



THE COST OF HUNGER IN AFRICA (COHA) CONTINENTAL REPORT

**Social and Economic Impact of Child
Undernutrition**



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When a child is undernourished , the negative consequence follow that child for his/her entire life. These negative consequences also have grave effects on the economies where s/he lives, learns and works

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Foreword

The Cost of Hunger Continental Report

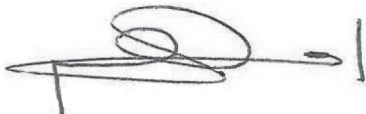
The African Union Commission, under the department of Health Humanitarian and Social Development, has led the implementation of the Cost of Hunger in Africa (COHA) Study across African Union Member States. The Study has been conducted within the framework of Africa Regional Nutrition Strategy (2005-2015) and the revised Africa Regional Nutrition Strategy (2015-2025). Since its inception in 2010, the endorsement of Ministers of Finance, Planning and Economic Development in 2012 (Resolution 898), and the call by the African Union Heads of State and Government in 2014 (Assembly/AU/ /Decl.4(XXIII), for successful completion of the study, including wide dissemination of the results at country and regional levels, the study has been completed by twenty-one (21) Member States (beyond the initial four (4) pilot Member States).

The Cost of Hunger in Africa Continental Report compiles the findings and recommendations from the twenty-one (21) AU Member States, that have so far completed the study (Burkina Faso, Chad, Democratic Republic of Congo, Egypt, Eswatini, Ethiopia, Gambia (The), Ghana, Guinea Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sudan, Uganda and Zimbabwe). It highlights the significant negative effects of undernourished children on health, school performance and labour productivity, to give an opportunity to Member States that have not conducted the study to access information and use it for learning, advocacy, policy and strategy development for nutrition sensitive and specific interventions.

The study provides the evidence for advocating and positioning nutrition, as a key priority for the consideration by policy makers at national, regional and continental levels. The findings have also been key, in highlighting, the importance of multisectoral action and coordination, in the implementation of nutrition programs and initiatives at all levels, affirming that, eliminating under nutrition cannot be fought by a single actor but by joining forces and strategizing for concerted integrated multi-sectorial actions.

The Commission would like to appreciate the support of United Nations World Food Programme (WFP) in developing this report and continued collaboration at the member state level in conducting the study by providing both technical and financial support. I would also like to recognize the effort, contribution and leadership of the AUC team, especially the Health, Humanitarian Affairs and Social Development department team, in the implementation of Cost of Hunger in Africa Study and more specifically in the development of this important report.

African Union Commission, working with partners and key stakeholders remain committed to working closely with Member States in the implementation of the recommendations coming out of this report as well as the cost of hunger study reports at the member state level in order to achieve a continent free of hunger and malnutrition.



H.E. Amira El Fadil,

Commissioner, Department of Health,
Humanitarian Affairs and Social Development
African Union Commission

Acknowledgements

The Cost of Hunger in Africa (COHA) Continental Report is being implemented within the framework of Africa Regional Nutrition Strategy (2016-2025). During the Third Specialised Technical Committee on Health, Population and Drug Control (STC-HPDC-3) held in Cairo, Egypt in 2019. Ministers called for Continental Report on the progress in the implementation of the COHA Studies recommendations to be produced by the African Union Commission, with the support of the WFP and other stakeholders.

The Department of Health, Humanitarian Affairs and Social Development would like to extend its appreciation to the Consultant Mr. Douglas Karugonjo for the compiling of this report under the leadership and guidance from Dr Margaret Agama-Anyetei Head Division, Health, Humanitarian Affairs and Social Development and support of Ms Priscilla Wanjiru External Partnerships Officer. The Department would also like to appreciate the support from the World Food Programme (WFP), both financially and technically which has made the development of this report possible.

Executive Summary

The Cost of Hunger in Africa (COHA) study is an African Union Commission (AUC) led initiative, through which Member States of the Africa Union, are able to estimate the social and economic impacts of child undernutrition in a given year. In March 2012, a presentation was made on the “The cost of hunger in Africa: social and economic impact of child undernutrition” to the African Ministers of Finance, Planning and Economic Development during the 5th Joint African Union (AU) and the Economic Commission for Africa (ECA) Conference of Ministers of Economic Planning and Finance held in Addis Ababa, Ethiopia. At the time the multi-country and multidisciplinary study was being carried out in the first four (4) pilot countries. The Ministers issued a resolution confirming the importance of the study and recommending it to continue beyond the initial stage (AU/CAMEF/EXP/22(VII)). In addition, African Union Heads of State and Government in 2014 (Assembly/AU/ /Decl.4(XXIII), called for successful completion of the study, including wide dissemination of the results at country and regional levels. So far, 21 Member States have completed the study namely: Burkina Faso, Chad, Democratic Republic of Congo, Egypt, Ethiopia, Gambia (The), Ghana, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sudan, Uganda, Zimbabwe, The Kingdom of Eswatini and The Kingdom Lesotho.

The COHA study model is used to estimate the additional cases of morbidity, mortality, school repetitions, and dropouts and reduced physical capacity associated with a person’s undernutrition status before the age of five. In order to estimate these social impacts for a single year, the model focuses on the current population, identifies the percentage of that population who were undernourished before the age of five, and then estimates the associated negative impacts experienced by the population in the current year. Using this information and the data provided by the National Implementation Teams (NIT) of respective Member States, that completed the study, the model estimates the associated economic losses incurred by the economy in health, education and potential productivity in a single year.

The Continental COHA report provides insight into the effects of undernutrition on economic and social development. It will serve as an advocacy tool to ensure effective and efficient policy discourse on nutrition and nutrition interventions in the context of national development planning. Recommendations and a menu of policy options from the COHA studies revolve around nutrition policy formation and implementation. Among this menu of policy options and recommendations is the extension of the coverage of basic health and nutrition services; stronger advocacy for nutrition and further development of staple and indigenous, food fortification; national planning and budgeting procedures for nutrition should be strengthened through the development of annual budgeting and funding mobilization as well as review of nutrition expenditures.

Notable progress has been made in Member States at the policy level. Nutrition has been firmly placed on national development agendas in countries that have undertaken the COHA study which the effects of this will be impactful in the coming years. This report shows the benefits of setting targets for reducing undernutrition. As per Malabo targets, eliminating child undernutrition through bringing down stunting to 10 percent and underweight to 5 percent by 2025, in the 21 Member states the findings show that a total annual average saving of USD8.1 billion can be achieved as well as a 38 percent reduction in the costs associated with child undernutrition. The African Union Commission is in a position of strong influence to use the findings, to advocate to its Member States to place nutrition as a top priority in national and political agendas. There are success stories in some Member States that provide encouragement and serve as examples for regional development through a consolidated effort. This report’s findings prove that a consensus needs to be reached so that priority interventions include nutrition specific and nutrition sensitive investments at the policy, coordination, multisector and community level. The more precise combinations of interventions would vary from country.





Chapter

Introduction



Chapter I: Introduction

Socio-Economic and Nutritional Background

The African continent continues to shoulder the heavy burden of malnutrition. Although tremendous strides have been made to address malnutrition and related challenges, the battle is far from being won. Additional and sustained efforts are needed to tackle and reverse the growing burden of malnutrition, in line with the global and continental commitments made in 2015. Some countries have made notable strides on the pathway to achieving the Malabo Declaration, World Health Assembly (WHA) and Sustainable Development Goals (SDG's). More effort is required to fast track the achievement of key nutrition targets. Over the past decade, Africa has experienced a remarkable economic performance that has made the continent increasingly attractive for global investment and trade. According to the United Nations Food and Agriculture Organization (FAO) Regional Overview of Food Security in Africa 2018, the pace of real Gross Domestic Product (GDP) growth on the continent has doubled in the last decade yet the continent still displays some of the highest rates of child undernutrition in the world. Human capital is the foundation of social and economic development as articulated in the African Agenda 2063 and the Sustainable Development Goals (SDGs). Improved nutritional status of people has a direct impact on economic performance through increased productivity and enhanced national comparative advantage. For Africa to maximize its present and future economic prospects, there is an urgent need for sustainable, cost-effective interventions that address the nutritional situation of the most vulnerable members of its society. As noted by the African Heads of State and Government in 2014, agriculture and food security are key determinants of child nutrition that require coordinated and comprehensive responses from other sectors, including health, education, labour, social protection, and coordinated collaboration with the development partners, private sector, the academia, civil society and communities (Malabo Declaration, Assembly/AU/ /Decl.4(XXIII)). If child undernutrition were reduced, there would be a direct improvement in child mortality rates, as undernutrition is the single most important contributor to child mortality. If females of childbearing age were not undernourished, they would be less likely to bear underweight children. Further, healthy children would achieve better education, be more productive as adults and have higher chances of breaking the cycle of poverty. Hence, efforts need to be scaled up to sensitize the general population, policy makers and development partners on the high costs of undernutrition, in order to strengthen national and international commitments and ensure that young children in Africa grow healthy and properly nourished. Positioning nutrition interventions as a top priority for development and poverty reduction is often difficult, partly due to the lack of credible data on both short and long-term returns. Indeed, there is not enough country-specific evidence to demonstrate how improved nutrition can have a direct impact on school performance, and thereby improving opportunities in the labour market and physical work. Additionally, nutrition is too often regarded as a health issue, disregarding the rippling social and economic implications it has on other areas of development.

Despite the aforementioned challenges, efforts continue, both at national, regional and global levels, to address the issues of undernutrition and hunger. At the regional level, these efforts include initiatives such as; the African Regional Nutrition Strategy; the Comprehensive Africa Agriculture Development Programme (CAADP), especially CAADP Pillar III, focusing on reducing hunger and improving food and nutrition security; the Pan African Nutrition Initiative (PANI), the Framework for African Food Security

(FAFS); the Africa Ten Year Strategy for the Reduction of Vitamin and Mineral Deficiencies (ATYS-VMD); African Taskforce for Food and Nutrition Development (ATFFND) African Day for Food and Nutrition Security (ADFNS), Africa Day of School Feeding (ADSF), the African Nutrition Champion; African Leaders for Nutrition (ALN); African Region Initiative for Stunting Elimination (ARISE 2025), the African Nutrition Accountability Scorecard. At the global level, initiatives include Renewed Efforts Against Child Hunger (REACH), Purchase for Progress (P4P), Scaling Up Nutrition (SUN), Feed the Future (FTF), the “1,000 Days” partnership, as well as the Abuja Food Security Summit of 2006. All these efforts are designed to reduce hunger, malnutrition and vulnerability, in a bid to also achieve the Sustainable Development Goals as well as Africa Agenda 2063.

Within the framework of the revised African Regional Nutrition Strategy (2015-2025), the objectives of the African Task Force on Food and Nutrition Development (ATFFND) and CAADP, the African Union Commission (AUC) and Africa Development Agency (AUDA –NEPAD), the United Nations Economic Commission for Africa (UNECA), and the World Food Programme (WFP) combined their efforts to conduct the Cost of Hunger in Africa Study on the Social and Economic Impact of Child Undernutrition in Africa. This study is built on a model developed by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC). Through a South-South cooperation agreement, ECLAC has supported the adaptation of the model to the African context and continues to support the implantation of the study in the ongoing countries. The purpose of this multi-country study was to provide strong evidence on the social and economic consequences of child undernutrition, in order to inform, raise awareness, build consensus and catalyse action towards undernutrition in Africa. This study aims at generating evidence to inform key decision makers and the general public about the cost African societies are already paying for not addressing the problem of child undernutrition. The results provide compelling evidence to guide policy dialogue and increase advocacy around the importance of preventing child undernutrition. Ultimately, it is expected that the studies will encourage revision of current budgetary allocation practices, policies and strategic approaches in each participating member state to ensure provision of the human and financial resources needed to effectively combat child undernutrition, specifically during the first 1,000 days of life when most of the damage occurs.



