The Cost of HUNGER in Swaziland

Implications of Child Undernutrition for the Implementation of the National Poverty Reduction Strategy in Swaziland

The Social and Economic Impact of Child Undernutrition in Swaziland

Summary Report

The Swaziland Cost of Hunger Report is a result of collaborative efforts from government sectors and development partners who contribute to the nutrition, economic and the social wellbeing of the population. The Deputy Prime Minister's office, as the coordinating office, would like to express appreciation to the African Union, the World Food Programme, and the Economic Commission for Africa for the financial and technical support in the implementation of the study.

Furthermore, we are also grateful to all stakeholders in particular government ministries - Ministry of Health, Swaziland National Nutrition Council, Swaziland Infant Nutrition Action Network, Ministry of Education, Ministry of Agriculture, Ministry of Economic Planning and Development, Central Statistical Office and the Ministry of Finance, as well as the University of Swaziland, Africa Union Commission and NNEC for their contribution and active participation.

Finally appreciation is expressed to the National Children's Coordination Unit (NCCU) and other members of the National Implementation Team (WFP, CSO, SNNC) for their commitment to ensuring that this report reflects the nutrition situation in Swaziland and for their on-going advocacy to strengthen nutrition actions across all sectors.

This document is based on the report "The Social and Economic Impact of Child Undernutrition in Egypt, Ethiopia, Swaziland and Uganda", prepared within the framework of the Memorandum of Understanding between the UN Economic Commission for Africa (ECA) and the World Food Programme (WFP): "The Cost of Hunger in Africa: The Economic and Social Impact of Child Undernutrition", coordinated by Josué Dioné, Director of the Food Security and Sustainable Development Division at ECA, Steven Were Omamo and Abdoulaye Diop, Directors from the WFP Liaison Office to the African Union and ECA, and Mustapha Sidiki Kaloko, Commissioner for Social Affairs at the African Union Commission (AUC).

Special recognition has to be provided to the National Implementation Team in Swaziland responsible for collecting, processing and presenting results, led by the National Children's Coordination Unit in the Office of the Deputy Prime Minister (NCCU/DPMO) and the Swaziland National Nutrition Council (SNNC), particularly to Nhlanhla M. Nhlabatsi and Nombulelo Dlamini (NCCU/DPMO) and Glorius Dlamini, Musa Dlamini, Arlerta Ndlela and Sakhile Mbhamali from the SNNC. Further recognition goes to Robert Fakudze, Bonginkhosi Ginindza and Choice Ginindza from the Central Statistics Office (CSO); Cebsile Kunene and Sandile Ndzimandze from the Dept. of Welfare; Joyce Chanetsa and Thulani Maphosa from International Baby Food Action Network (IBFAN); Thankful Dlamini and Thembumenzi Dube from the Ministry of Agriculture; Thobile Gamedze from the Ministry of Education; Sibongile Mndzebele and Sifiso Ndlovu from the Ministry of Health; Robert Thwala from the Ministry of Labour; Vumile Dlamini-Shabungu and Percy Chipepera from the Swaziland Infant Nutrition Action Network (SINAN); Tsini Mkhatshwa from UNESCO; Makhosini Mamba from UNICEF; Dr. Thoko Sibiya and Dr. Jameson s. Siphepho from the University of Swaziland; and Lungile Mndzebele-Dladla from the Poverty Reduction Monitoring and Evaluation Section of the Ministry of Economic Planning and Development.

The regional support team was originally led by Francisco Espejo from WFP and then led by Carlos Acosta Bermudez from ECA, with the support of Rachel Quint, Yohanan Ermias and Matthias Vangenechten from WFP and Shewit Aseffa from ECA. Additional technical guidance was also provided from Rodrigo Martinez and Amalia Palma, from the Social Development Division of the Economic Commission for Latin America and the Caribbean (ECLAC).

The team is grateful for the institutional leadership provided to this project by H.E. the Minister of Economic Planning and Development from Swaziland, HRH Hon. Prince Sihlangusemphi; Dr. Danisile Vilakati, Director of the Swaziland National Nutrition Council (SNNC); and H.E. Dr. Nkosazana Dlamini Zuma, Chairperson, AUC; H.E. Dr. Carlos Lopes, Executive Secretary, ECA; Ertharin Cousin, Executive Director, WFP; and Dr. Ibrahim Mayaki, CEO, NEPAD.

The design and implementation of the study was directed by a Steering Committee jointly led by Menghestab Haile (WFP), Maurice Tankou (ECA), Ademola Olajide and Janet Byaruhanga from the Health, Nutrition and Population Division of the Social Affairs Department at the AUC and Boitshepo Bibi Giyose from the New Partnership for Africa's Development (NEPAD).

The Steering Committee highlights the special contributions by the NCCU/ODPM and NNC in supporting the adaptation of the Model to Estimate the Social and Economic Impact of Child Undernutrition in Africa. Their contributions indicate Swaziland's commitment to regional collaboration.

