“Cost of Hunger Study in Rwanda: Child Undernutrition in Rwanda Implications for Achieving Vision 2020” Panel presentation including Janet Byaruhanga (AU), Carlos Acosta (ECA), Raphael Ruranga (MINAGRI), Dr. Fidele Ngabo (MoH), Godfrey Kabera (MINECOFIN)

The panelists made several key points. The Study links nutrition into the country’s economic base. Economic diversification needs to include health and education and the Cost of Hunger in Africa demonstrates this. If nutrition is not addressed, Africa’s economic transformation will not be achieved. There is now global momentum to improving nutrition of 500 million women and young children. A study objective is to increase the visibility of nutrition issues globally. COHA was first conducted in Caribbean and has now been brought to Africa.

The study’s conceptual foundations include a study of each country due to their different levels of health and nutrition status. This include different mortality issues. The questions include “Why is stunting at this level in Rwanda, Ethiopia, etc….?” “What are the differences between a malnourished child’s school performance compared that of the child not stunted?” “What are the costs in terms of national productivity losses from 15-64 years due to malnutrition? “ Where there is undernourishment, both morbidity and mortality increase.

The study conducted during 2013 included key ministries were part of the team. Key results included effects on health including high anemia high (48%) in under weight children. The higher chance of ARI. Underweight costs Rwanda 65 million Francs per year. The cost of malnutrition is borne mainly the family with a 74% contribution to this burden. An effect on education includes 327,500 children repeating a class and 13% of this is associated with stunting. The cost of the nation on education, is 2.4 billion Francs. The effects on productivity assuming 49 percent of the adult population working had suffered from chronic malnutrition would be estimated at a GDP loss of 9.4% among the working age population for 2012. Rwanda loses 11.5% of her GDP as a result of malnutrition. If there were a 26% reduction stunting, the cost would go down and the country would save an estimated US$ 14 million every year.

Study recommendations include: a multi-sectoral approach to address chronic malnutrition, promotion of food fortification and food diversity consumption will contribute to the reduction of all forms of malnutrition. Developing a multi-sectoral food and nutrition policy and strategy that cater for addressing stunting as an inclusive policy.

Questions and Panelist comments on the Cost of Hunger Panel presentation:

Participant question: Should efforts to address malnutrition should also include other interventions like education promotion and economic strengthening?

Response: Nutrition interventions will not be implemented in isolation. Will have to include other key society development interventions

Participant question: How do you translate these results to the poor people in the community?

Participant question: Why were Uganda, Rwanda, Egypt and Ethiopia were considered in the cost of hunger study? What are the criteria of selecting these countries?

Response: Criteria based on regional balance, data availability and level of interest by the countries

Participant question: Most strategies to promote health and nutrition are inclusive. For example health promotion is inclusive in the 1000 days campaign. Hygiene promotion is emphasized as well.
Participant question: Is one cow per poor family contributing to stunting reduction? What are other contributions?

Response: Absolutely yes, and the role of local government is very crucial in addressing chronic malnutrition, that’s why one cow per family was introduced in 2007.

Response: We need also to sensitize on milk consumption to improve nutrition status. There is also need to promote small animals keeping that will promote protein consumption program to improve nutrition of school children.

Response: There is also an ongoing kitchen garden promotion in Rwanda to improve food diversity, and USAID is supporting this initiative in the country. There is also one cup of milk per child that was introduced to promote protein intake. Also the targeting high productivity is a focus of the GOR to ensure high yield and nutrients and food fortification to increase micronutrient intake.

Response: Ministry of Finance has budgeted 6 billion RWF in irrigation of agriculture to increase yield and production.

Poultry programs will be supported as well.

Participant question: Did the methodology take into account confounding variables (cost of hunger study)?

Response: Estimations were based on the best available knowledge. Used the Lancet series with best information for application. The study the evidence scenarios and variables. The methodology approved by a body of nutrition experts (UNICEF, Save the children etc.)

Participant question: How much investment is there in nutrition in terms of funds? Will African Union include sensitization and including planning officials?

Response: The African Union is planning a big summit in Abuja April 2014 to highlight more on this (nutrition awareness)

Response: The cost of stunting reduction will also need to increase financial budget support by more than 10%.
Presentation of Results
The Cost of Hunger in Rwanda

3rd National Food & Nutrition Summit 2014
18-20th February, Kigali
The time for Africa is now

Most important economic expansion period in the last 30 years. Yet, it is not enough

Shift from a commodity-driven growth strategy, diversified, industrialization and integration of products into national and regional value chains.