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Chapter

Nutrition Overview in Africa



Chapter II: Nutrition Overview in Africa

Nutrition Overview in Africa

Over the past few years, the increase in global food prices, followed by the economic and financial crisis, have pushed more people into poverty, vulnerability and hunger. Even though the number of undernourished people has fallen globally by 13.2 percent from 1 billion to 868 million in the last 20 years Africa's share in the world's undernourished population has decreased from 35.5 percent in 1990 to 22 percent in 2019. However, this alarming rate still calls for stronger efforts to improve food security and nutrition in the continent. Stunting among children under the age of five remains a key challenge in Africa. According to the World Health Organization (WHO) classification of assessing severity of malnutrition, half of African Member States have high to very high (over 30 percent) prevalence of childhood stunting. Only seven Member States have a low prevalence (less than 19 percent). Based on the current status most African Member States are unlikely to reach the Malabo declaration by 2025. Childhood stunting is detrimental to the development of the grey matter among children and undermines economic productivity. The prevalence of undernourishment as shown in table 2.1 below can be attributed to persistent constraints in terms of availability and access to food due to conflicts, climate extremes and economic slowdowns, sometimes combined.

Table 2.1: Number (millions) of Undernourished People in Africa (2000 - 2018)




REGION	2000	2010	2014	2015	2016	2017	2018	Change between 2014-2018
Africa	199.7	199.8	212.1	217.9	234.6	248.6	256.1	44
Central	37.7	36.5	36.7	37.9	41.1	43.2	44.6	7.9
Eastern	112.4	118.6	116.1	119.3	126.9	129.8	133.1	17
Northern	9.7	8.5	15.8	15.5	16.1	16.5	17.0	1.2
Southern	3.8	4.2	4.7	5.0	5.5	5.4	5.3	0.6
Western	36.1	31.9	438.7	40.3	45.0	53.7	56.1	17.4

Source: Source: United Nations Children's Fund, World Health Organization, The World Bank. UNICEF-WHO-World Bank Joint Child Malnutrition Estimate

Economic growth is necessary to reduce stunting, but alone it is not sufficient. Nutrition-specific and nutrition-sensitive interventions are also needed. Recently, the COVID-19 pandemic has increased the threats to food security and nutrition, risking erasing hardly won past nutrition gains towards attaining the World Health Assembly (WHA) and the Malabo Declaration targets by 2025. In 2019, out of 144 million children under five years of age affected by chronic malnutrition or stunting globally, over 57.6 million lived in Africa. In the same year, an estimated 12.7 million of children under five were acutely malnourished or wasted of whom 3.5 million were severely wasted. Laying an adequate foundation for one's entire life begins from conception until five years (see figure 2.1 below). Proper nutrition leads to

robust immune systems, less illness and good health. Adequate nutrition provides a means of achieving a better quality of life and contributing to national development. Nutrition is also an outcome of human and economic development. Economic investments made in nutrition interventions are a function of national growth. By laying the foundation to an optimal and healthy life, nutrition enables populations to become more economically productive.

Figure 2.1: Effect of undernutrition on a Child's growth from birth

 0-5 years	<p>Undernourished children are at higher risk of anaemia, diarrhoea, and respiratory infections. These additional cases of illness are costly to the health system and families.</p>
 6-18 years	<p>Stunted children are at higher risk of repeating grades in school and at higher risk for dropping out of school. Additional repetitions impacts are costly to the education system and families.</p>
 15-64 years	<p>Children who dropped out of school early and then working in non-manual activities, may be less productive. If they are subsequently employed in manual activities, their physical capacity will be reduced and they may be less productive. People who are absent from the labour force because of infant mortality associated with undernutrition represent a loss of economic productivity.</p>

This productive human capital is a precursor to essential labour productivity, which in itself reflects by increased individual income and thus cumulative nationally and continent wise. All forms of malnutrition inflict high social and economic costs to an individual and also collectively to nations or continents. The human development impact of undernutrition has been established by sciences and research to be dire. They include cognitive deficits, low life earning, mortality and morbidity risks, among others.

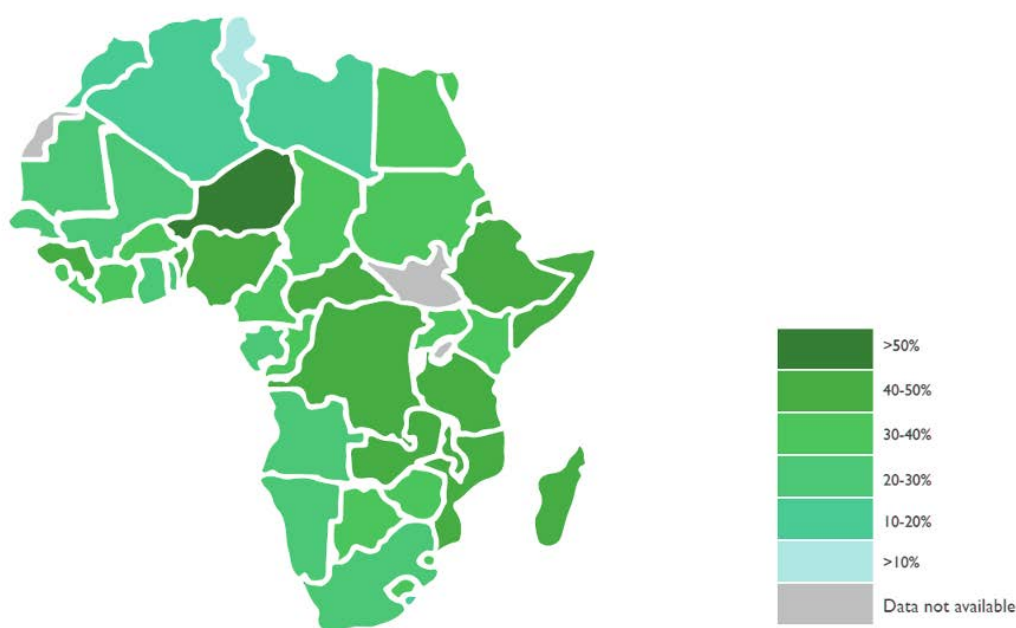
Globally, there has been tremendous progress in reducing both the rate of stunting (low height-for-age) and the number of stunted children over the past 31 years, 1990 to 2019. In Africa, the reported rate of stunted children has decreased from 42.3 percent in 1990 to 21.3 percent in 2019 (see Table 2.2). Nevertheless, over the same period, the absolute number of stunted children has increased from 46.6 million to 60 million.

Table 2.2: Estimated Prevalence & Number of Stunted Children under 5 years of age: 1990, 2010, 2015, 2019

REGION	Prevalence Estimate %				Number (millions)			
	1990	2010	2015	2019	1990	2010	2015	2019
Africa	42.3	33.9	32	21.3	46.6	56.1	58.1	60
Central	46.7	34.1	31.8	32.1	6.3	8.1	8.3	8.5
Eastern	51.2	40.1	38	35.2	19	23.4	24	24.5
Northern	27.7	19.7	18.3	17.2	6	4.7	5	5.4
Southern	36.6	30	28.7	29.3	2.2	2	1.9	2.1
Western	40.9	33.7	32.4	29.2	13.2	18	19	19.5

Source: United Nations Children's Fund, World Health Organization, The World Bank. UNICEF-WHO-World Bank Joint Child Malnutrition Estimate.

Figure 2.2 below illustrates the rates of stunting (low height-for-age) in Africa. According to this data, 17 countries on the continent have stunting rates above 40 percent and 36 countries have rates above 30 percent.

Figure 2.2: Stunting Rates by Country

Source: Data from WHO Global Database on Child Growth and Malnutrition (2018)

The nutrition and health aspirations of the African Continent are well articulated in several documents including the Malabo Declaration, the African Regional Nutrition Strategy and the Agenda 2063. Out of the 60 Member States of the Scaling up Nutrition (SUN) Movement, 40 are African Member States. In addition, African Member States are implementing the Comprehensive Africa Agriculture Development Programme (CAADP), which seeks to mainstream nutrition into National Agriculture Investment Plans (NAIPs). The CAADP Results Framework also includes a nutrition focus to foster contribution to nutrition outcomes by the agriculture sector. More African Member States within the SUN movement are aligning multisectoral nutrition actions in their national development plans.

Aspiration I of the Africa Agenda 2063 states “A prosperous Africa based on inclusive growth and sustainable development” in which under goal I priority area two includes the Malabo targets of reducing stunting in children to 10 percent and underweight to 5 percent. All AU Member States have also adopted the global targets for nutrition improvements as agreed by the World Health Assembly in 2011. These targets, as stated below, are, therefore, adopted as the ARNS 2015-2025 targets:

- 1. 40% reduction of the number of African children under 5 years who are stunted by 2025;**
- 2. 50% reduction of anaemia in women of child-bearing age in Africa by 2025;**
- 3. 30% reduction of low birth weight in Africa by 2025;**
- 4. No increase of overweight in African children under 5 years of age by 2025;**
- 5. Increase exclusive breast-feeding rates during the first six months in Africa to at least 50% by 2025;**
- 6. Reduce and maintain childhood wasting in Africa to less than 5% by 2025.**

Indicative strategies to achieve the above targets involve among other strategies : full implementation of CAADP and signed national agricultural investment plans which are inclusive; Promotion of policies that will ensure access to affordable and quality food for all; Promotion policies that will lead to wealth creation and ensure it is evenly spread to all citizens; Development and implementation of energy generation policies that will contribute to the productivity of rural / poor households efforts in improving their nutritional and wealth status; Development and/or implementation of food and nutrition programmes with focus on the vulnerable groups in rural and urban areas, especially women, children and the marginalized; Promotion and commercialization of traditional high nutrition and drought resistant grains and food crops both on a regional and continental level.



Chapter

Methodology



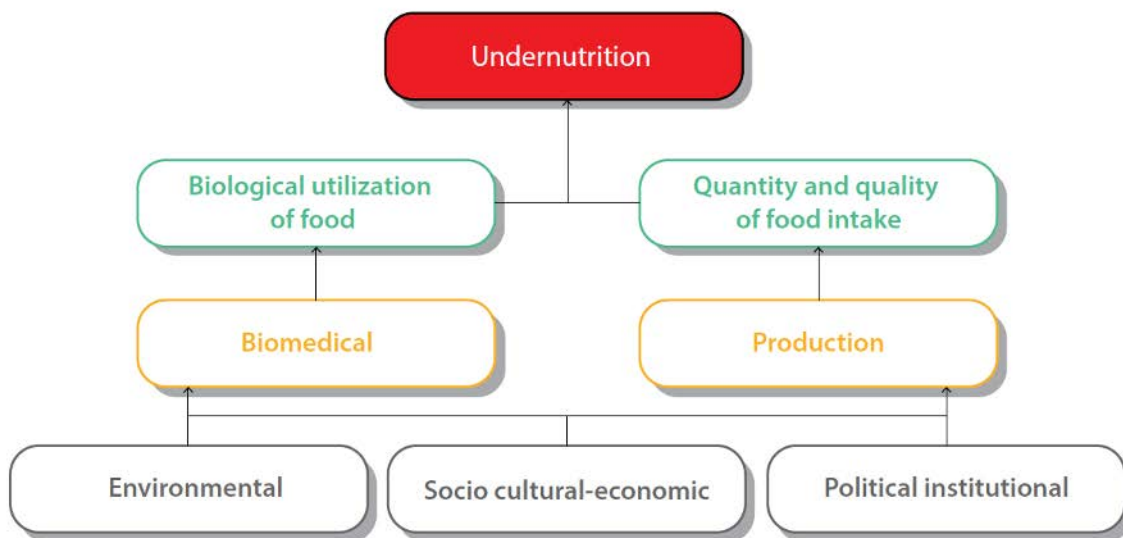
Conceptual Framework

Hunger is caused and affected by a set of contextual factors. “Hunger” is an overarching term that reflects an individual’s food and nutrition insecurity. A direct and measurable consequence of nutrition insecurity is low birth weight, underweight and/or lower than normal height-for-age. Levels of nutrition security in a country are related to epidemiological and nutritional transitions which can be evaluated to assess the population’s nutritional situation. Furthermore, a person’s nutritional situation is part of a process that is expressed differently depending on the stage of the life cycle: intrauterine and neonatal life, infancy and pre-school, school years or adult life. This is because the nutrient requirements are different for each stage.

