</td>
</tr>
<tr>
<td>India</td>
<td>2005–2006</td>
<td>48</td>
</tr>
<tr>
<td>Guatemala</td>
<td>2008–2009</td>
<td>48</td>
</tr>
<tr>
<td>Malawi</td>
<td>2010</td>
<td>47</td>
</tr>
<tr>
<td>Zambia</td>
<td>2007</td>
<td>45</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>2011</td>
<td>44</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>2010</td>
<td>44</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2011</td>
<td>44</td>
</tr>
<tr>
<td>Pakistan</td>
<td>2011</td>
<td>44</td>
</tr>
<tr>
<td>Democratic Republic of Congo</td>
<td>2010</td>
<td>43</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2011</td>
<td>43</td>
</tr>
<tr>
<td>United Republic of Tanzania</td>
<td>2010</td>
<td>42</td>
</tr>
<tr>
<td>Liberia</td>
<td>2010</td>
<td>42</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2011</td>
<td>41</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>2010</td>
<td>41</td>
</tr>
<tr>
<td>Nigeria</td>
<td>2008</td>
<td>41</td>
</tr>
<tr>
<td>Nepal</td>
<td>2011</td>
<td>41</td>
</tr>
<tr>
<td>Guinea</td>
<td>2010</td>
<td>40</td>
</tr>
</tbody>
</table>

Note: The countries in bold are profiled beginning on page 56 of this report.
Sources: UNICEF 2013
“Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life.”

**Food and Nutrition Security**

- **Food Availability**
- **Food Access**
- **Food Utilization**

- Education and knowledge
- Culture and social influence
- Socioeconomic status
- Healthcare and health systems
- Environment and climate change
- Gender equality and women empowerment

stability
Improve the Quality of What is Available

A study of the world’s countries finds that over the last 50 years, diets have become ever more similar.

Each country’s food supply composition in contribution to calories in:
- 1961
- 1985
- 2009

A CENTURY AGO
In 1903 commercial seed houses offered hundreds of varieties, as shown in this sampling of ten crops.

80 YEARS LATER
By 1983 few of those varieties were found in the National Seed Storage Laboratory.


Source: Khoury et al 2014 PNAS; National Geographic 2011
Integration of Agriculture, Environment and Rural/Urban Development

Super vegetables

Long overlooked in parts of Africa, indigenous greens are now capturing attention for their nutritional and environmental benefits.

Improving multi-functional landscapes

Conserving and sustainable use of ecosystems and biodiversity

Engaging women

Source: Nature 2015
Increase **Accessibility to Nutritious Foods**

**Food Deserts**

**Cost of Diets**

- Popup markets and local markets
- Incentives to informal food sellers – street carts, bodegas, kiosks [vouchers]
- Link farmers to local social services – schools, clinics, etc.
- Food prices
- Increasing incomes...

Source: DSM Road to Hunger 2013; De Pee and Bloem 2010; USDA ERS 2014
Optimize **Utilization** of Nutrients: 
Farm to Flush

- Improve food safety
- Minimize infectious disease burden
- Avoid environmental enteropathy

Spears et al 2011 Plos One; Wild 2
Integration of WASH, Health & Food Systems
Promote Entry Points, Avoid Exit Points for Nutrition: Need for Innovation in FVCs

Maximize Nutrition “Entering” the Value Chain

- Improved varieties, bio-fortification strategies, livestock, insects
- Focus on women farmers, diversification
- Aflatoxin control, refrigeration
- Fermentation, Drying, fortification
- School feeding programs, ECD programs, extension, voucher schemes, targeting of vulnerable groups
- Messaging on the importance of nutrition, benefits of certain foods
- Home fortification with MNP (fish powders), Training in nutritious food prep, time management, food preservation

Minimize Nutrition “Exiting” the Value Chain

- Lack of access to inputs (seeds, fertilizer, extension)
- Lack of knowledge of improved varieties, nutritious crops
- Contamination, spoilage
- Nutrient losses during milling, combination with unhealthy ingredients
- “Nutritious food deserts”, export/import impacts on prices
- Advertising campaigns for unhealthy foods
- Lack of knowledge of nutrition, nutrient losses during food preparation

Input Supply | Production | Post Harvest Storage | Processing | Distribution | Marketing and Retail | Consumption & Food Utilization
---|---|---|---|---|---|---
Lack of access to inputs (seeds, fertilizer, extension) | Lack of knowledge of improved varieties, nutritious crops | Contamination, spoilage | Nutrient losses during milling, combination with unhealthy ingredients | “Nutritious food deserts”, export/import impacts on prices | Advertising campaigns for unhealthy foods | Lack of knowledge of nutrition, nutrient losses during food preparation
The Holy Grail: Changing the Demand
Thinking About Behavior Change: Choice and Preferences

Source: International Food Information Council Food and Health Survey, 2012
The Connectivity of the Food Environment
Each situation is different:
Know your local epidemiology
Who to Engage?

- **Primary age school kids**: Entry point to change tastes
- **Adolescent girls**: Social justice models: teenagers define the issues and solve the problems
- **Parents (both men + women)**: Income generators and caretakers of children
- **Elderly**: Engage grandmothers – trusted and respected
- **Movements**: Great on advocacy, poor on science. Build an informed grassroots movement
- **Champions?**
Creating Champions

• Hollywood, Bollywood, Nollywood!
• First Ladies – Michelle Obama’s Lets Move is worthy
• Athletes – Imagine if we got LeBron James to talk about nutrition...
• Our own “Ice bucket” challenge?
Accountability & Good Nutrition Governance

Ethical and moral issue: how do we hold governments and other actors accountable for ensuring our food system is healthy, safe and equitable?

- **Policies:** Integrate environment goals into national dietary guidelines (Sweden, Brazil)
- **Taxes:** junk food, soda tax
- **Bans:** Ban “bad” foods/ingredients (ie trans fats), but ensure no harm...
- **Labels:** Easy to understand labeling and ingredient list system to better inform consumers
- **Protect:** Mandate to ensure citizens don’t go hungry – better social protection and food safety net mechanisms
- **Trade-offs and “Doing No Harm”**: Consider trade-offs of food policies [palm oil, grass fed beef etc]
Global Change: The Post 2015 Agenda

Global goals do matter

SDG2, 12 relate to food, agriculture, nutrition, & sustainability

What indicators are essential?
On Sustainability

“The future is certain but the end is always near…”

Source: Tilman and Clark Nature 2014
Sustainable Diets

“I already don’t understand what I am supposed to eat, now you want me to think about the planet’s health too?”

In High Income Countries

• Easy messages
• “Eat real food. Mostly plants. Not too much.” -- Pollan
• Minimize food waste
• Don’t just watch cooking on TV, cook in your own kitchen...
• Edible insects?

In Low Income Countries

• Fuel efficient cookstoves & ware
• Minimize food loss
• Agro-processing to enhance nutrients, preserve foods for storage
Thank you!

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