Initial Funding for COHA provided by:

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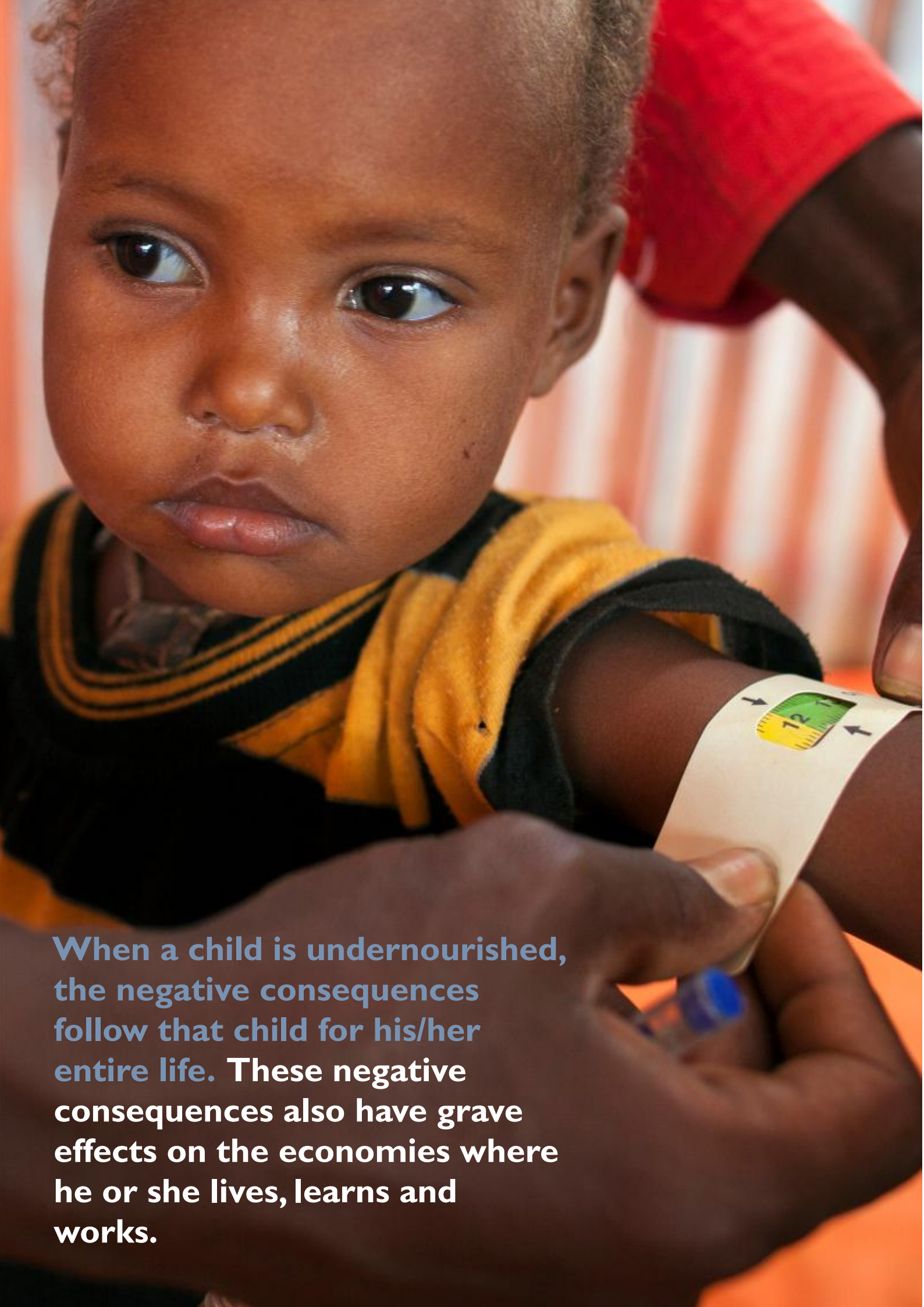
Summary Report



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

Foreword

The Government of Swaziland is committed to the eradication of child hunger and undernutrition. Children who are deprived of the necessary nutrients during the most critical period of their growth are condemned to a terrible and irreversible handicap in life. They are more likely to die in the first days or weeks of life than those born with adequate weight and size, They are more vulnerable to infections. Their cognitive and behavioural growth will be affected. If they reach school age, their deficient brain development will limit their capacity to learn, thereby barring access to good jobs. The saddest thing is knowing that this cycle will probably be repeated in their children, perpetuating poverty in generation after generation.

In addition to preventing these children from attaining their full potential, undernutrition also has a negative impact on economic development. It imposes additional costs on society through the added pressure on health and education. For this reason, I welcome the publication of the Cost of Hunger in Swaziland. This study estimates the economic cost of the scourge of undernutrition; it enables us to state without a doubt that, in addition to the ethical and social problems involved in child undernutrition, there are serious economic penalties. These are not limited to the life cycle of each individual, but affect that person's children, who will pass on the tragic legacy to yet another generation.

Eradicating hunger and child undernutrition is, therefore, a tangible and urgent goal. The Cost of Hunger in Swaziland provides an eloquent argument for strengthening alliances among governments, the private sector and civil society with a view to undertaking specific and immediate actions to combat undernutrition. This publication can help generate the political will and the concerted effort to provide universal access for pregnant women and children under five to nutritional food and basic health services. Working together, we can break the cycle of hunger in the space of a generation.