Causes of Undernutrition

The main factors associated with undernutrition, as a public health problem, can be grouped into the following: environmental (natural or entropic causes), sociocultural-economic (linked to poverty and inequality) and political-institutional (see figure 3.1). Each of these factors helps increase or decrease the likelihood of a person to suffer from undernutrition. The importance of each of these factors depends on the level of the country’s demographic and epidemiological transition as well as on the person’s current stage in the life cycle.

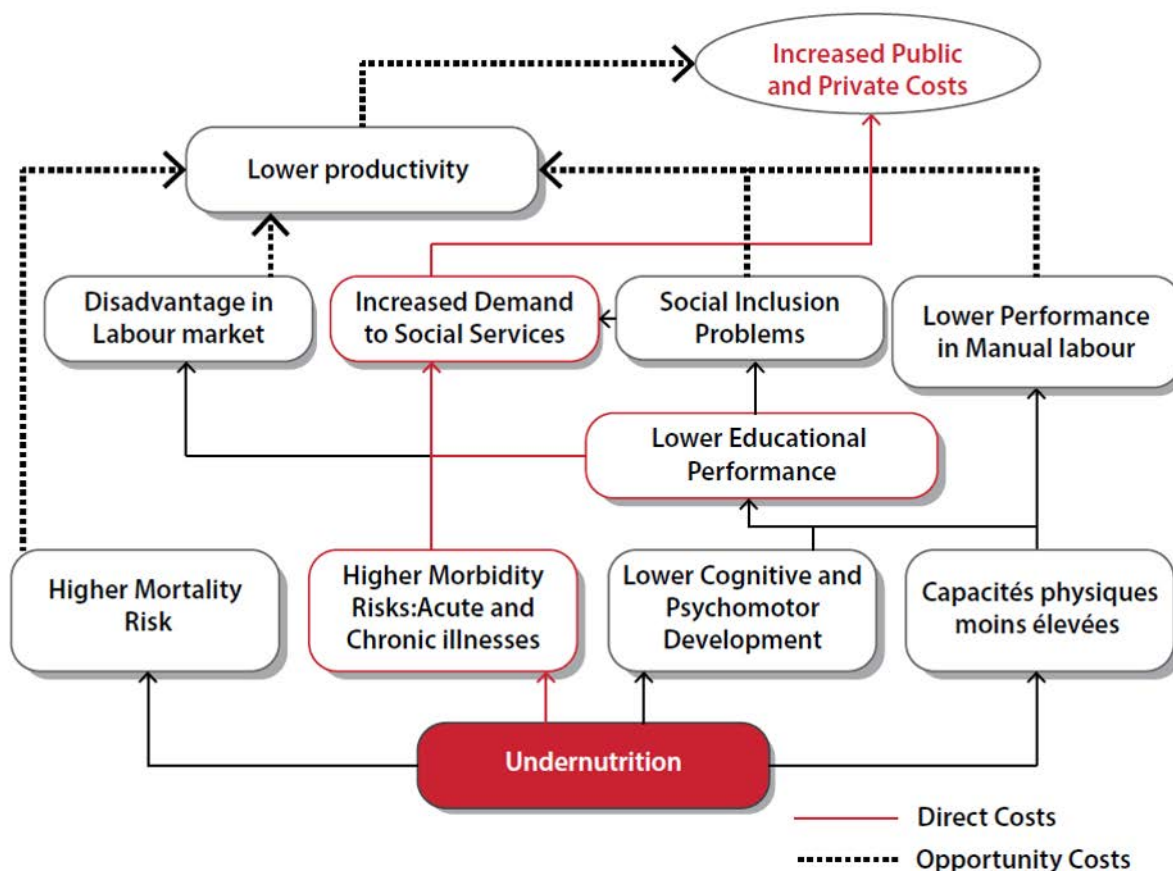
Figure 3.1: Causes of Undernutrition



Consequences of undernutrition

Child undernutrition has long-term negative effects on a person’s life, most notably in the aspects of health, education, and productivity (Figure 3.2). These elements are quantifiable as expenditure and costs to both the public sector and to individuals. Consequently, these effects exacerbate problems in social integration and increase or intensify poverty. A vicious cycle is perpetuated as vulnerability to undernutrition grows.

Figure 3.2: Consequences of Undernutrition



Source: Rodrigo Martinez and Andrés Fernandez, Model for analysing the social and economic impact of child undernutrition in Latin America

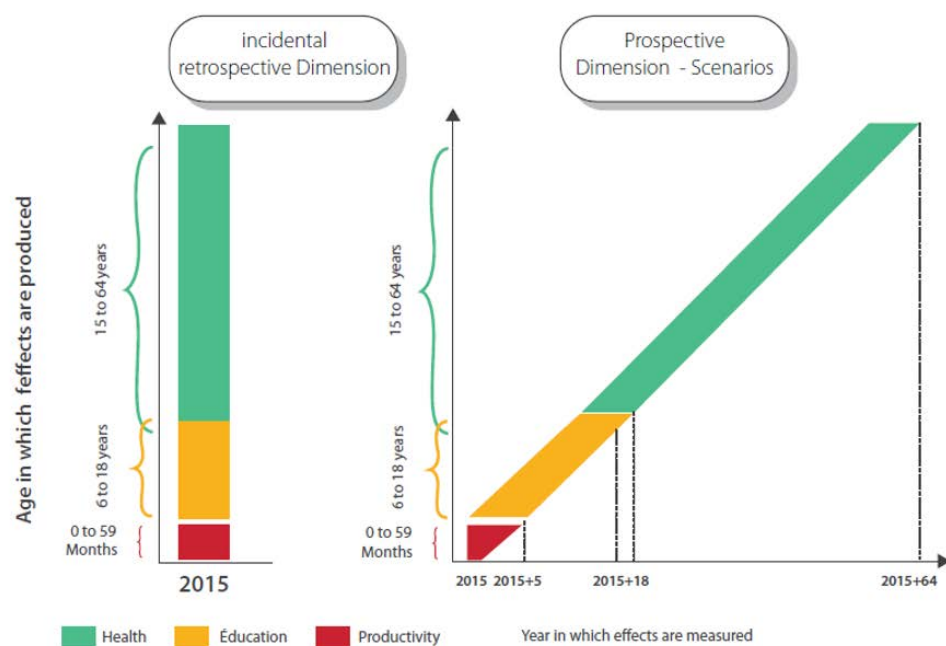
Dimensional Analyses

In order to comprehensively analyse the phenomenon of undernutrition, the model considers its consequences on health, education and productivity by translating them into costs.

1. **Incidental retrospective dimension.** This dimension focuses on the population in the study year, including mortality cases of those who would have been alive in the study year. The retrospective dimension estimates the nutritional situation of individuals under the age of 5 to identify the related economic costs in the study year.
2. **Prospective or potential savings dimension.** This dimension focuses on children under 5 in a given year and allows analysis of the present and future losses incurred as a result of medical treatment, repetition of grades in school and lower productivity. Based on this analysis, potential savings derived from actions taken to achieve nutritional objectives can be estimated.

As shown in Figure 3.3, the incidental retrospective dimension includes the social and economic consequences of undernutrition in a specific year for cohorts that have been affected (0 to 4 years of age for health, 6 to 18 years for education and 15 to 64 years for productivity).

Figure 3.3: Dimension of Analysis by Population Age & year when effects occur



Source: Rodrigo Martinez and Andrés Fernandez, *Model for analysing the social and economic impact of child undernutrition in Latin America*

Estimates of the impact of undernutrition on health, education and productivity are based on the concept of the relative (or differential) risk run by individuals who suffer from undernutrition during the first stages of life as compared to the risk run by a healthy child. This is valid both for the incidental-retrospective analysis and for the prospective-savings analysis.

Table 3.1: Reference year for COHA study in 21 African Member States

Reference Year	Country	Reference Year	Country	Reference Year	Country
2012	Burkina Faso	2012	Ghana	2009	Mauritania
2014	Chad	2015	Guinea Bissau	2015	Mozambique
2014	Democratic Republic of Congo	2014	Kenya	2013	Niger
2009	Egypt	2014	Lesotho	2012	Rwanda
2009	Eswatini	2013	Madagascar	2014	Sudan
2009	Ethiopia	2012	Malawi	2009	Uganda
2018	Gambia	2013	Mali	2015	Zimbabwe





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IV Chapter

Social & Economic Cost of Child Undernutrition in the Health Sector

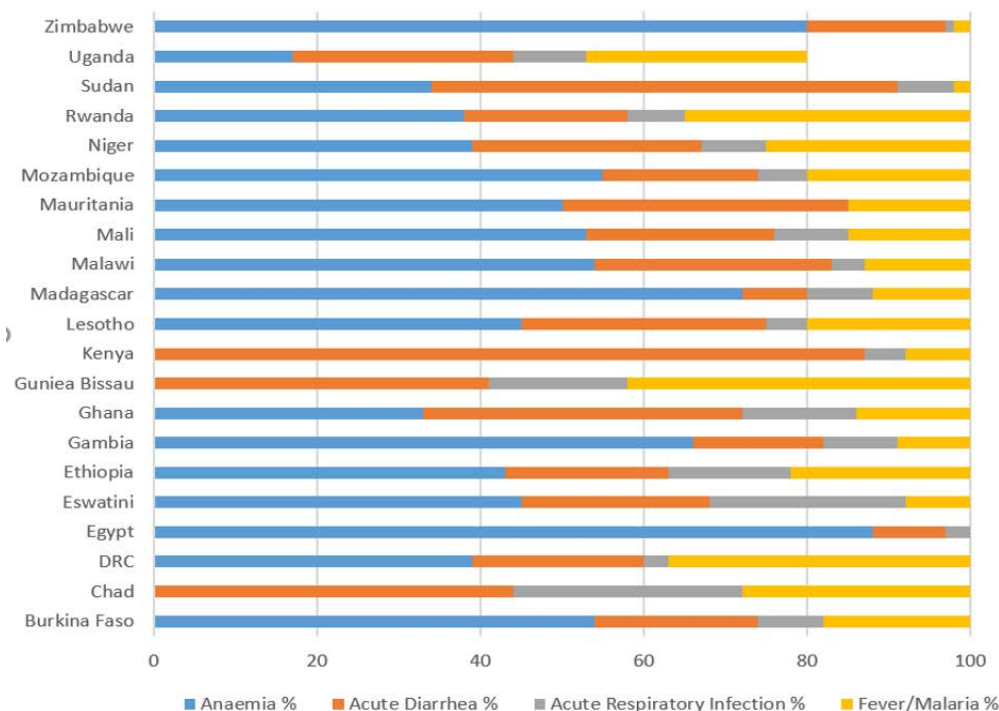


Chapter IV: Social & Economic Cost of Child Undernutrition in the Health Sector

Effects on Morbidity

The COHA study has examined health costs associated with treating low birth weight (LBW), underweight, anaemia, acute respiratory infections (ARI), acute diarrheal syndrome (ADS), and fever/malaria associated with undernutrition in children under the age of five. According to the Member States that have undertaken the COHA study, undernourished children are more susceptible to recurring illness. Based on data from the 21 Member states, this continental report estimates that, there were 24.5 million incremental episodes of illness related to diseases associated with underweight. Figure 4.1 shows the distribution of morbidity cases associated with undernutrition in the Member States that have undertaken the COHA study.