- Youth population with decent labour opportunities in economic activities that will also help Africa move towards a more industrialized and urbanized society that builds on the continent’s comparative advantages.

Focus on ensuring human capital growth through improved health, education and labour productivity.

- The gap in access to health services between the rural and urban population must be. The continent cannot afford the losses in human capital associated with poor health and its consequences to society.

Implications of urbanization in Labour Markets

- Africa, having the highest percentage of youth, with over 40 percent of the population in sub-Sahara under the age of 15, stands to gain important human capital by reducing dropout rates in schools and increasing the educational levels.

The Cost of Hunger in Africa (COHA) study demonstrates that the transformation agenda for Africa cannot effectively be achieved without addressing child undernutrition.
Global Momentum for Nutrition

“Nutrition for Growth” - Global Nutrition for Growth Compact - committed their countries and organizations by 2020 to:

• improving the nutrition of 500 million pregnant women and young children
• reducing the number of children under five who are stunted by an additional 20 million
• saving the lives of at least 1.7 million children by preventing stunting, increasing breastfeeding and better treatment of severe and acute malnutrition

The launch of the Second Lancet series on Maternal and child Nutrition

The World Bank also announced increased support for nutrition –(3) $600 million in 2013-2014, up from $230 million in 2011-2012.

The Sixty-sixth World Health Assembly - WHO- Prevention and Control of Non communicable diseases
COHA – An African Union Led Initiative in Nutrition implemented by Member States

The Cost of Hunger in Africa is an African Project, led by the African Union, implemented by members states, and will help to improve the lives of Africa's children.

NEPAD provides technical guidance in nutrition related issues and serves as a convener to insure the integration in complementary regional actions.

The technical aspects are led by UNECA, Social Development Policy Division, in a South-South partnership with ECLAC as part of a regional program to develop analytical tools.

The World Food Programme provides field-level expertise and support at country level through its expanded presence in Africa.

Funding Partners
The AUC has called on governments at the highest levels to participate in the study, and governments have committed to carrying out the study.

Support country teams in presenting results to government officials at high levels.

Increase the visibility of nutrition issues on a continental level.
A BRIEF RECAP OF THE COHA

Resolution 898(XLV)
5th Joint Meeting of the AU Conference of Ministers of Economy and Finance and the ECA Conference of Ministers of Finance, Planning and Economic Development

The Cost of Social and Economic Insecurity

1. Urges member States to intensify their efforts and investments to address acute and chronic hunger, applying the principles and priorities put forward in the African Regional Nutrition Strategy and Comprehensive Africa Agriculture Development Programme;

2. Requests the African Union Commission and the Economic Commission for Africa to intensify their support for these efforts and investments by member States;

3. Welcomes the multi-country study on the cost of hunger in Africa being led by the African Union Commission and the Economic Commission for Africa, in collaboration with the World Food Programme, to quantify the aggregate social and economic impacts of chronic hunger in Africa;

4. Anticipates that the study will lead to increased understanding among key national and regional policymakers of the depth and breadth of child undernutrition on the continent, and its aggregate social and economic consequences, and thereby establish a firmer foundation for policies and investments to cut hunger in Africa;

5. Commends the consultative process through which the study is being implemented, in particular the technical oversight role of the African Task Force on Food and Nutrition Development;

6. Notes that the African Task Force on Food and Nutrition Development has endorsed the methodology being applied in the study;

7. Acknowledges the technical support for the study being provided by the United Nations Economic Commission for Latin America and the Caribbean, as an excellent illustration of South-South cooperation;

8. Takes note of the preliminary results of the study indicating potentially large aggregate social and economic impacts of child undernutrition in African contexts;

9. Requests the African Union Commission and the Economic Commission for Africa, in collaboration with the World Food Programme, to expedite the successful completion of the study, including wide dissemination of the results at country and regional levels, and

10. Urges member States and partners participating in the study to provide the necessary resources for the successful completion of the study.
Conceptual and Methodological Foundations
CONCEPTUAL FOUNDATIONS

1. **Chronic Hunger**: The status of people, whose food intake regularly provides less than their minimum energy requirements leading to undernutrition.