HRH Prince Hlangusemphi
Minister of Economic Planning and Development
Government of the Kingdom of Swaziland

10 Things Everyone Should Know about Child Nutrition in Swaziland

1. Today, 3 out of every 10 children in Swaziland is stunted.
2. 69% of all cases of child undernutrition go untreated.
3. Most of the health costs associated to undernutrition occur before the child turns 1 year-old.
4. 12% of repetitions in school in Swaziland are associated with stunting.
5. Stunted children achieve 0.8 years less in school education.
6. 8% of all child mortality in Swaziland is associated with undernutrition.
7. Child mortality associated with undernutrition has reduced Swaziland's workforce by 2.4%.
8. 40% of the adult population in Swaziland suffered from stunting as children.
9. The annual costs associated with child undernutrition reach values equivalent to 3.1% of GDP.
10. Eliminating stunting in Africa is a necessary step for sustained development in the region.

About the Study

The Cost of Hunger in Africa (COHA) Study is led by the African Union Commission (AUC) and NEPAD Planning and Coordinating Agency and supported by the Economic Commission for Africa (ECA) and the UN World Food Programme (WFP). COHA is a multi-country study aimed at estimating the economic and social impacts of child undernutrition in Africa.

In March 2012 the COHA Study was presented to African Ministers of Finance, Planning and Economic Development, who met in Addis Ababa, Ethiopia. The Ministers issued Resolution 898 confirming the importance of the study and recommending it continue beyond the initial stage.

The COHA study is being carried out in twelve countries, namely**:** Botswana, Burkina Faso, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Malawi, Mauritania, Rwanda, Swaziland, and Uganda. The data in this document are the results collected from the COHA initiative in the first-phase country Swaziland.

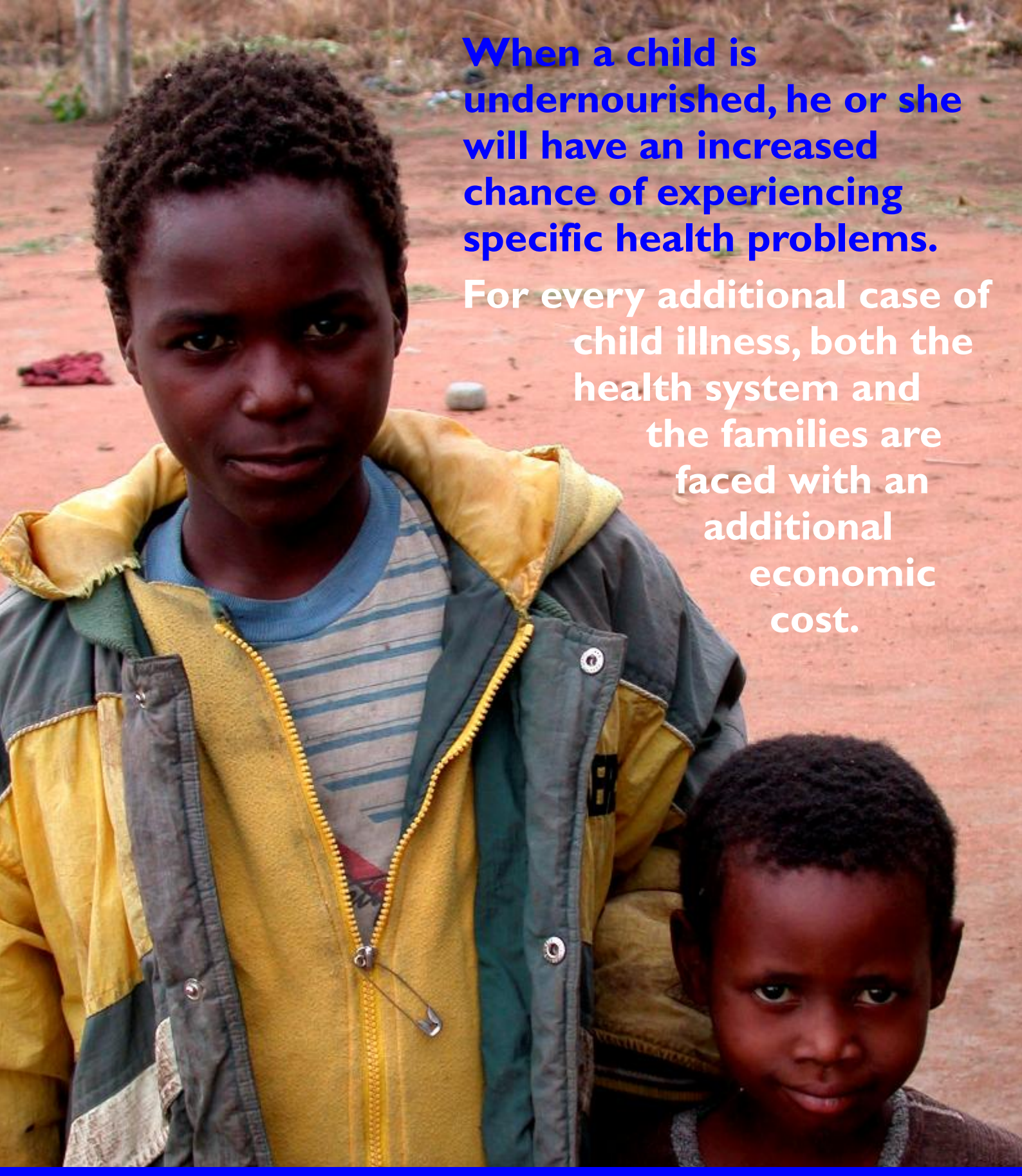
The COHA study in Swaziland is led by the National Children's Coordination Unit in the Office of the Deputy Prime Minister (NCCU/ODPM) and the Ministry of Economic Planning and Development with support from the Ministry of Health, Ministry of Agriculture, Ministry of Education, Ministry of Finance, Swaziland National Nutrition Council (SNNC), University of Swaziland and the World Food Programme Swaziland. These departments and ministries make up the National Implementation Team (NIT).

