The Cost of Hunger in Africa
Social and Economic Impact of Child Undernutrition

Initial Brief of Results of Pilot Studies

February 2012
RATIONALE FOR THE COST OF HUNGER

Solid recent growth performance across Africa

But given widespread undernutrition on the continent…

• Foregone growth possibilities?
• Additional losses in the future?

What has been lost so far?

What could be lost in the future?

Good understanding of individual- and community-level impacts of hunger

Little known about aggregate impacts, especially impacts on growth
This map was produced as a reference aid only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

12 INITIAL PARTICIPATING COUNTRIES

4 Pilot Countries
- Egypt
- Swaziland
- Ethiopia
- Uganda

8 Roll-out Countries
- Burkina Faso
- Ghana
- Botswana
- Malawi
- Mauritania
- Rwanda
- Kenya
- Cameroon

Countries: Egypt, Swaziland, Ethiopia, Uganda, Burkina Faso, Ghana, Botswana, Malawi, Mauritania, Rwanda, Kenya, Cameroon.
2 DIMENSIONS TO THE COST OF HUNGER

Incidental
Retrospective:
Current Economic
Cost

Prospective:
Develop Scenarios

Costs on National Productivity

Current Costs
- Education

Current Costs
- Health

National Productivity

Education

Health

15-64 years

6-18 years

Children 0-5 years
FRAMEWORK FOR THE COST OF HUNGER IN AFRICA

Undernutrition

- Higher mortality risk
- Higher morbidity risks: Acute and Chronic illnesses
- Cognitive and psychomotor underdevelopment

Lower Productivity

- Higher labor absenteeism
- Increased demand to social services
- Social inclusion problems
- Lower educational performance

Lower Performance in Manual Labor

- Lower physical capacity
- Increased demand to social services

THE COST OF HUNGER IN AFRICA
Opportunity Cost

IMPACT PATHWAYS

Direct Cost

- Children currently malnourished
- School children previously malnourished
- Adult work force previously malnourished

Extra demand for health care
Extra demand on educational services derived from grade repetition
Less income due to less schooling/cognitive/physical performance
Less workforce due to premature deaths

Opportunity Cost
Economic and Social Impact of Child Undernutrition in Health
Effects of Child Undernutrition in Health Pilot Countries

<table>
<thead>
<tr>
<th>Illnesses</th>
<th>Egypt</th>
<th>Ethiopia</th>
<th>Swaziland</th>
<th>Uganda</th>
<th>4 Pilot Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>37,378</td>
<td>365,311</td>
<td>1,262</td>
<td>55,923</td>
<td>459,874</td>
</tr>
<tr>
<td>ADS</td>
<td>11,476</td>
<td>527,153</td>
<td>2,720</td>
<td>289,994</td>
<td>831,343</td>
</tr>
<tr>
<td>ARI</td>
<td>1,247</td>
<td>114,300</td>
<td>1,656</td>
<td>27,462</td>
<td>144,665</td>
</tr>
<tr>
<td>Fever/Malaria</td>
<td>-</td>
<td>264,232</td>
<td>217</td>
<td>121,943</td>
<td>386,391</td>
</tr>
<tr>
<td>LBW (IUGR)</td>
<td>116,702</td>
<td>148,173</td>
<td>2,751</td>
<td>82,635</td>
<td>350,261</td>
</tr>
</tbody>
</table>

Underweight: 927,122 2,991,509 16,340 975,450 4,910,921

Source: UNECA, based on the latest national nutrition survey in each country and official data on cases of disease in each country. Information sources: official statistics, DHS and specialized studies.

It is estimated that in the 4 pilot countries, undernutrition contributed to 7 million incremental cases of illnesses in children under 5 years. The leading illness was incremental episodes of diarrhea suffered by underweight children.
The differential probability of each pathology will determine the number of episodes estimated in each country. In some contexts, incremental cases of acute diarrheal syndrome has a higher association to undernutrition, but in others anemia seems to disproportionately affect underweight children.