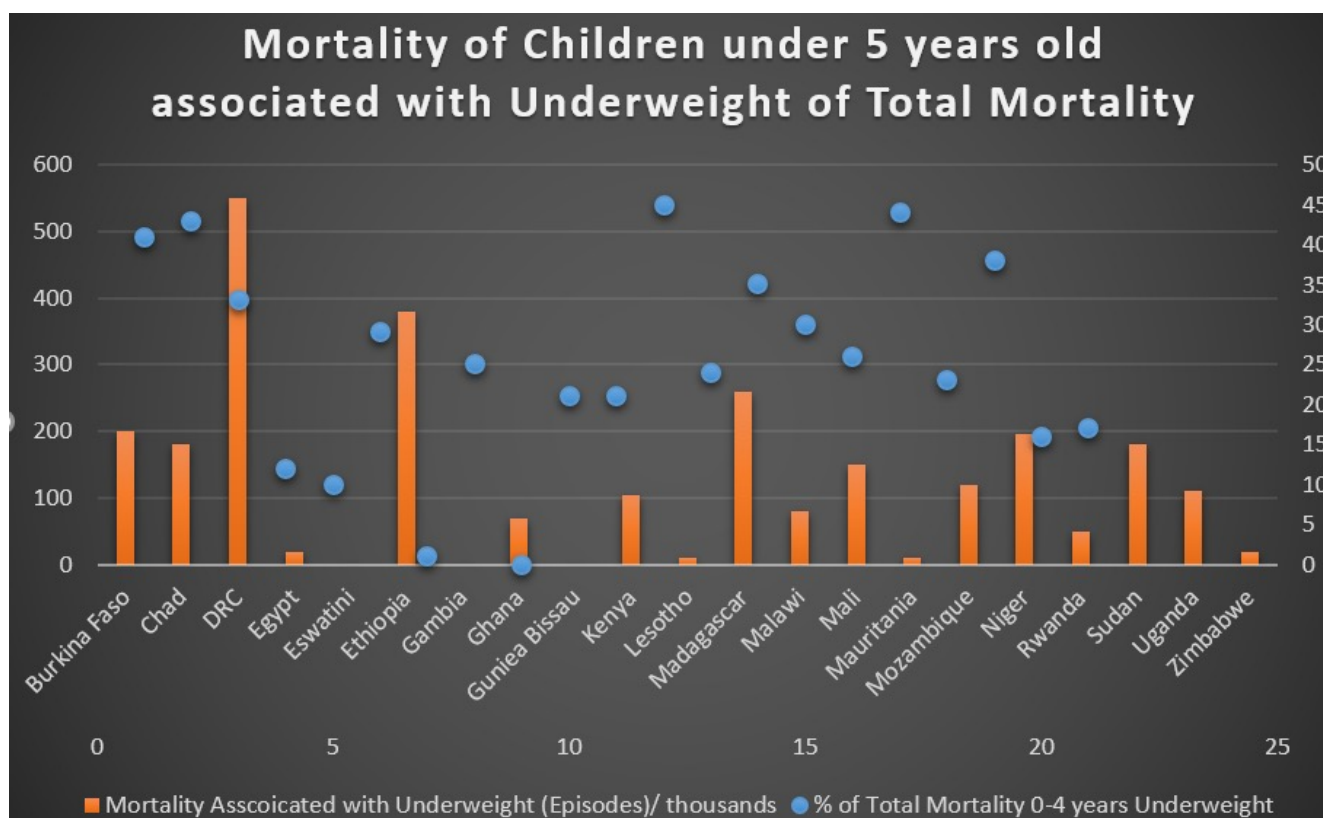
Figure 4.1: Distribution of morbidity cases in (21 Member States):



Effects on Mortality

Over the last decade it is estimated that 3 million child deaths in the 21 Member States that have undertaken the COHA study were directly associated with undernutrition. These deaths represent about 26 percent of all child mortality for this period. Thus, it is evident that undernutrition significantly exacerbated the rates of death among children and limited the Member States capacity to achieve the goal to reduce child mortality. Figure 4.2 show in detail the number and percentage of child mortality associated with underweight.

Figure 4.2: Mortality of children under 5 years associated with underweight of total mortality



Source: 21 Member States COHA data

Based on the twenty-one (21) Member States that have undertaken the study, it is estimated that an equivalent of 16.1 percent of the current workforce has been lost due to the impact of undernutrition in increasing child mortality rates. This represents about 3.5 million people who would have been between 15-64 years old, and part of the working age population of the 21 respective Member States.

Public and private health costs of undernutrition

The treatment of undernutrition and related illnesses is a critical recurrent cost to health systems. Treating a severely underweight child for example, requires a comprehensive protocol that is often costlier than the monetary value and effort needed to prevent undernutrition. The economic cost of each episode is often increased by inefficiencies when such cases are treated without proper guidance from a health-care professional or due to lack of access to proper health services. These costs generate a significant burden not just to the public sector but to household and society as a whole. It is estimated that 24.5 million clinical episodes in the 21 Member States that have undertook the study, were associated with the higher risk present in undernourished children. As indicated in Table 4.2, these episodes resulted in an estimated cost of about USD 3.2 billion.

Table 4.1: Total Health Costs of Undernutrition

Country	Total Health Cost in Millions (USD)	% GDP
Burkina Faso	122	1.17
Chad	340	2.78
Democratic Republic of Congo	229	0.59
Egypt	213	0.11
Eswatini	7	0.24
Ethiopia	155	0.55
Gambia (The)	6	0.40
Ghana	199	0.49
Guinea Bissau	17	2.30
Kenya	212	0.34
Lesotho	4	0.15
Madagascar	169	1.59
Malawi	46	0.80
Mali	17	0.15
Mauritania	6	0.11
Mozambique	188	0.63
Niger	60	0.80
Rwanda	106	1.49
Sudan	800	1.03
Uganda	259	1.62
Zimbabwe	72	0.50
Total	3,227	

Source: Model estimations based on 21 Member States that undertook the study

Most of these costs incurred were associated with the protocol required to nutritionally rehabilitate an underweight child, which often requires therapeutic feeding. An important element to highlight is the particular costs generated by the treatment of low birth weight children. A large proportion of costs related to undernutrition are borne by families as these children are often not provided with adequate health care. In the 21 Member States, the model estimated that families bear around 57 percent of the costs associated with undernutrition amounting to about USD 1.84 billion, while the cost to the health system was 43 percent amounting to about USD 1.39 million bringing the total health cost to about USD 3.2 billion. The burden of costs related to undernutrition is an important expenditure component.





Chapter

The Social & Economic Cost of Child Undernutrition on Education



Chapter V: The Social & Economic Cost of Child Undernutrition on Education

There is no single cause for repetition and dropout, however, there is substantive research that shows that students who were stunted before the age of 5 are more likely to underperform in school. The cost estimations are based on information provided by the Member States that undertook the study on the average cost of a child to attend primary and secondary school as well as estimations of costs incurred by families to support schooling.

Effects on repetition

Children who suffered from undernutrition before 5 years of age are more likely to repeat grades, compared to those who were not affected by undernutrition. In the 21 Member States, enrolment rate was 85.7 percent in primary education and 51.4 percent in secondary education. Based on official information provided by the Member States, an estimate of 11,491,642 children repeated grades. Figure 5.1 shows the repetition number and percentages in the 21 Member States while figure 5.2 shows the average repetition rate in education by nutritional status in the 21 Member States. Using data on increased risk of repetition among stunted students, it is estimated that the repetition rate for stunted children was 14 percent, while the repetition rate for non-stunted children was 7.5 percent. Thus, given the proportion of stunted students, the model estimates that 2,109,869 students, or 18.4 percent of all repetitions in the reference year were associated with stunting.

Figure 5.1: Grade repetition associated with stunting (21 Member States)

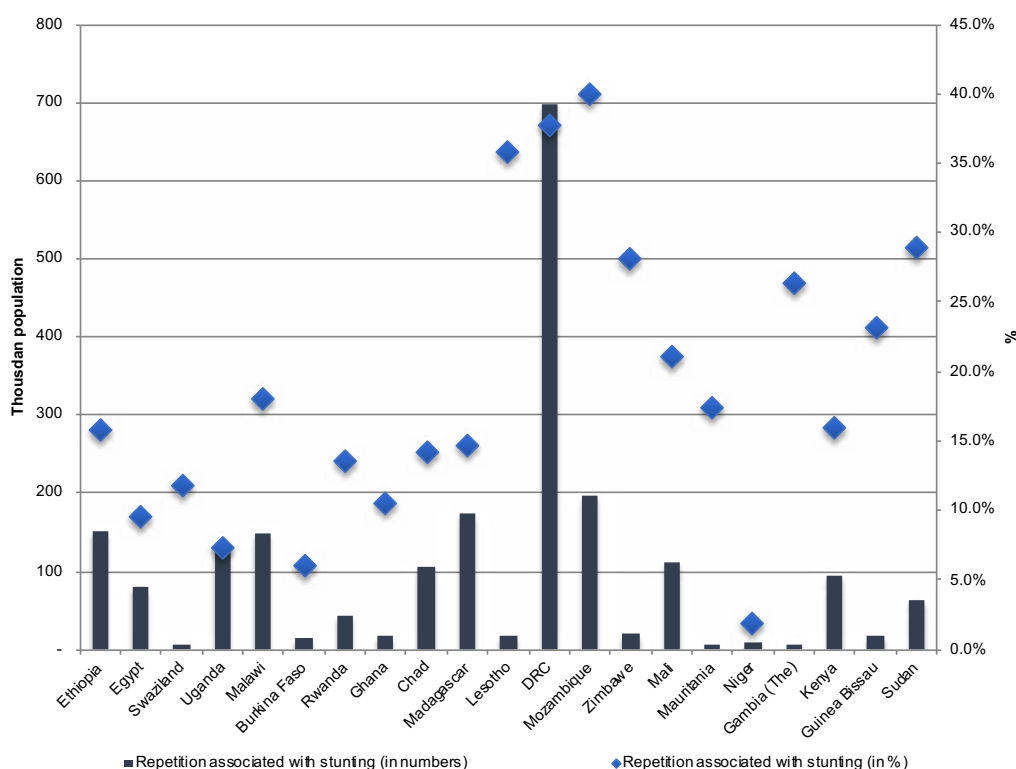
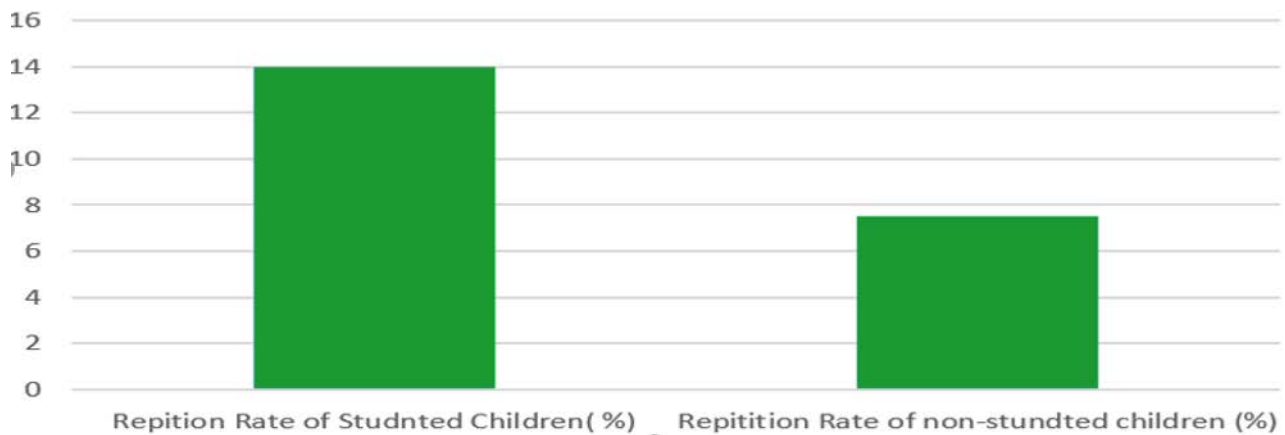
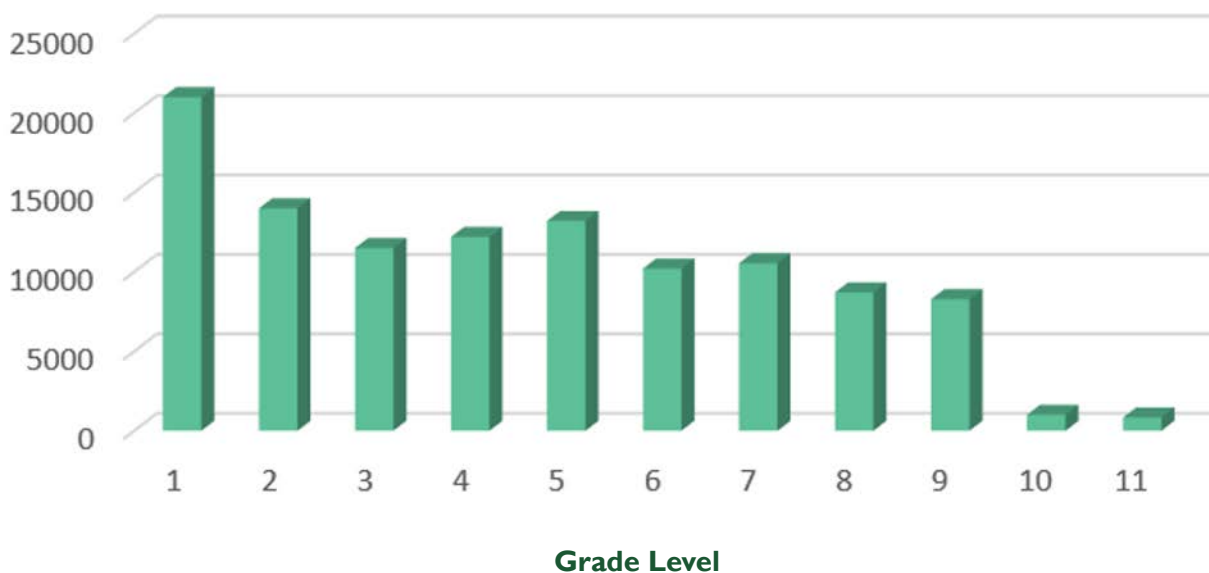