During the process, all data for the study was collected from national data sources including the Swaziland Labour Force Survey 2007, Demographic and Health Survey 2008 and previous DHS studies, Ministry of Health, Ministry of Education, African Centre for Statistics, and primary data collection.

The COHA model is used to estimate the additional cases of morbidities, mortalities, school repetitions, school dropouts, and reduced physical capacity that can be directly associated to a person's undernutrition before the age of five, and the associated costs to an economy.

 **0-5 years**	Undernourished children are at higher risk for anaemia, diarrhoea, and respiratory infections. These additional cases of illness are costly to the health system and families. Undernourished children are also at higher risk of dying.
	Stunted[1] children are at higher risk for repeating grades in school and at higher risk for dropping out of school. Additional instances of grade repetitions are costly to the education system and families.
 **15-64**	If a child dropped out of school early and is working in non-manual labour, he/she may be less productive. If he/she is working in manual labour he/she has reduced physical capacity and may be less productive. People who are absent from the workforce due to undernutrition-related child mortalities represent lost economic productivity.

[1]***Stunting:*** height for age index, and it is a result of a failure to receive adequate nutrition over a long period of time or the effect of chronic illness.



When a child is undernourished, he or she will have an increased chance of experiencing specific health problems.

For every additional case of child illness, both the health system and the families are faced with an additional economic cost.

Effects on Health

Results from Swaziland

Results in Health

Research shows that undernourished children under five are more likely to experience cases of anaemia, acute diarrhoeal syndrome (ADS), acute respiratory infection (ARI), and in some cases, fever. For every additional case of child illness, both the health system and the families are faced with an additional economic cost. **"Incremental morbidity" is the additional number of episodes that affect underweight[2] children.**

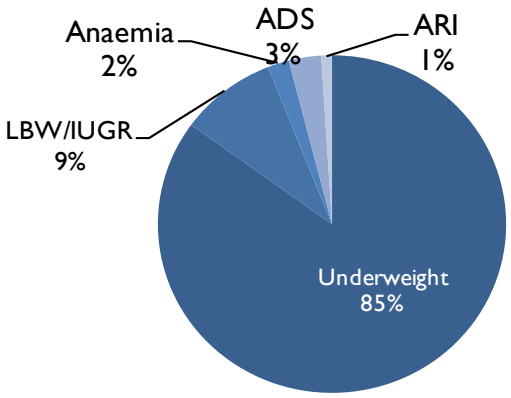
Health Cost of Undernutrition – Related Pathologies

(Cost in thousands)

Pathology	Number of episodes	Cost in SZL	Cost in US$	% of episodes	% of Cost
Underweight	16,840	51,311.3	6,036.6	66%	85%
Low birth weight (IUGR)	2,751	5,610.9	660.1	11%	9%
Anaemia	1,262	1,105.9	130.1	5%	2%
Acute diarrheal syndrome (ADS)	2,720	1,669.6	196.4	11%	3%
Acute respiratory infection (ARI)	1,656	794.8	93.5	7%	1%
Fever/Malaria	217	204.5	24.1	1%	0%
Total	**25,446**	**60,697.1**	**7,140.8**		

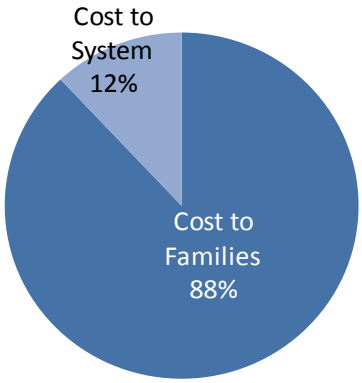
Proportion of Episodes

(by pathology)



Proportion of Costs

(by payer)