Source: UNECA, based on the latest national nutrition survey in each country and official data on cases of disease in each country.
In 2009, the economic cost of undernutrition ranged from values equivalent to 0.6% to 11% of government budget allocated to Health and from 0.2% to 1.6% of GDP.

<table>
<thead>
<tr>
<th>Country</th>
<th>Egypt</th>
<th>Ethiopia</th>
<th>Swaziland</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (millions of USD)</td>
<td>TBC</td>
<td>145</td>
<td>7</td>
<td>259</td>
</tr>
<tr>
<td>Under 12 months</td>
<td>40%</td>
<td>44%</td>
<td>27%</td>
<td>44%</td>
</tr>
<tr>
<td>1 to 11 months</td>
<td>16%</td>
<td>19%</td>
<td>26%</td>
<td>20%</td>
</tr>
<tr>
<td>Per cohort 12 month cohort</td>
<td>15%</td>
<td>13%</td>
<td>16%</td>
<td>12%</td>
</tr>
<tr>
<td>(24 to 59 months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of costs covered by the</td>
<td>…</td>
<td>89%</td>
<td>88%</td>
<td>87%</td>
</tr>
<tr>
<td>families</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public costs as % of health</td>
<td>…</td>
<td>2.3%</td>
<td>0.6%</td>
<td>11.0%</td>
</tr>
<tr>
<td>public expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total health costs as % of</td>
<td>…</td>
<td>0.5%</td>
<td>0.2%</td>
<td>1.6%</td>
</tr>
<tr>
<td>GDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The largest proportion of these costs are generated by children in their first year of life, indicating important potential savings in implementing a preventive approach.
Economic and Social Impact of Child Undernutrition in Education
The higher risk of stunted children on repeating grades resulted in incremental grade repetition rates that ranged from 1.1% to 3.6% more than non-stunted children.
## COST OF DIFFERENTIAL IN GRADE REPETITION RATES BY COUNTRY

<table>
<thead>
<tr>
<th>Pilot Country</th>
<th>Number of Stunted School age</th>
<th>Total Repetitions</th>
<th>% of Repetition in Primary Education</th>
<th>Economic Cost</th>
<th>Proportion covered by the Families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>6 million</td>
<td>79,279</td>
<td>59%</td>
<td>EGP 270</td>
<td>40%</td>
</tr>
<tr>
<td>Ethiopia*</td>
<td>16.9 million</td>
<td>152,488</td>
<td>100%</td>
<td>ETB 93.4 million</td>
<td>64%</td>
</tr>
<tr>
<td>Swaziland</td>
<td>164,000</td>
<td>5,550</td>
<td>86%</td>
<td>SZL 6 million</td>
<td>70%</td>
</tr>
<tr>
<td>Uganda</td>
<td>5.2 million</td>
<td>133,931</td>
<td>96%</td>
<td>UGX 16.5 billion</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28.3 Million</strong></td>
<td><strong>371,248</strong></td>
<td><strong>90%</strong></td>
<td><strong>96</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Primary education only. No data for secondary education.

The differential in grade repetition rates represented **370 thousand** grade repetition for the pilot countries, **90%** of which were in Primary education. This distribution may in part be explained by the higher risk of stunted children of dropping out, and not reaching secondary education. The
The higher risk of stunted children on dropping out of school resulted in lower schooling of the stunted population that ranged from -0.2 to -1.2 years.

Source: UNECA, based on the official household surveys in each country.
Note: Schooling achievement based on information of head of household. It does not represent the schooling level of the population.
Economic and Social Impact of Child Undernutrition on Productivity
Of the 104 million working age adults (15-64), it is estimated that 52% suffered from stunting as children. Most of this population is involved in manual activities and are in a disadvantaged position.
## LOSSES IN PRODUCTIVITY IN MANUAL AND NON-MANUAL ACTIVITIES IN CURRENT WORKING AGE POPULATION (WAP)

