EXPLANATION OF THE GHI METHODOLOGY

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Presentation Flow

1. Introduction
2. Global Hunger Index
3. Alternative data
4. Conclusion and Conclusions
Introduction

Hunger
• Distress associated with lack of food
• Food deprivation, or chronic undernourishment
• Consumption of fewer than about 1,800 kilocalories a day

Food Insecurity – Issues of Availability, Accessibility, utilization and sustainability

Malnutrition – not having right amount of nutrients needed to maintain a healthy body

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What is GHI

- Refers to the index based on the four component indicators.
- Taken together the indicators reflect deficiencies in **calories** as well as in **micronutrients**.
Components and dimensions of GHI

Inadequate Food Supply
- Measures Inadequate food an important indicator of hunger
- Refers to the entire population both adult and children
- Used as a lead indicator for international hunger targets including SDG

Child Mortality
- Death is the most serious consequence of hunger and children are most vulnerable
- Improves the GHI’s ability to reflect micronutrient deficiencies
- Wasting and stunting only partly captures the mortality risk of under nutrition

Stunting and Wasting
- Goes beyond calorie availability and considers issues of diet quality and utilization
- Children particularly vulnerable to nutritional deficiencies
Estimating components of GHI

- Inadequate food supply
  - Percentage of population that is undernourished
- Child undernutrition:
  - Percentage of children under 5 years old suffering from wasting (low weight for height)
  - Percentage of children under 5 years old suffering from stunting (low height for age)
- Child mortality:
  - Percentage of children who die before the age of 5
Calculating GHI

**Step 1**

- **PUN**: proportion of the population that is undernourished (in %)
- **CWA**: prevalence of wasting in children under five years old (in %)
- **CST**: prevalence of stunting in children under five years old (in %)
- **CM**: proportion of children dying

**Step 2**

- Standardized PUN = \( \frac{\text{PUN}}{80} \times 100 \)
- Standardized CWA = \( \frac{\text{CWA}}{30} \times 100 \)
- Standardized CST = \( \frac{\text{CST}}{70} \times 100 \)
- Standardized CM = \( \frac{\text{CM}}{35} \times 100 \)

**Step 3**

\[
\frac{1}{3} \times \text{Standardized PUN} + \frac{1}{6} \times \text{Standardized CWA} + \frac{1}{6} \times \text{Standardized CST} + \frac{1}{3} \times \text{Standardized CM} = \text{GHI score}
\]
# DATA SOURCES FOR THE GLOBAL HUNGER INDEX COMPONENTS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Reference years</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of undernourished in the population</td>
<td>2014–16</td>
<td>FAO 2016 and authors' estimates</td>
</tr>
<tr>
<td>Percentage of wasting in children under five</td>
<td>2013/14</td>
<td>DHS</td>
</tr>
<tr>
<td>Percentage of stunting in children under five</td>
<td>2013/14</td>
<td>DHS</td>
</tr>
</tbody>
</table>
Trends in GHI Components

Undernourishment %

- 1991-1993
- 1999-2001
- 2001-2007
- 2014-2016

Wasting %

- 1990-1994
- 1996-2002
- 2006-2010
- 2011-2015

Stunting %

- 1990-1994
- 1998-2002
- 2006-2010
- 2011-2015

Child Mortality %

- 1992
- 2000
- 2008
- 2015

Series 1
Series 2
How is each component Calculated?
**Undernourishment (IFPRI and FAO)**

- Insufficient food to meet dietary energy requirement
- Undernourishment = proportion of individuals in a population with DEC below the individuals’ respective DER
  - 2100 kcal/adult/day
- Consumption data collected in national consumption/expenditure surveys
Calculation of undernourishment

- In Zambia DEC is measured using food balance sheets compared to population – in the absence of food consumption data
- Food balance sheet used is 2013
  - 1930 kcal/caput/day in 2013
- Last FCS data available to FAO is 2003
  - Factored in inequality – Gini coefficient
- Zambia moved from 45.8% (2000-02) to 48% (2014-16)
Zambia’s ranking in adequate food supply

Source: FAO, IFAD & WFP, 2015
## Nutrition Component

<table>
<thead>
<tr>
<th>Index</th>
<th>Nutrition Challenge</th>
<th>Measure of Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Weight-for-height</td>
<td>Wasting (Acute Malnutrition)</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Height-for-age</td>
<td>Stunting (Chronic malnutrition)</td>
<td>&lt;20</td>
</tr>
</tbody>
</table>

- Z-score or SD score = \( \frac{\text{Observed Value} - \text{Median reference value}}{\text{Standard deviation of the reference population}} \)

**Observed Value – Median reference**

Standard deviation of the reference population
## Nutrition status and Malabo declaration targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1990</th>
<th>2001/2</th>
<th>2007</th>
<th>2014</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of stunted children</td>
<td>40</td>
<td>53</td>
<td>45</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Percentage of wasted children</td>
<td>5.1</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>-</td>
</tr>
</tbody>
</table>

Under 5 Mortality

Source: DHS 2013/14
What do other data say about hunger and Malnutrition in Zambia?
Self reported hunger: Evidence from IAPRI/CSO/MAL Survey

- RALS 2012 and 2015
  - 8839 rural agricultural households in 2012
  - 7934 rural agricultural households in 2015
  - Nationally representative
Households Reporting inadequate Food Provisions

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households without adequate food provisions</td>
<td>46.7</td>
<td>46.0</td>
</tr>
<tr>
<td>Households with adequate food provisions</td>
<td>53.3</td>
<td>54.0</td>
</tr>
</tbody>
</table>

Source: IAPRI/MAL/CSO 2015
Months of Inadequate Food Provisions

Source: IAPRI/MAL/CSO 2015
Percent of Households consumption of selected products in the last 24 hours

Source: IAPRI/MAL/CSO 2015
Conclusions…

- The GHI is a useful guide to:
  - Raise awareness of regional and country differences in hunger
  - Show progress over time
  - Highlight successes and failures in hunger reduction
  - Provide incentives to act and improve the international ranking
Way forward...

- Improving food security to ensure sufficient calories in the diet
  - Increasing agricultural productivity
  - Reduce post-harvest losses
  - Promote on-farm processing
  - Promote on-farm storage
  - Crop diversification to mitigate crop failure risk
  - Increase access to more land for smallholder households
Way forward…

- Sustained political commitment at the highest level
  - food security and nutrition at the top of the political agenda
  - creating an enabling environment for improving food security and nutrition
- Data availability for accurate measurement
  - food consumption data
- Align interventions towards the 2030 agenda for sustainable development
  - renewed commitment to end hunger and global poverty by 2030
  - SDG goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
Thank you for your Attention

The threshold for undernourishment is 80, based on the observed maximum of 76.5 percent; the threshold for child wasting is 30, based on the observed maximum of 26.0 percent; the threshold for child stunting is 70, based on the observed maximum of 68.2 percent; and the threshold for child mortality is 35, based on the observed maximum of 32.6 percent.