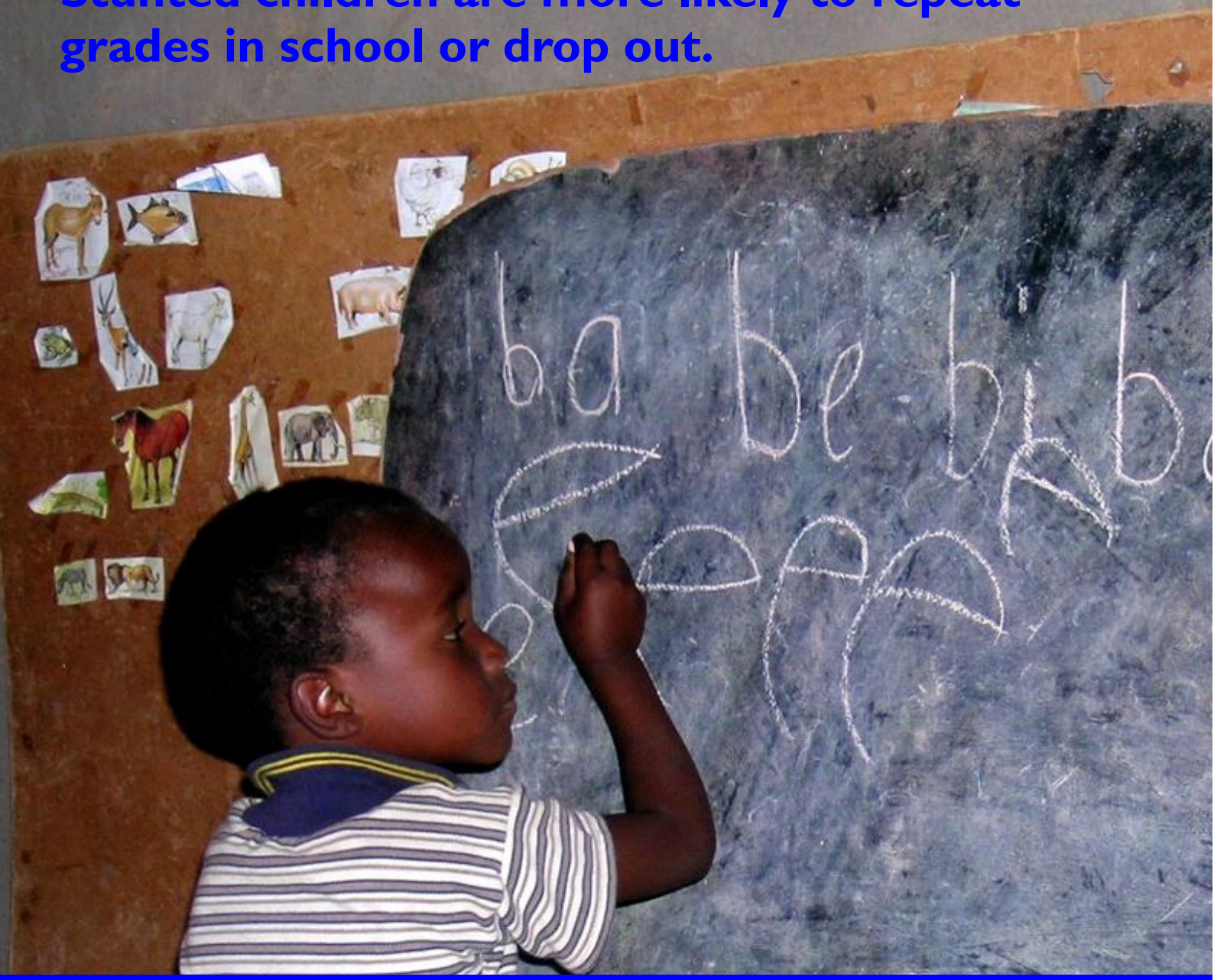


Children who are underweight are also more likely to die from illnesses related to undernutrition.

15% of child deaths are associated with undernutrition.
There are an estimated **110,220** cases of child mortality associated with child undernutrition in the period from 2004 to 2009.

[2]***Underweight:*** the weight for age index, and it is a composite index of stunting and wasting.

When a child is undernourished, that child's brain is less likely to develop at healthy rates, and that child is more likely to have cognitive delays. **Stunted children are more likely to repeat grades in school or drop out.**