<table>
<thead>
<tr>
<th>Pilot Country</th>
<th>Stunted Population of Working Age (15-64)</th>
<th>Lost Productivity in Non-Manual Activities</th>
<th>Lost Productivity in Manual Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of People</td>
<td>Estimated Prevalence</td>
<td>National Currency</td>
</tr>
<tr>
<td>Egypt</td>
<td>8.1 Million</td>
<td>40%</td>
<td>2.6 billion EGP</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>29.9 Million</td>
<td>67%</td>
<td>616 million ETB</td>
</tr>
<tr>
<td>Swaziland</td>
<td>351,681</td>
<td>40%</td>
<td>75 million SZL</td>
</tr>
<tr>
<td>Uganda</td>
<td>3.6 Million</td>
<td>54%</td>
<td>219 billion</td>
</tr>
</tbody>
</table>

The estimated losses due to lower productivity in manual activities range from 0.2% of to 0.7% of GDP. As more people are active in manual activities, the estimated losses from lower productivity of the stunted population ranges from...
The impact of undernutrition on child mortality rates increases in countries with higher prevalence. A percentage of the WAP is absent from the economy due to incremental risk associated to undernutrition.
LOST WORKING HOURS DUE TO CHILD MORTALITY ASSOCIATED TO UNDERNUTRITION

<table>
<thead>
<tr>
<th>Countries</th>
<th>Annual Working Hours Lost (in millions)</th>
<th>Economic Cost (in millions)</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>National Currency</td>
<td>US$</td>
</tr>
<tr>
<td>Egypt</td>
<td>857</td>
<td>5,436</td>
<td>988</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>4,786</td>
<td>40,069</td>
<td>3,396</td>
</tr>
<tr>
<td>Swaziland</td>
<td>37</td>
<td>321</td>
<td>38</td>
</tr>
<tr>
<td>Uganda</td>
<td>943</td>
<td>697,486</td>
<td>344</td>
</tr>
</tbody>
</table>

The impact of undernutrition on the WAP population in manifested through annual working hours lost in the economy due to incremental deaths in children under five that would have been part of the labor force. The cost of child mortality on productivity ranges from 0.5% in countries with low underweight prevalence and low mortality rates, to 11.9% in countries with high underweight and high mortality rates.
THE SOCIAL AND ECONOMIC
COST OF CHILD
UNDERNUTRITION IN PILOT COUNTRIES

<table>
<thead>
<tr>
<th>Country</th>
<th>Losses in Local Currency</th>
<th>Losses in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>EGP 20.2 billion ETB 55.9 billion SZL 644 million UGX 1.8 trillion</td>
<td>$3.7 billion $4.7 billion $76 million $899 million</td>
</tr>
<tr>
<td>Ethiopia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swaziland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Potential Savings of Reducing Child Undernutrition

Scenarios
3 DIFFERENT SCENARIOS OF POTENTIAL ECONOMIC SAVINGS ARE BEING DEVELOPED

Scenario #1. The Cost of Inaction. Progress in reduction of stunting and underweight child stops.

Scenario #2. Cutting by Half the Prevalence of Child Undernutrition by 2025.

Scenario #3. The ‘Goal’ Scenario. Reduce Stunting to 10% and Underweight children to 5%, by 2025.

The Results of these scenarios will be presented at the 6th Conference of Ministers of Finance in March.
Economic and Social Impact of Child Undernutrition

Initial Key Findings and Policy Implications
Initial Key Findings and Policy Implications

- Undernutrition places an extremely high burden on health systems and families through requirements for hospitalization and intensive care.
- Nutrition is a major factor for dropouts in countries with poor educational achievement levels.
- Addressing child undernutrition will facilitate Africa’s transitions to a more urbanized society.
Recommendations and Opportunities

• Availability of uniform and readily-available data in Africa is limited.

• COHA results have the potential to bring the issue of child nutrition to forefront of the development arena

• The COHA initiative represents a valuable opportunity to place nutrition within the strategy for ensuring Africa’s sustainable development.
The Goal

10% Stunting and 5% Underweight in Africa by 2025