Figure 5.2: Repetition Rates by Nutritional Status (21 Member States)



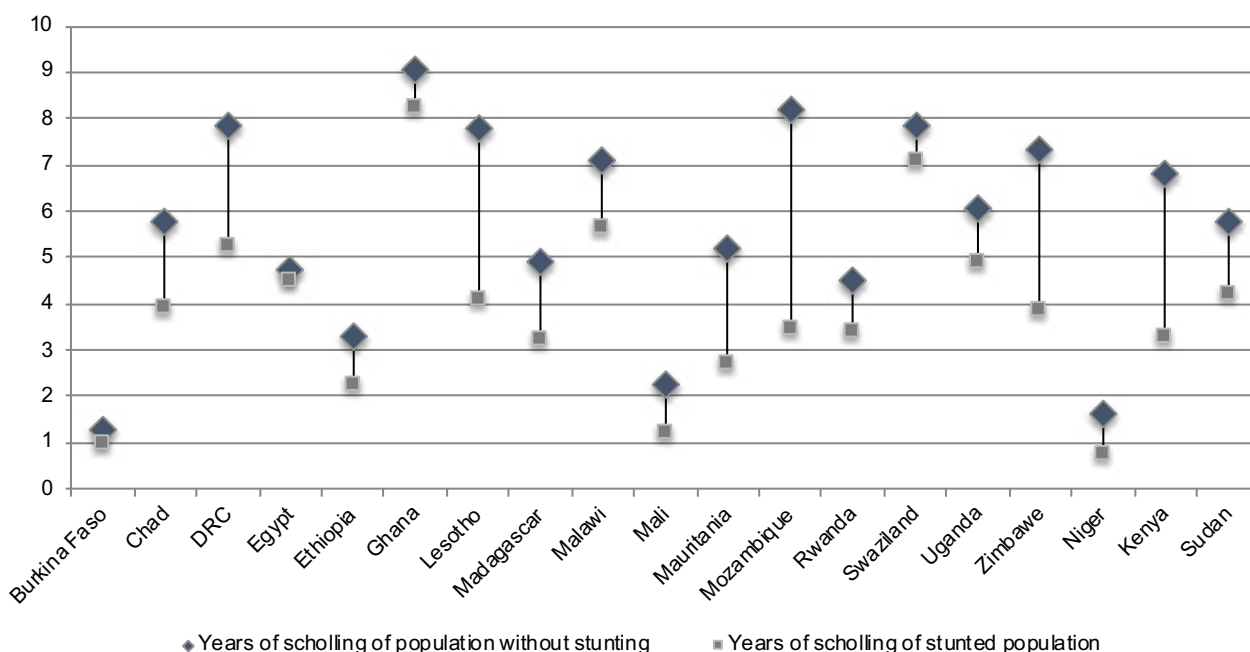
As shown in Figure 5.3, most of these grade repetitions happen during primary and preparatory school.



Effects on retention/Drop-out

Research shows that students who were stunted as children are more likely to drop out of school. According to available data and taking into account relative risks relating to the consequences of stunting on education, it can be estimated that only 19.7 percent of stunted people (of working age) in the 21 Member States completed primary school compared to 79.2 percent of those who were never stunted. The costs associated with school dropouts are reflected in the productivity losses experienced by individuals searching for opportunities in the labour market. As such, the impact is not reflected in the school age population, but in the working age population. Hence, in order to assess the social and economic costs in the reference year, the analysis focuses on the differential in schooling levels achieved by the population who suffered from stunting as children and the schooling levels of the population which was never stunted.

Figure 5.4: Years of schooling of total population and stunted population (19 Member States)



NB: Data unavailable for Kenya & Guinea Bissau

Estimation of public and private education costs

Repetition in schooling has direct cost implications for families and the school system. Students who repeat grades generate an incremental cost to the education system, as they require twice as many resources to repeat the year. In addition, the caretakers also have to pay for an additional year of education. In the respective reference years, the average of about 2,109,869 students in the 21 Member States who repeated grades (and whose repetitions are associated with undernutrition) incurred a cost of USD 345.17million. The largest proportion of repetitions occurred during primary school, where the cost burden falls mostly on the public education system. Table 5.1 summarizes the public and private education costs associated with stunting.

Table 5.1: Public & Private Costs of Grade Repetition (21 Member States)

Country	Repetition associated with stunting (in numbers thousands)	Cost in millions USD	% GDP	% Cost to Families/ Caretakers	% Cost to the Government/ Public Sector
Burkina Faso	13,721	1.73	0.017	90%	10%
Chad	16,875	18.30	0.15	73%	27%
Democratic Republic of Congo	697,973	74.21	0.19	88%	12%
Egypt	175,175	49.22	0.03	87%	13%
Eswatini	44,255	0.70	0.024	49%	51%
Ethiopia	152,488	7.92	0.03	58%	42%
Gambia (The)	6,188	0.85	0.00	74%	26%
Ghana	105,732	8.30	0.02	70%	30%
Guinea Bissau	16,854	0.96	0.13	57%	43%

Kenya	94,708	36.78	0.06	70%	30%
Lesotho	17,044	11.74	0.42	43%	57%
Madagascar	79,396	11.43	0.11	49%	51%
Malawi	147,044	13.86	0.24	66%	34%
Mali	111,539	17.76	0.16	42%	58%
Mauritania	6,152	1.47	0.03	57%	43%
Mozambique	195,370	38.12	0.13	61%	39%
Niger	7,665	1.40	0.02	23%	77%
Rwanda	133,931	3.87	0.05	38%	62%
Sudan	63,215	24.31	0.03	44%	56%
Uganda	5,550	9.68	0.06	80%	20%
Zimbabwe	18,996	12.58	0.09	37%	63%
Total	2,109,869	345			

Source: Model estimations based on costing data from the 21 Member States that undertook the study

The social cost of undernutrition in education is shared between the public/government sector and the private sector (families/caretakers). Of the overall costs (21 Member States), which sums up a total of about USD 345 million, the distribution of this cost varies depending on whether the child repetition is in primary or secondary education. In both cases, families cover a larger proportion of the burden education.



VI

Chapter

The Social & Economic Cost of Child Undernutrition in Productivity



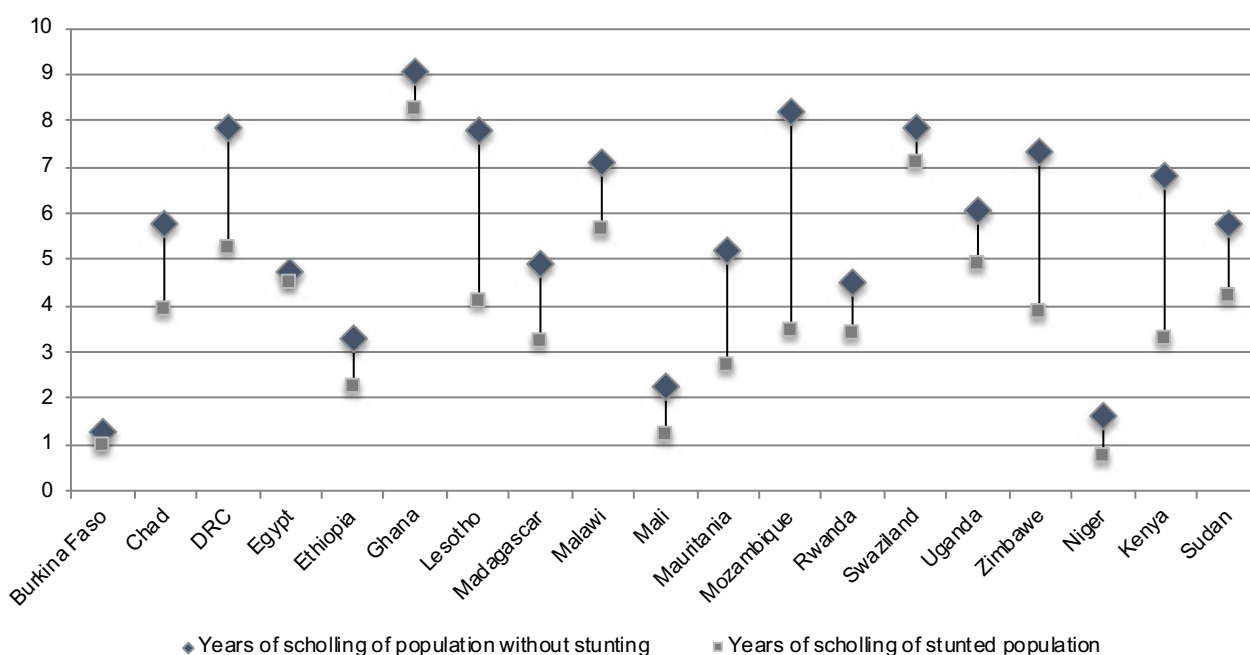
Chapter VI: The Social & Economic Cost of Child Undernutrition in Productivity

Child undernutrition affects human capital and productivity in several dimensions. Children who suffered from undernutrition are more likely to achieve lower educational levels than healthy children. The low education levels attained, often makes them less qualified for work, thus reducing their income-earning potential for non-manual work. Adults who suffered from stunting as children tend to have less lean body mass and are therefore more likely to be less productive in manually intensive activities than those have not been affected by growth retardation. Moreover, the population lost due to child mortality hinders economic growth, as these people could have been healthy productive members of the society. The distribution of the labour market is an important contextual element in determining the impact of undernutrition on national productivity.