2. **Child Undernutrition**: The result of prolonged low levels of food intake (hunger) and/or low absorption of food consumed. Generally applied to energy or protein and energy deficiency, but it may also relate to vitamin and mineral deficiencies. Anthropometric measurements (stunting, underweight and wasting) are the most widely used indicators of undernutrition.

3. **Malnutrition**: A broad term for a range of conditions that hinder good health, caused by inadequate or unbalanced food intake or from poor absorption of food consumed. It refers to both undernutrition (food deprivation) and overnutrition (excessive food intake in relation to energy requirements). (FAO)

4. **Food insecurity**: Exists when people lack access to sufficient amounts of safe and nutritious food, and therefore are not consuming enough for an active and healthy life. This may be due to the unavailability of food, inadequate purchasing power, or inappropriate utilization at household level. (FAO)

5. **Food vulnerability**: reflects the probability of an acute decline in food access, or consumption, often in reference to some critical value that defines minimum levels of human wellbeing (WFP).
CONCEPTUAL FOUNDATIONS

Transitions

- Demographic
- Mortality and Birth-rates
- Epidemiological
- Communicable diseases
- Nutritional
- Obesity
- Environmental
- Climate Change

Life Cycle

Source: ECLAC, adapted from Branca, F. y Ferrari, M.
Methodological Foundations

Universe of Analysis

• **Children under 5 years** old who suffered or are suffering from undernutrition

Variables and Indicators

• **Intrauterine**: LBW due to Intrauterine Growth Retardation:
• **Infant Underweight – Health**: Low Weight for Age (< -2sd)
• **Stunting – Educational Performance and Productivity**: Low Height for Age (< -2sd)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Life cycle step</th>
<th>Age (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Intrauterine and preschool</td>
<td>0 to 4</td>
</tr>
<tr>
<td>Education</td>
<td>School</td>
<td>6 to 18</td>
</tr>
<tr>
<td>Productivity</td>
<td>Adult at working age</td>
<td>15 to 64</td>
</tr>
</tbody>
</table>
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
Variables and Indicators

Risk

Probability differences (DP or DP): is the difference between the probability that a consequence (i) happens between undernourished ($P^U$) and non-undernourished ($P^{NU}$).

$\Delta P_i = P_i^U - P_i^{NU}$

Probability Ratio (PR): $R_P = P_D / P_{ND}$
Probability Odds (PO): $O_P = P_D / (1 - P_D)$
Odds Ratio (OR): $O_R = (P_D / (1 - P_D)) / (P_{ND} / (1 - P_{ND}))$

For:

- **Mortality**: $DP_{MM}$ or $DMM$
- **Morbidity**: $DP_M$ or $DM$
- **Repeated** grades: $DP_r$ or $Dr$
- **Drop out** of educational system: $DP_d$ or $Dd$
- **Proportions in each educational level**: $DP_e$ or $De$
- **Schooling years** or school level: $DP_{EL}$ or $DE$
- **Productivity in Manual Labour**: $DP_{ML}$ or $DML$
Framework for the Cost of Hunger in Africa

Undernutrition

- Higher mortality risk
- Higher morbidity risks: Acute and Chronic illnesses

Lower Productivity

- Higher labor absenteeism
- Increased demand on social services
- Lower educational performance
- Social inclusion problems
- Lower Performance in Manual Labor

Cost of Hunger In Africa

Lower Productivity

- Lower productivity
- Lower physical capacity
- Increased demand on social services

Cognitive and psychomotor underdevelopment

Social inclusion problems

Lower Performance in Manual Labor

Lower Productivity

- Lower performance in manual labor
- Lower physical capacity
- Increased demand on social services

Cognitive and psychomotor underdevelopment

The Cost of HUNGER in Rwanda

Implications on National Development and Vision 2020

The Social and Economic Impact of Child Undernutrition in Rwanda

Presentation of Results
The Process of Developing the Cost of Hunger in Rwanda

February 2013 – Initial Training of National Implementation Team
- Establishment of NIT and initiation of Data collection

June 2013 – Regional Data Processing Workshop

December 2013 - Data and Results Validations Workshop

Cost of Hunger in Rwanda

MINISANTE, MINAGRI, MINECOFIN, NISR, MINAFFET, MINEDUC, and MINALOC
Malnutrition in children predisposes to a variety of health and developmental risks that can be reversed if tackled at the early stages of a child’s life.

