Estimated contributions of selected factors to change in stunting (HAZ)

**Short Term:**
- Mortality, Morbidity, Disability

**Long Term:**
- Intellectual ability, economic productivity, reproductive performance, NCDs
Nutrition-sensitive Interventions

• Social safety nets
• Water, Sanitation and Hygiene
• Agriculture & Food Security
• Women’s Empowerment
• Early childhood development
• Adult education
• Governance
Estimated contributions of selected factors to change in stunting (HAZ)

Heady et al, MCN, 2016
Types of social transfer and their impact pathways on nutrition

<table>
<thead>
<tr>
<th>Objective</th>
<th>In-kind transfers</th>
<th>Near-cash transfers</th>
<th>Cash transfers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate causes</td>
<td>School meals</td>
<td>Food vouchers</td>
<td>Cash transfers</td>
</tr>
<tr>
<td></td>
<td>Take-home rations</td>
<td></td>
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<tr>
<td></td>
<td>Food transfers</td>
<td></td>
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<tr>
<td></td>
<td>Food-for-work (*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underlying causes</td>
<td>Agric input distribution</td>
<td>Asset/input vouchers</td>
<td>Cash-for-work (*)</td>
</tr>
<tr>
<td></td>
<td>Livestock transfers</td>
<td></td>
<td>Lump sum grants</td>
</tr>
<tr>
<td>Basic causes</td>
<td>[School meals]</td>
<td>Health fee waivers</td>
<td>Cash transfers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Educational stipends</td>
<td></td>
</tr>
</tbody>
</table>

Increasingly relying on markets

Freeland and Cherrier, DFAT, 2015
Linkages between WASH and Nutrition

1. Water source far from home
2. Inadequate storage
3. Water pricing
4. Low water quantity
5. Unimproved sanitation
6. Poor hand-washing
7. Faecal contamination of home
8. Nematode infection
9. Environmental Enteropathy
10. Diarrhea
11. Poor water quality
12. Poor nutritional status
13. Unprotected water source
14. Less time for food preparation
15. High amount spent on water
16. Less money for food

Source: O. Cumming, London School of Tropical Medicine and Hygiene, 2013
How Does Agriculture Affect Nutrition?

**Food Consumed**
- Calories
- Protein
- Micronutrients

**Income Invested in...**
- Diverse diet, nutrient-rich foods
- Health care
- Sustainable livelihood for year-round food and health care access

**Gender in Agriculture**
- Maximizing women’s control of income
- Managing time and energy demands
Primary Pathways Linking Agriculture and Nutrition

Key components of the enabling environment:
- Food market environment
- Natural resources
- Health, water, and sanitation
- Nutrition/health knowledge and norms

MULTI-SECTORAL NUTRITION STRATEGY | GLOBAL LEARNING AND EVIDENCE EXCHANGE | ASIA REGIONAL MEETING
Agriculture as it affects gender

Control over assets and use of income

• Women’s control lead to better diets for women and children

Time Use & Child Care

• Tension between earning income and caring for child

Female Energy Expenditure

• Physical work compromises pregnancy and lactation nutrition
Agriculture as a source of Food: Homestead Food Production

- Producer households are more likely to consume a diversity of foods grown than non-producing households.
- Home production is associated with better household and women’s dietary diversity.
- Production decisions are influenced by market prices, relative costs and risks, productive assets, preferences and cultural norms.
- Processing and storage impact food access and nutrient content.
Agriculture as a source of Food: Processing and Storage

- Micronutrient Fortification
- Good management, processing and storage can increase food access and reduce stunting
- Occupational risks:
  - E.coli and Salmonella in agricultural wastewater, open markets
  - Increased malaria where water is stored or standing
  - Risks in value chains (e.g., zoonoses)
Agriculture as a source of Income

- Improved year-round income and cash flows to meet household needs, including diverse, nutritious foods, and health care
- Assumes nutritious foods and health services are accessible – reflects the importance of generating demand and need for nutrition behavior change
Agriculture as a source of income

- Income correlated with stunting reduction at macro level, but evidence at micro level is sparse.
- Increased obesity in rural areas.
- Household income correlated with household dietary diversity, especially for female-headed households.
- Role of non-agricultural income during lean season.
- Correlation between income and diet diversity, but not evidence of effects on nutrition at household and individual level.

Patrick Webb, and Steven Block PNAS 2012;109:12309-12314
Enabling Environment

Reminder!

The pathways are:
• Complex
• Context-specific
• Do not affect everyone equally
• Behavior change and systems strengthening, essential
## Food Systems

<table>
<thead>
<tr>
<th>Food groups</th>
<th>Country wealth category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low income (n=1412)</td>
<td>High income (n=1124)</td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>-0.72 (-0.77 to -0.66)</td>
<td>-0.53 (-0.59 to -0.48)</td>
</tr>
<tr>
<td>Meat</td>
<td>-0.78 (-0.83 to -0.73)</td>
<td>-0.60 (-0.66 to -0.54)</td>
</tr>
<tr>
<td>Fish</td>
<td>-0.80 (-0.85 to -0.74)</td>
<td>-0.61 (-0.67 to -0.55)</td>
</tr>
<tr>
<td>Dairy</td>
<td>-0.78 (-0.84 to -0.73)</td>
<td>-0.60 (-0.66 to -0.54)</td>
</tr>
<tr>
<td>Cereals</td>
<td>-0.61 (-0.66 to -0.56)</td>
<td>-0.43 (-0.48 to -0.36)</td>
</tr>
<tr>
<td>Fats and oils</td>
<td>-0.60 (-0.65 to -0.54)</td>
<td>-0.42 (-0.48 to -0.35)</td>
</tr>
<tr>
<td>Sweets, confectionery, and</td>
<td>-0.74 (-0.82 to -0.65)</td>
<td>-0.56 (-0.65 to -0.48)</td>
</tr>
<tr>
<td>sweetened beverages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>-0.95 (-1.01 to -0.90)</td>
<td>-0.77 (-0.83 to -0.71)</td>
</tr>
<tr>
<td>All food groups combined</td>
<td>-0.74 (-0.79 to -0.69)</td>
<td>-0.56 (-0.61 to -0.50)</td>
</tr>
</tbody>
</table>

Green et al, BMJ 2013
Food Systems

- Food availability
- Food composition
- Food supplementation and food assistance
- Nutrition & Health
- Agriculture
- Agriculture and food systems
- Technological change
- Education and behavior change
Key Principles

- Nutrition objective
- Target the nutritionally vulnerable
- Design by context
- Increase production of diverse, nutrient-dense foods & improve processing
- Activities sustain the natural resource base
- Coordinate multisectorally
- Empower women
- Incorporate nutrition behavior change communication
- Increase market access and opportunities for nutritious foods

M&E to capture and attribute impact
Conclusions

• Link nutrition-sensitive activities, outcomes, and indicators with nutrition-specific activities.

• Targeting of nutrition-sensitive interventions is key: know your context

• Overcome terminology gaps between sectors

• Role of gender is paramount

• A food systems approach is needed: sustainability, scaleability, cost-effectiveness