Losses from non-manual activities due to reduced schooling

As described in the education section of this report, students who were undernourished as children complete, on average, fewer years of schooling than students who were adequately nourished as children. This loss in educational years has particular impact for people who are engaged in non-manual activities, in which a higher academic education represents a higher income. Figure 5.4 shows the average years of schooling among non-stunted population is 5.4 while that for stunted children is 3.2 years, which is an educational gap between the stunted and non-stunted population of 2.2 years.

Figure 5.4: Years of schooling of total population and stunted population (19 Member States)



NB: Data unavailable for Kenya & Guinea Bissau

The lower educational achievement of the stunted population has an impact on the expected level of income a person would earn as an adult. As presented in Table 6.1, it is estimated (21 Member States) that estimated annual losses in productivity for this group is about USD 4.17 billion.

Table 6.1 Total Costs associated with Productivity (21 Member States)

Country	Total Productivity Loss	Losses in potential productivity in non-manual activities	Losses in potential productivity in manual activities	Income losses due to mortality
Burkina Faso	\$ 742.61	\$ 40.77	\$ 72.87	\$ 628.97
Chad	\$ 803.97	\$ 59.89	\$ 68.75	\$ 675.33
Democratic Republic of Congo	\$1,467.51	\$ 196.55	\$ 243.98	\$ 1,026.98
Egypt	\$ 3,423.15	\$ 483.46	\$ 1,951.28	\$ 988.42
Eswatini	\$ 84.31	\$ 29.51	\$ 14.84	\$ 39.95
Ethiopia	\$ 4,538.33	\$ 52.99	\$ 1,089.57	\$ 3,395.77
Gambia (The)	\$ 70.20	-	\$ 24.48	\$ 45.72
Ghana	\$ 2,376.12	\$ 349.83	\$ 177.55	\$ 1,848.74
Guinea Bissau	\$ 52.30	-	\$ 19.50	\$ 32.90
Kenya	\$ 4,004.59	\$ 757.90	\$ 1,099.52	\$ 2,147.18
Lesotho	\$ 184.42	\$ 11.22	\$ 18.62	\$ 154.58
Madagascar	\$ 1,353.17	\$ 178.56	\$ 176.47	\$ 998.15
Malawi	\$ 536.66	\$ 101.58	\$ 66.72	\$ 368.35
Mali	\$ 416.29	\$ 39.10	\$ 38.55	\$ 338.65
Mauritania	\$ 750.31	\$ 90.43	\$ 167.45	\$ 492.43
Mozambique	\$ 1,390.85	\$ 480.48	\$ 134.94	\$ 775.43
Niger	\$ 478.46	\$ 129.95	\$ 72.28	\$ 276.23
Rwanda	\$ 709.92	\$ 65.72	\$ 140.83	\$ 503.37
Sudan	\$ 1,191.03	\$ 176.55	\$ 113.69	\$ 900.79
Uganda	\$ 647.43	\$ 118.72	\$ 205.33	\$ 323.37
Zimbabwe	\$ 1,569.89	\$ 809.10	\$ 83.46	\$ 677.33
Total	\$ 26,791.54	\$ 4,172.32	\$ 5,980.68	\$ 16,638.54

Losses in manual intensive activities

Manual activities are mainly observed in the agricultural, forestry and fishing subsectors, employing over 65 percent of the working age population in the 21 Member States. The results show that stunted workers engaged in manual activities tend to have less lean body mass and are more likely to be less productive in manual activities than those who were never affected by growth retardation. The Labour force estimated that 105 million people in the 21 Member States are engaged in manual activities, of which the COHA model estimates that 50.4 million were stunted as children. This represents an estimated annual loss in potential productivity due to manual activities estimated at about USD 5.9 billion.

Opportunity cost due to mortality

As indicated in the health section of this report, there is an increased risk of child mortality associated with undernutrition. The COHA model estimates that 1.2 million people of working age were lost from the 21 respective Member States workforce in the reference year due to child mortality associated with undernutrition. This represents a 12 percent reduction in the current workforce of the 21 Member States. Considering the productive levels of the population, by their age and sector of labour, the model estimates that in the reference year, the economic losses (measured by working hours lost due to undernutrition-related child mortality) were estimated at about USD 16.6 billion.

Overall productivity losses

The total losses in productivity are estimated at approximately USD 26.8 billion. The largest share of productivity loss is as a result of reduced productivity due to undernutrition-related mortality which represents 62 percent of the total cost. The lost productivity in non-manual activities represents 15.6 percent of the costs. The income differential in manual labour, due to the lower physical and cognitive capacity of people who suffered from growth retardation as children, represents 22.4 percent of the total costs. Table 6.2 below shows the percentage of GDP associated with the total cost of Productivity (21 Member States)

Table 6.2: Percentage of GDP associated with Total Costs of Productivity

Country	Losses in potential productivity in non-manual activities	Losses in potential productivity in manual activities	Income losses due to mortality
Burkina Faso	0.4%	0.7%	6.0%
Chad	0.5%	0.6%	5.5%
DRC	0.5%	0.6%	2.6%
Egypt	0.3%	1.0%	0.5%
Eswatini	1.0%	0.5%	1.4%
Ethiopia	0.2%	3.8%	11.9%
Gambia (The)		1.7%	3.1%
Ghana	0.9%	0.4%	4.5%
Guinea Bissau		2.6%	4.4%
Kenya	1.2%	1.8%	3.5%
Lesotho	0.4%	0.7%	5.5%
Madagascar	1.7%	1.7%	9.4%
Malawi	1.8%	1.2%	6.4%
Mali	0.4%	0.3%	3.0%
Mauritania	1.6%	3.0%	8.8%
Mozambique	1.6%	0.5%	2.6%
Niger	1.8%	1.0%	3.8%
Rwanda	0.9%	2.0%	7.1%
Sudan	0.2%	0.2%	1.2%
Uganda	0.7%	1.3%	2.0%
Zimbabwe	5.6%	0.6%	4.7%

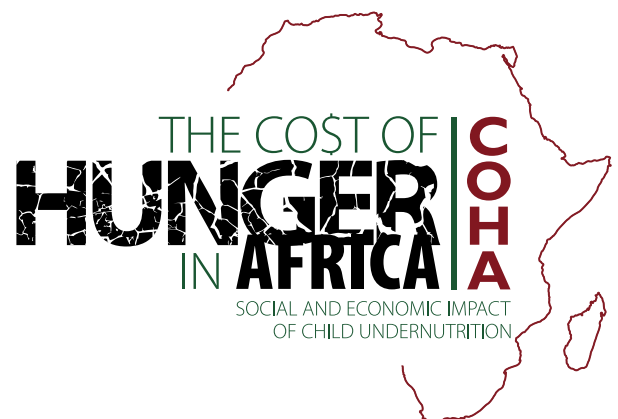




WII

Chapter

Summary of Effects & Costs



CHAPTER VII: SUMMARY OF EFFECTS & COSTS

Summary of Costs and GDP of respective Member State

Table 7.1

Country	Productivity	Education	Health	% of GDP
Burkina Faso	\$ 743	\$ 1.73	\$ 122	8.3%
Chad	\$ 804	\$ 18	\$ 340	9.5%
DRC	\$ 1,467.51	\$ 74.21	\$ 228.86	3.9%
Egypt	\$ 3,423	\$ 49.22	\$ 213	1.9%
Ethiopia	\$ 4,538	\$ 7.92	\$ 155	16.5%
Ghana	\$ 2,376	\$ 8.30	\$ 199	6.3%
Lesotho	\$ 184	\$ 11.74	\$ 4	6.5%
Madagascar	\$ 1,353	\$ 11.43	\$ 169	12.8%
Malawi	\$ 537	\$ 13.86	\$ 46	10.3%
Mali	\$ 416.29	\$ 17.76	\$ 16.85	4.1%
Mauritania	\$ 750.31	\$ 1.47	\$ 6.46	13.5%
Mozambique	\$ 1,390.85	\$ 41.62	\$ 188.15	5.4%
Rwanda	\$ 710	\$ 3.87	\$ 106	11.5%
Swaziland	\$ 84	\$ 0.70	\$ 7	3.1%
Uganda	\$ 647	\$ 9.68	\$ 259	5.7%
Zimbabwe	\$ 1,569.89	\$ 12.58	\$ 72.23	11.5%
Niger	\$ 478.46	\$ 1.40	\$ 59.78	7.1%
Gambia (The)	\$ 70.20	\$ 0.02	\$ 5.92	4.6%
Kenya	\$ 4,004.59	\$ 36.78	\$ 211.79	6.9%
Guinea Bissau	\$ 52.30	\$ 0.96	\$ 17.30	9.4%
Sudan	\$ 1,191.03	\$ 24.31	\$ 800.14	2.6%
Total	\$ 26,791.54	\$ 347.84	\$ 3,227.90	\$30,367.28

Analysis of Scenarios

The results presented in this section project the additional costs to the health and education sectors as well as losses in productivity that 21 Member States economy would bear in the future. They also indicate potential savings to be achieved. This is a call for action to take preventive measures and reduce the number of undernourished children to avoid large future costs to the society. The COHA model generates a baseline that allows development of various scenarios based on nutritional goals established in each Member State using the prospective dimension. The generated outcomes can be used to advocate for increased investments in proven nutritional interventions. The methodology follows each group of children and, based on each scenario, estimates a progressive path towards achieving the set nutritional goals.

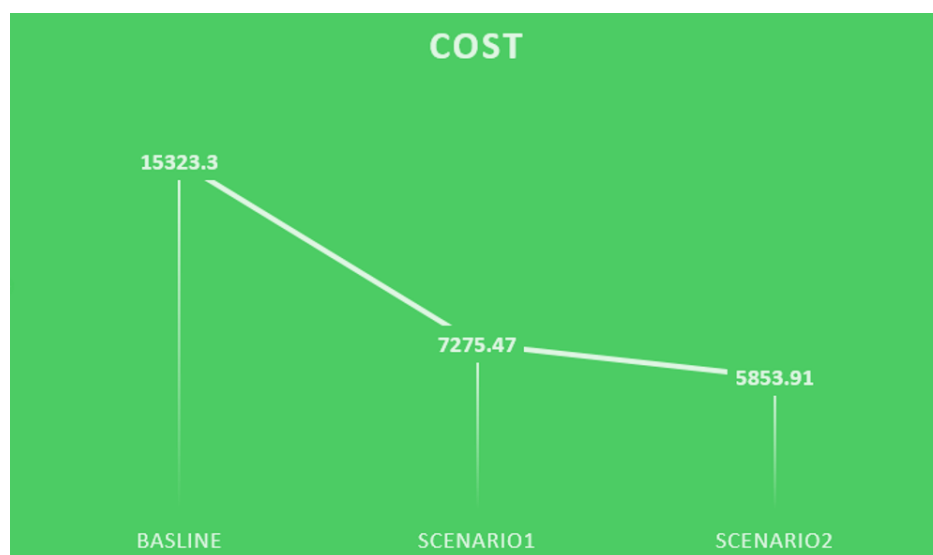
The scenarios developed for this report are as follows:

Baseline: The Cost of Inaction. Progress in reduction of stunting and underweight children remains at the level achieved in the year of study of each of the 21 Member States that undertook the study: For the baseline scenario, the progress of reduction of the prevalence of undernutrition stops at the levels achieved in the reference year. It also assumes that the population growth would maintain the pace reported in the year of the analysis, hence increasing the number of undernourished children and the estimated cost. As this scenario is highly unlikely, its main purpose is to establish a baseline, to which any improvements in the nutritional situation are compared in order to determine the potential savings in economic costs.