For every additional case of child illness, both the families and health system and are faced with additional economic costs.
Statistics show that underweight children are disproportionally affected by illnesses.

- Anaemia: 48% (Prevalence - Children 28d to 11m), 36% (Prevalence of Underweight Children), 33% (Prevalence of Non-Underweight Children)
- ADS: 26% (Prevalence - Children 28d to 11m), 14% (Prevalence of Underweight Children), 15% (Prevalence of Non-Underweight Children)
- ARI: 23% (Prevalence - Children 28d to 11m), 26% (Prevalence of Underweight Children), 26% (Prevalence of Non-Underweight Children)
- Fever: 19% (Prevalence - Children 28d to 11m), 23% (Prevalence of Underweight Children), 18% (Prevalence of Non-Underweight Children)
The incremental cases of illnesses associated with undernutrition in children, generated **280,385** clinical episodes for an estimated economic cost of **RWF 65 Billion**

<table>
<thead>
<tr>
<th>Pathology</th>
<th>Incremental Annual Episodes</th>
<th>Cost in Millions of RWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>224,441</td>
<td>57,836.2</td>
</tr>
<tr>
<td>Low Birth Weight/IUGR</td>
<td>8,880</td>
<td>3,222.2</td>
</tr>
<tr>
<td>Anaemia</td>
<td>15,743</td>
<td>894.3</td>
</tr>
<tr>
<td>Acute Diarrhoeal Syndrome</td>
<td>22,874</td>
<td>1,994.3</td>
</tr>
<tr>
<td>Acute Respiratory Infection</td>
<td>718</td>
<td>148.3</td>
</tr>
<tr>
<td>Fever</td>
<td>7,729</td>
<td>1,012.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>280,385</strong></td>
<td><strong>65,107.3</strong></td>
</tr>
</tbody>
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Families carry most of the cost associated to these episodes, and almost half of all cost happen before the 1,000 days.

21.9% of child mortalities are associated with under nutrition.

There are an estimated 53,843 additional annual cases of child mortality associated with child under nutrition, in the period from 2008-2012.
An child who is undernourished, is at risk of suffering from cognitive and physical impairment, which impacts the quality of life as an child and an adult within the society. Stunted children are more likely to repeat grades in school or even drop out.
327,500 children repeated grades in 2012. The model estimates that 44,255 students or 13.5 percent of all repetitions in 2012 were associated with stunting. Costs of repetitions associated with under nutrition:

- **Total Public Costs:** 793 Million RWF
- **Total Cost to Families/caretakers:** 1.5 billion RWF
- **Total Cost:** 2.4 billion RWF
Theory indicates that when a child is stunted, this will impact them when they enter the labour force. On the whole, stunted workers are less productive than non-stunted workers, and are less able to contribute to the national economy.
Rwanda’s economic activity is largely based on manual labour. The impact of child under nutrition varies depending on the type of activity. 49.2% of the Working Age Population in Rwanda suffered from stunting as children.
The economic loss of productivity due to undernutrition

Rwanda has lost 9.4% of the Working Age Population for 2012, due to child mortality associated to undernutrition.
Social and Economic Impact of Child Under nutrition in Rwanda

RWF 504 Billion
USD 820 Million
11.5% GDP
Two Scenarios where developed

S1 - Halving Current Levels of Child Undernutrition
S2 - Reaching 10% Stunting and 5% Underweight by 2025
Current and Required Progress to Achieve Goal Scenario for 10 and 5 for 2025

- **Annual Progress Achieved**: 0.4%
- **Annual Progress Required**: 2.6%

RWF 8,653 million
USD $14.1 million
6 Key Policy Recommendations

- Including stunting as a Goal indicator in strategic planning
- In order to address the multiple dimensions of child nutrition, a comprehensive response is needed with a focus on multiple determinants of child under nutrition.
- Promotion of awareness of the entire population
- Promotion of the consumption of fortified complementary food especially in populations most affected by micronutrient deficiencies and stunting
- Instalment of Commission against child under nutrition
- Improvement of monitoring and evaluation systems
Presentation of Results
The Cost of Hunger in Rwanda

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