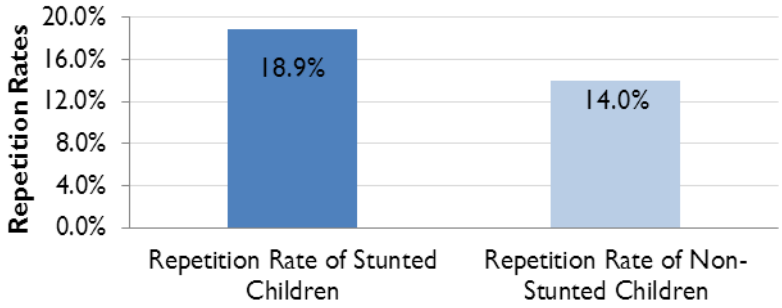
Effects on Education

Results from Swaziland

Results in Education

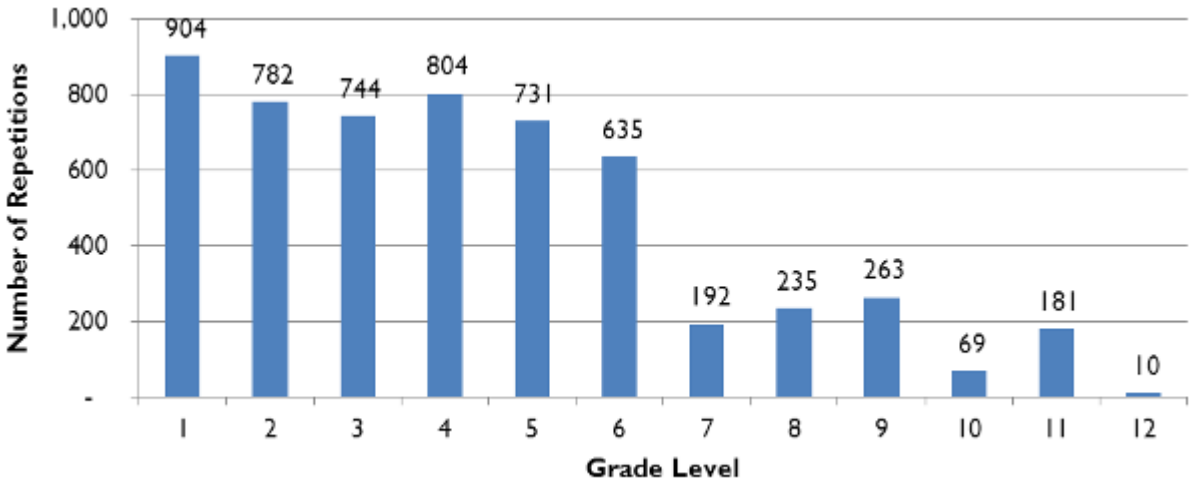
There is no single cause for repetition and dropout. However, there is substantive research that shows that students who were stunted before the age of five are more likely to underperform in school. As a result, undernourished children are faced with the challenge of competing favourably in school due to having a lower cognitive and physical capacities than children who were able to stay healthy in the early stages of life .

Repetition Rate by Nutritional Status



As a result, from the reported 47,000 cases of grade repetition reported by the MOET in the year 2009, 5,500, or 12% of all cases, are estimated be associated to the higher risk of stunted children of repeating grades. These children are currently generating an incremental cost to the education system, as they require twice as many resources to attend the same year. In addition, the caretakers also have to cater to their educational cost for an extra year.

Repetitions Associated with Stunting by Grade Level



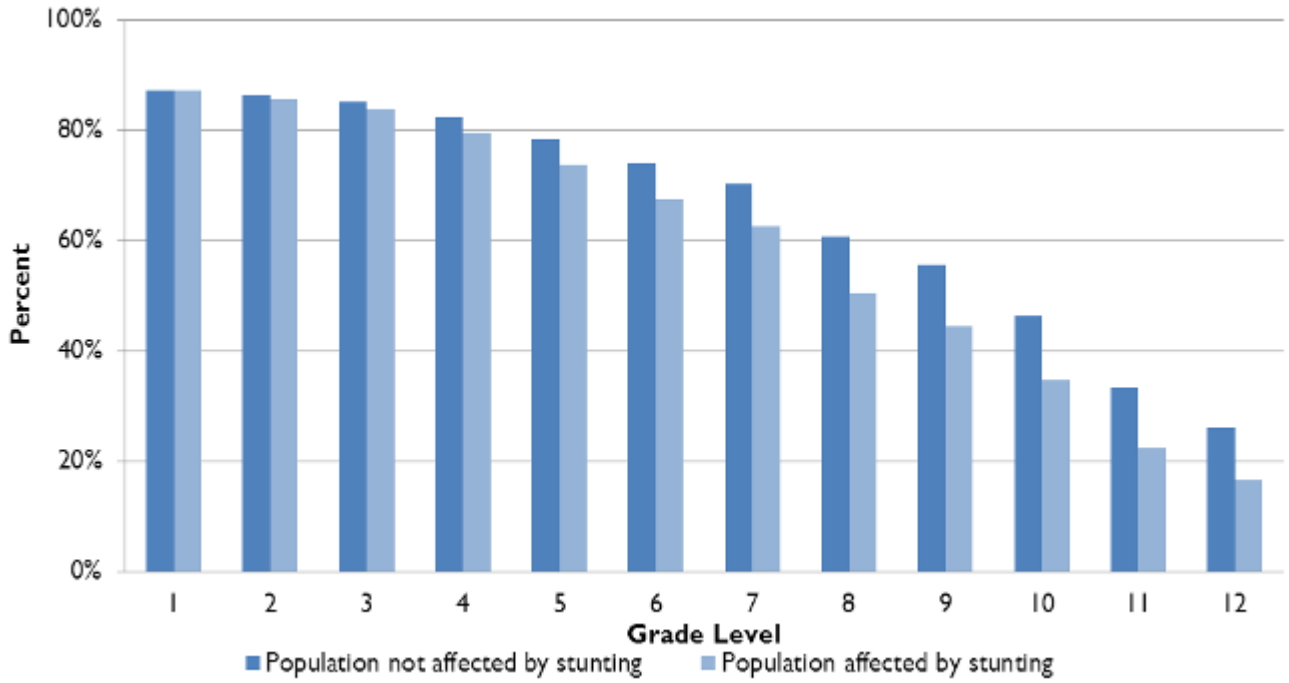
Repetitions are costly both to the family of the student and the education system.

Both need to invest resources for an additional year of schooling. Costs for families include uniforms, books and exercise books, and school fees. Economic costs have been calculated to estimate the cost of the additional years of schooling associated with undernutrition.