Scenario #1: Cutting by half the prevalence of child undernutrition by 2025. In this scenario, the prevalence of underweight and stunted children would be reduced to half of the reference year values. A strong effort has to be carried-out to complete this scenario that would require a revision of the effectiveness of on-going interventions for the reduction of stunting.

Scenario #2: The ‘Goal’ Scenario. Reduce stunting to 10 percent and underweight children to 5 percent by 2025 (Malabo targets). In this scenario, the prevalence of stunted children would be reduced to 10 percent and the prevalence of underweight children under the age of five, to 5 percent. Currently, the global stunting rate is estimated at 21.3 percent, with Africa having the highest prevalence at 33 percent while the rate of underweight in Africa is 28 percent. This Goal Scenario would require a true call for action and would represent an important regional challenge. The progress rate required to achieve this scenario would be 4.6 percent annual reduction for a period of 5 years 2020-2025. As shown in Figure 7.1, the progressive reduction of child undernutrition generates a similar reduction in the costs associated to it.

Figure 7.1: Trends of Estimated Costs (millions USD) of Child Undernutrition from the Reference year to 2025 (21 Member States)



Based on average of the data from the 21 Member States, in the baseline scenario, where the progress and efforts in reducing child undernutrition would stay at the levels of the reference year, the total cost would be USD 15.3 billion reduced by 52.5 percent to USD 7.3 billion given Scenario 1 is achieved then a further 19.5 percent given scenario 2 is achieved. This represents a total reduction in costs associated with child undernutrition to 72 percent (USD 9.5 billion). Table 7.2 shows estimated projected economic savings per scenario for the 21 respective Member States and table 7.3 summarizes the projected savings.

Projected Savings

Table 7.2 Estimated savings for each scenario

Country	Scenario 1 - Halving The Prevalence Of Child Undernutrition By 2025 (Millions Usd)	Scenario 2 - The Malabo Goal Scenario "10% And 5%" By 2025 (Millions Usd)	*Scenario 3 - Country Specific Policy Scenario Gambia 9.6% And 6% By 2030 Kenya 14.7% 8.4% By 2030 (Millions Usd)
Burkina Faso	65	111.7	
Chad	184.1	370.1	
Democratic Reublic Of Congo	176.32	383.50	
Egypt	133	165	
Eswatini	47	60	
Ethiopia	376	784	
Gambia*	87.98	66.35	104.53
Guinesa Bissau	20.8	32.13	
Ghana	189.4	241.1	
Kenya*	451.81	653.53	377.17
Lesotho	15	24	
Madagascar	36.5	72.5	
Malawi	61.6	85.9	
Mali	80.1	138.54	
Mauritania	22	41	
Mozambique	15	24	
Niger	596.2	807.7	
Rwanda	11.5	14.1	
Sudan	49.9	103.1	
Uganda	88	131	
Zimbabwe	476	635	
Total Annual Average Savings	3,183.21	4,944.25	481.7

NB: *SCENARIO 3 - COUNTRY SPECIFIC POLICY SCENARIO: Gambia 9.6% and 6% by 2030; Kenya 14.7% 8.4% by 2030. Other Member States who conducted the study fall within scenario 1 & 2

Table 7.3: Comparison of COHA Scenarios (21 Member States)

Scenarios	Annual percentage of child stunting reduction required	Economic Savings (GDP)
Cost of Inaction Progress of reduction of the prevalence of undernutrition stops at the level recorded in the year of analysis (33% Stunting & 28% Underweight)	Non-applicable	Increase of up to 82% of the loss recorded in the year of data collection (for the period up to 2025)
Scenario 1 Cutting by half the prevalence of stunting and underweight by 2025 (16.5% Stunting & 14% Underweight)	From 2.8% to 3.3 %	Annually up to USD 3.2 billion
Scenario 2 Reducing stunting to 10% and underweight children to 5% by 2025	4.6 %	Annually up to 4.9 billion USD

According to COHA studies, out of the 21 countries, the cost to the health sectors ranges from 0.15 percent to 2.8 percent of their GDP, with seven Member States exceeding 1 percent of their GDP. A child who is undernourished is at risk of suffering from cognitive and physical impairment, which impacts the quality of life as a child and an adult within the society. In the countries of analysis nearly 2.1 million children repeated a grade due to stunting, representing 18.4 percent of the total number of repeaters in these countries, with an estimated cost to GDP ranging from 0.002 percent to 0.42 percent. Overall, increased repetition in primary school accounted for the greater share of the cost to the education sector. Research indicates that stunted children are likely to be more affected when entering the labour force. This is reflected in reduced productive capacities. Overall, the productivity cost is much higher and ranges from 1.53 percent to 15.97 percent. In particular, in fourteen of the countries involved the productivity cost exceeded 5 percent of their GDP and is largely driven by undernutrition-related mortality. The other two factors contributing to the costs of productivity are related to manual intensive activities and non-manual activities. These costs are well reflected in the percentage of adult population suffering from stunting, at least from 35 percent to 40 percent of the population of the COHA countries analysed. The potential economic benefits of reducing undernutrition are a key element in making a case for nutrition investments. The reduction in clinical cases in the health system, lowered grade repetition and improved educational performance as well as physical capacity are elements that contribute directly to the national productivity. One of the key contributions of this study is having identified the positive externalities in the economy when child undernutrition is reduced. The main conclusion of this study is that chronic child undernutrition cannot be regarded as a sectoral issue because its causes and its effects are linked to social and economic policies. Therefore, the reduction of stunting requires interventions in the areas of health, education, social protection, trade, industry, and social and economic infrastructure, as well as in employment and any advances in reducing stunting will constitute proof of moving a step forward towards achieving inclusive development in the country, towards more equitable growth.





Chapter

Policy Options & Recommendations



CHAPTER VIII: POLICY OPTIONS & RECOMMENDATIONS

African Success Stories (Member State Progression in addressing Child Undernutrition)

The experience of some Member States that achieved a substantial reduction in the prevalence of stunting suggests that high level political commitment, effective nutrition governance, a focus on maternal and child health and nutrition, in particular the first 1 000 days have been important factors in several countries. In addition, aligning with continental and global nutrition targets and building partnerships has helped in planning and implementing nutrition- sensitive and -specific interventions using a multisector approach. Table 8.1 shows success stories of some Member States.

Table 8.1: African Progression

COUNTRY	Member State Initiatives
Burkina Faso	Strengthened nutrition governance & joined the SUN movement geographically targeted interventions to address infant & young child feeding care. 43.1% to 21.1% from 2003-2017
Eswatini	Swaziland National Agriculture Investment Plan (SNAIP) incorporated nutrition targets for the first time, including reducing stunting and wasting. Ministry of Health – conducted a gap analysis to prioritize interventions to address causes of stunting and develop national guidelines for a national stunting reduction
Ethiopia	Ethiopia is progressively reducing undernutrition with the key strategy of a strong safety net and a comprehensive plan. Government has revised the National Nutrition Programme (NNP) – SECOTA declaration, and increased frequency of stunting monitoring.
Ghana	Focus on improving health, sanitation, nutrition & mother’s caring knowledge. Initiatives to scale up community health planning & services & improving infant & young child feeding & care. 30.6% to 18.8% from 1999 to 2014
Kenya	Political commitment at the highest level & effective nutrition governance. Joined SUN movement & focused on maternal & child health & nutrition, recognizing the importance of the 1st 1000 days. Legislated fortification of key foods with essential minerals and vitamin A. 40.2% to 26.2% from 2005 to 2014
Lesotho	Developed a National Food and Nutrition policy and costed action plan to operationalise the policy & address COHA recommendation to eliminate stunting.
Madagascar	The Prime Minister signed a multi-agency programme on stunting prevention and increased domestic funding for nutrition.
Uganda	Stunting is recognized as a key development indicator and included in the draft National Development Plan II The government prioritised stunting reduction, and embarked on awareness raising campaigns through the New Vision newspaper.

Recommendations & Policy Options

While much is known about the most effective nutrition-specific interventions, evidence of the effectiveness of nutrition-sensitive interventions are still being developed. A rich body of reports and studies provide useful examples of nutrition sensitive practices. For example, the Synthesis of Evidence of Multisectoral Approaches for Improved Nutrition is a product of the Banking on Nutrition Partnership- an initiative of the African Development Bank undertaken with the support of Big Win Philanthropy and Aliko Dangote Foundation – and focuses on different sector interventions that show impact for nutrition. In addition, the 2015 Africa Trends and Outlooks Report of the African Union drew attention to steps needed to promote a nutrition revolution and support better diets. Economic resilience must be strengthened to safeguard food security and nutrition against economic adversity. This will require short and long-term policies and programmes. In the short term, countries need to protect incomes and purchasing power in the face of economic hardship. In addition, it is important to have in place health sector policies that protect the poor against catastrophic out-of-pocket healthcare costs as well as policies aimed at reducing excessive volatility of food prices. In the longer term, countries need to invest to reduce economic vulnerabilities and inequalities; build capacity to withstand shocks; maintain health and other social expenditures; and use policy tools to create healthier food environments. This requires balancing a set of policies and investments to achieve an inclusive structural transformation that diversifies the economy away from commodity dependence, while fostering poverty reduction and more egalitarian societies.

Table 8.2: Menu of policy options

Recommendation	Policy Options
<p>I. Raise the priority given to the prevention and control of malnutrition and stunting.</p>	<ul style="list-style-type: none"> i. Increase advocacy efforts to raise public and political awareness on the social and economic impacts of child undernutrition to ensure that nutrition, with a focus on addressing stunting and underweight, receives the highest possible level of commitments. This includes continuation of the efforts like the African Leaders for Nutrition, Nutrition Champions, National Champions as well as the Continental Nutrition Score Card. ii. Review of the ongoing integration of nutrition into national, regional and local development plans. iii. Review national development frameworks to ensure that the reduction of stunting prevalence is an outcome indicator of social and economic development policies. iv. Set aggressive, absolute value targets for the reduction of stunting and underweight that go beyond a proportional reduction at the national level. v. Incorporate additional nutrition-sensitive indicators, for instance on micronutrient deficiency which are critical for addressing child malnutrition, into national targets. vi. Complement international aid with nationally led financial investments and strengthening of national capacity to address child undernutrition. vii. Foster the implementation of the Continental Education Strategy for Africa for fostering improved educational outcomes which impact child undernutrition.

<p>2. Strengthen leadership, governance and coordination of a national multi-sectoral response.</p>	<ul style="list-style-type: none"> i. Establish a national nutrition agency or commission with a clear legal mandate to coordinate the activities of different sectors and position nutrition as a priority. ii. Assign specific institutional responsibilities to sectors as appropriate to ensure clear accountability. iii. Create a budget line and tracking system for funding a multi-sectoral nutrition action plan. iv. Decentralize the multi-sectoral approach by establishing desk offices in key institutions, relevant ministries, departments and agencies at national, regional and local levels to ensure proper coordination
<p>3. Improve the policy environment to ensure the availability of nutritious food and nutrition services.</p>	<ul style="list-style-type: none"> i. Increase investments in combatting undernutrition during the first 1000 days of a child's life, including through improved availability and access to nutrient-dense complementary foods for children aged 6 to 23 months old. ii. Integrate the delivery of nutrition services with other essential services and deliver nutrition service at all contact points. iii. Curb mechanisms that limit the variation of food prices, particularly for healthy foods, such as fruits, vegetables, dairy products and pulses in a context of high market volatility and macroeconomic instability. Proper labelling of foods, appropriate storage, processing, handling and regulation. iv. Implement subsidies to provide healthier food commodities that supply a portion of the nutritional intake required in geographical areas of high vulnerability. v. Encourage bio fortification of common staple foods with multiple micronutrients, especially in areas with limited food diversity and high micronutrient deficiency. vi. Explore home fortification using micronutrient powders as a strategy for improving the quality of complementary food for children above 6 months of age. vii. Scale up national school feeding programs including mandatory fortified food in school meals to ensure increased nutrient intake for school-going children. viii. Promote public-private partnerships as a strategy of engaging the private sector in the supply of accessible health services, as well as in the production and commercialization of enriched food products, and the strengthening of nutritious value chains and labelling standards.

<p>4. Strengthen communication for social and behavioural change.</p>	<ul style="list-style-type: none"> i. Provide health awareness programmes for females, particularly before marriage and pregnancy to protect them from malnutrition and provide them with the necessary information to prepare healthy, nutritious meals for their families. ii. Emphasize the importance of exclusive breastfeeding for children under 6 months, and continued to 2 years, and avoid its replacement with milk formula iii. Invest in a communication strategy and programmes for behaviour change to inform vulnerable families of nutritious low budget foods. iv. Increase the role of community workers in rural areas to ensure that they transfer health and nutrition awareness for women in the pregnancy age. v. Strengthen the capacity and role of the Ministry of Information in communicating and advocating for proper nutrition at all levels. vi. Raise awareness to convince the population on the nutritional quality of local foods and promote culinary practices that preserve these qualities. vii. Develop, review or update nutrition guides on the locally available food commodities that can be used, blended or processed to develop nutritionally enriched meals for vulnerable groups. viii. Integrate nutrition programmes in education curricula to instil the importance of nutrition, food security and dietary diversification in education from early childhood.
<p>5. Monitor trends and determinants of malnutrition and evaluate the progress of interventions.</p>	<ul style="list-style-type: none"> i. Improve monitoring and evaluation systems and link these to prevention interventions. ii. Strengthen a national nutrition surveillance system that facilitates evidence-based interventions iii. Implement a periodicity of 2 years between assessments of child undernutrition to measure short term results in the prevention of stunting. iv. Improve data systems to ensure the availability of reliable local data on nutrition indicators. v. Collect information that relates the nutritional status of the children to the livelihoods and economic activities of households, as well as access to basic services, such as water and sanitation during the assessment of child nutrition. Leveraging of the Water and Sanitation Hygiene programme (WASH). vi. Ensure stakeholders awareness and ownership of their roles in sectoral data collection.

<p>5. Monitor trends and determinants of malnutrition and evaluate the progress of interventions.</p>	<ul style="list-style-type: none"> vii. Enhance information flow and reporting by establishing a dedicated one-stop-public information website/portal for nutrition interventions. viii. Strengthen systems for the collection, analysis and reporting disaggregated data. ix. Partner with African research institutes and universities to support the generation of a comprehensive body of evidence, the development of new tools and strategies to feed the improvement of programme design and implementation. x. Support continental efforts to improve data collection, analysis, assessment and documentation to inform better and effective policies and programmes. xi. Establish a robust tracking mechanism to measure Member States investments in child nutrition and progress achieved. xii. Adopt a more structured approach to measure short-term results for the prevention of child undernutrition and to systematically review and improve interventions. xiii. Leverage the Continental Nutrition Accountability Scorecard to measure, track progress on agreed nutrition indicators and strengthen the engagement of governments and partners.
<p>6. Prioritize innovative, multisector nutrition strategies and interventions that are part of sustainable food systems.</p>	<ul style="list-style-type: none"> i. Set up sustainable food systems with nutrition-oriented value chains as a game changer in the fight against child undernutrition. ii. Scale up school feeding programmes with healthy, diverse and nutritious food with a focus on-sensitive value chain. School feeding programs designed around staple and indigenous foods. iii. Ensure alignment and coherence with other sectoral strategies related to health, education, and agriculture, particularly, to address child undernutrition and maximize impact. iv. Mainstream nutrition outcomes in all national and continental strategies and plans. v. Establish effective coordination mechanisms through comprehensive consultative and inclusive participatory processes to facilitate understanding of each stakeholders' roles and responsibilities and strengthen synergies. vi. Establish multisector nutrition platforms to capitalize on the cross-cutting benefits of nutrition interventions. vii. Develop a clear roadmap for key stakeholders at all levels to guide the implementation of concrete and time bound actions to achieve expected targets.

7. Mainstream gender outcomes in child nutrition interventions.	<ul style="list-style-type: none">i. Prioritize programmes and policies that empower women and adolescent girls and increase their awareness and skills on maternal care, pregnancy and their daily nutritional needs.ii. Invest in opportunities for training targeting youth and women to expand job opportunities and income generation.
8. Plan for stable and continued financing for investing in child nutrition.	<ul style="list-style-type: none">i. Mobilize additional resources for the implementation of the nutrition action plan including through specific budget allocations (e.g. taxes, lotteries, private sector etc.).ii. Explore and adopt innovative financing mechanisms to channel new resources and fill the investment gap in nutrition including through Public - Private partnerships, risk management tools, innovative credit tools and smart subsidies, migrant remittances and diaspora investments.iii. Increase investments in comprehensive and cost-efficient nutrition sensitive social protection systems.iv. Promote the investment in implementation and replication of sustainable food system to improve returns to child nutrition.

CONCLUSION:

The African Continent is making commendable efforts to improve the nutrition status. The burden of child undernutrition is a direct threat to economic gains being made in the continent and has the potential to compromise the development and productivity of Africa's future generations. Efforts to address the challenge of child undernutrition need to focus on increasing investments on nutrition specific and sensitive interventions. It is important to improve coordination at all levels through multisectoral plans for accountability. Effective action needs other sectors such as agriculture, water, sanitation, hygiene, social protection and education to maximize nutritional impact. Attention must also focus on strong monitoring and evaluation mechanisms and capacity building to deliver higher social and economic returns from nutrition interventions. Priority interventions to address child undernutrition must be evidence based interventions such as increasing access to quality healthcare services, promoting consumption of healthy and nutritious diets, promotion and protection of exclusive breastfeeding and ensuring access to basic education, sanitation services and drinking water. Communal education especially of women and young people is essential to improve nutritional levels in the rural regions. Large scale food fortification programs can make a major contribution toward improving the quality of diets at the population level. Developments in the agriculture sector should promote sustainable food systems for better nutrition and health outcomes. Strengthening social protection mechanisms will be key to mitigate fragility, while working towards gender equality and the empowerment of women and adolescent girls. Fragile governance and effects of conflict and climate related stressors are major challenges that limit progress. Many African Member States experience natural disasters, conflict and humanitarian crises, including the influx of refugees from neighbouring countries, pandemics such as COVID 19 and others that may come. Humanitarian crises contribute to the heightened risk of food insecurity and inadequate access to essential nutrition and health services. Going forward, concerted efforts to fight these underlying drivers of malnutrition and ensuring the sustainability of actions will be essential to ensure good nutrition in Africa.

Often, child nutrition is not perceived as a long-term investment, which will take several years to generate social returns, thus leading to the prioritization of short-term investments in budget allocations. Renewal of national commitments towards the elimination of child malnutrition is of paramount importance. The cost of inaction would be too colossal for the economy of the continent both now and in the future and hence makes a case for Africa to leverage policy actions for a drastic reduction of stunting and malnutrition. The economic impact associated with child malnutrition particularly underweight and stunted children is quite significant with far reaching consequences on health, education and productivity. The COHA model provides an important perspective analysis on the potential economic benefits generated by a reduction in the prevalence of child under nutrition. The COHA Study presents an opportunity to better understand the role that child nutrition can play as a catalyst for social and economic transformation and human development. The African Union calls on governments to continue to prioritize nutrition in their national government plans to ensure the gains made over the years maintained and sustained.

ANNEX

Glossary of Terms

1. **Child Undernutrition:** The result of prolonged low levels of food intake (hunger) and/or low absorption of food consumed. It is generally applied to energy or protein 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.
2. **Chronic Hunger:** The status of people, whose food intake regularly provides less than their minimum energy requirements leading to undernutrition.
3. **Costs not covered by the health system:** This variable includes the value of the inputs (i.e. medications) that are paid for by the family.
4. **Differential Probability (DP):** Refers to the difference between the probability of occurrence of a consequence (i.e., disease, grade repetition and lower productivity) given a specific condition. The model uses this variable specifically to determine the risk among those suffering from undernutrition and those who are not (ECLAC).
5. **Dropout rate per grade:** Percentage of students who drop out of a grade in a given school year (UNESCO).
6. **Episodes:** It is the number of disease events occurring for a given pathology. In the model it is based on a one-year period, i.e. the number of times a specific pathology occurs in one year (ECLAC).
7. **Food insecurity:** Exists when people lack access to a sufficient amount 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 utilisation at household level (FAO).
8. **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).
9. **Hunger:** The status of persons, whose food intake regularly provides less than their minimum energy requirements, i.e. about 1800 kcal per day. It is operationally expressed by the undernourishment indicator (FAO).
10. **Incidental retrospective dimension:** Used to estimate the cost of undernutrition in a country's population in a given year. The model applies it by looking at the health costs of pre-school children (0 to 5-year-olds) suffering from undernutrition, the education costs of school-age children (6 to 18-year-olds) and the economic costs resulting from lost productivity by working-age individuals (15 to 64-year-olds) (ECLAC).
11. **Intrauterine growth restriction (IUGR):** Refers to the foetal weight that is below the 10th percentile for gestational age (WHO). In the model, this is the only type of condition considered in the estimation of cost for low birth weight children.
12. **Low Birth Weight (LBW):** A new-born is considered to have low birth weight when he/she weighs less than 2,500 grams (WHO).

13. **Malnutrition:** A broad term for a range of conditions that hinder good health caused by inadequate or unbalanced food intake or by poor absorption of the food consumed. It refers to both undernutrition (food deprivation) and over nutrition (excessive food intake in relation to energy requirements) (FAO).
14. **Mortality rate:** The proportion of deaths per year in a given population, usually multiplied by a 10th population size so it is expressed as the number per 1,000, 10,000, or 100,000, individuals per year.
15. **Productivity/Labour productivity:** Measures the amount of goods and services produced by each member of the labour force or the output per unit of labour (ILO). In the model, it refers to the average contribution that an individual can make to the economy, measured by consumption or income, depending on data availability.
16. **Prospective or potential savings dimension:** This dimension makes it possible to project the present and future losses incurred as a result of medical treatment, repetition of grades in school and lower productivity caused by undernutrition among children under the age of five in each country, in a specific year (ECLAC).
17. **Public social spending:** Social expenditure is the provision by public (and private) institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances, which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an individual contract or transfer (OECD).
18. **Relative risk:** Refers to the risk of an event occurring, given a specific condition. It is expressed as a ratio of the probability of the event occurring in the exposed group versus a non-exposed group. In the model it is used to establish the risk level of disease, lower educational performance or lower productivity relative to exposure to undernutrition.
19. **Repetition rate per grade:** Number of repeaters in a given grade in a given school year, expressed as a percentage of enrolment in that grade in the previous school year (UNESCO).
20. **Stunting:** Reflects shortness-for-age; an indicator of chronic malnutrition, calculated by comparing the height-for-age of a child with a reference population of well-nourished and healthy children (WFP). The model uses it as the indicator to analyse the impact on educational performance and productivity.
21. **Undernourishment:** Food intake that is continuously insufficient to meet dietary energy requirements. This term is used interchangeably with chronic hunger, or, in this report, hunger (FAO).
22. **Undernutrition:** The result of prolonged low levels of food intake and/or low absorption of food consumed (undernourishment). It is generally applied to energy (or protein and energy) deficiency, but it may also relate to vitamin and mineral deficiencies (FAO).
23. **Underweight:** Measured by comparing the weight-for-age of a child with a reference population of well-nourished and healthy children (WFP). The model utilises it to analyse the impact of child undernutrition on health.
24. **Wasting:** Reflects a recent and severe process that led to substantial weight loss, usually associated with starvation and/ or disease. Wasting is calculated by comparing weight-for-height of a child with a reference population of well-nourished and healthy children (WFP).

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