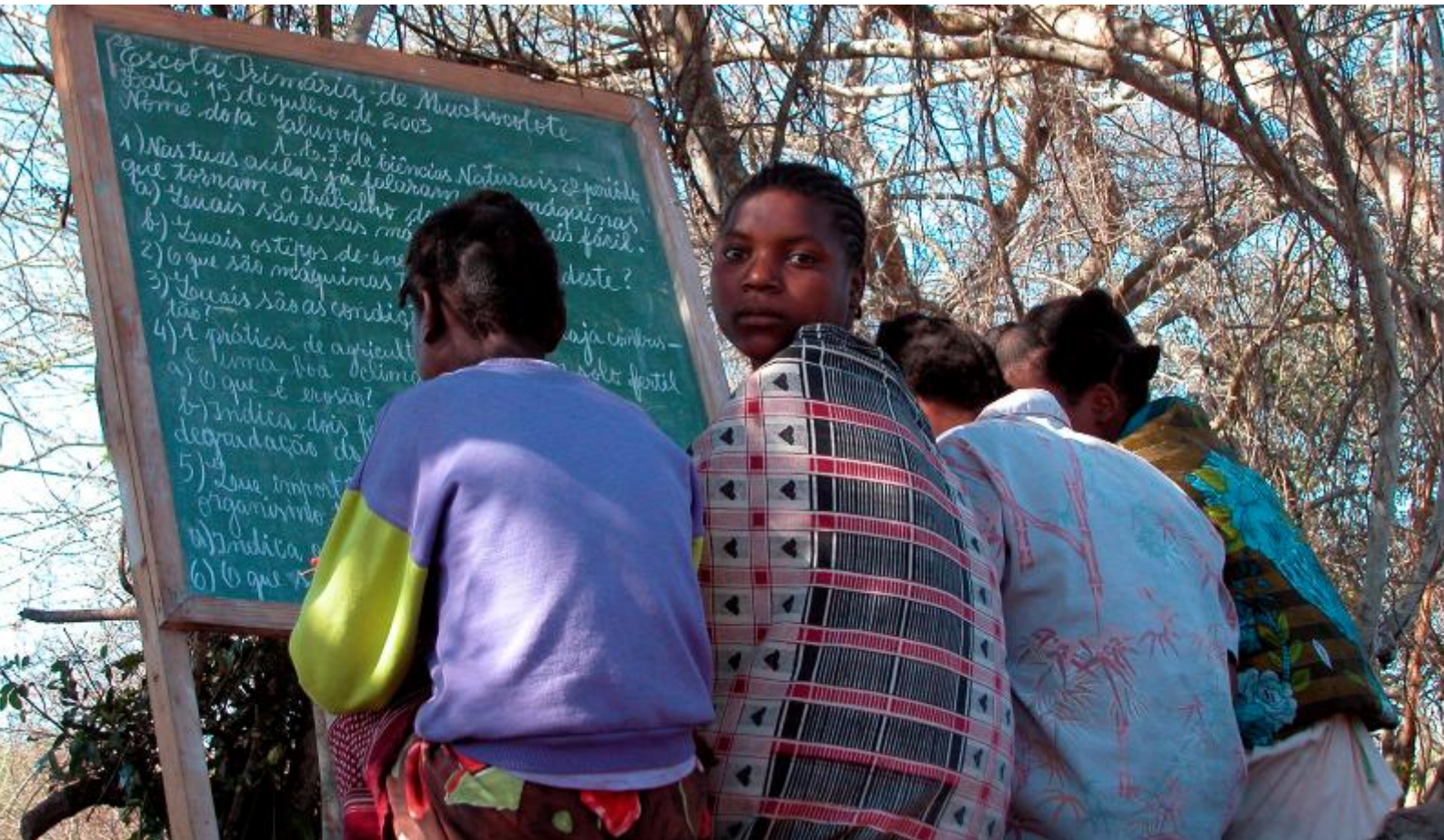
	Primary	Secondary	Total
Number of repetitions associated with stunting	**4,792**	**758**	**5,550**
Total public costs (SZL)	2,683.6	1,516.3	4,199.8
Total private costs (SZL)	1,287.9	475.7	1,763.6
Total (SZL)	**3,971.4**	**1,992.0**	**5,963.4**
Total public costs (US$)	315.7	178.4	494.1
Total private costs (US$)	151.5	56.0	207.5
Total (US$)	**467.2**	**234.4**	**701.6**

Results in Education (continued)

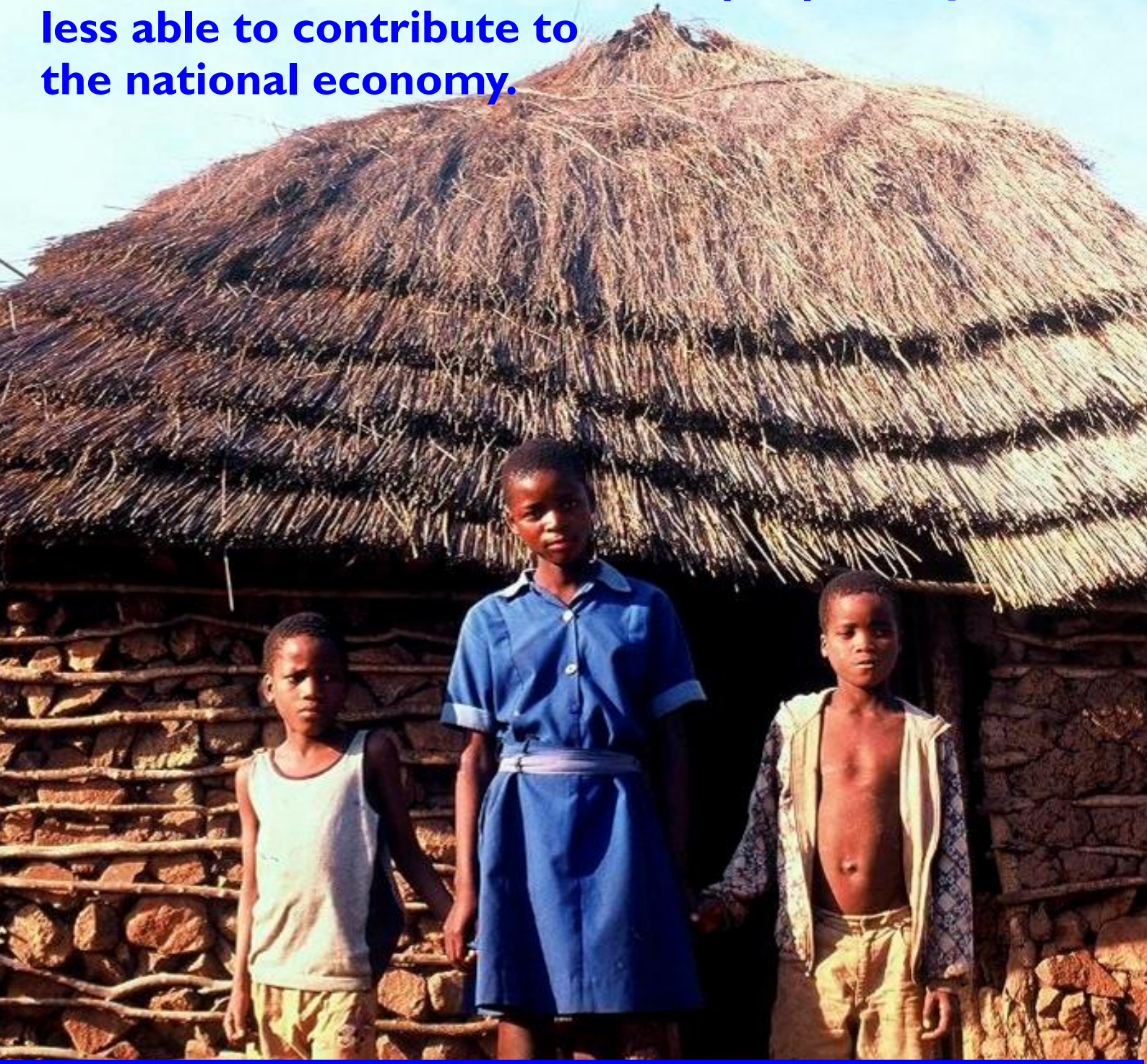
Students who are stunted are also more likely to drop out of school. The data from Swaziland illustrates that expected grade level achievement by a stunted person is lower than the expected schooling for a person who did not suffer from childhood growth retardation. This information, which is based on the data of the working age population (15 to 64), shows the degree to which stunting affects the income-earning capacity of an individual.



The economic impact of school dropout is not, however, incurred while a person is in school. Rather, the economic costs are incurred when the population is of working age, as people may be less productive, and earn less income, as a result of fewer years of schooling achieved. Thus, considerations of losses associated to lower schooling are described in the section that relates to labour productivity.



Theory indicates that when a person is stunted as a child, he or she will be less productive than non-stunted workers. Thus, stunted people may be less able to contribute to the national economy.



Effects on Productivity

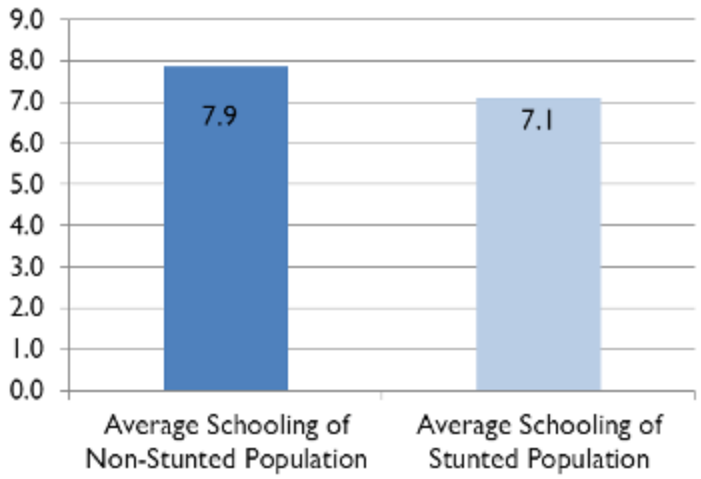
Results from Swaziland

Results 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 make them less qualified for work, thus reducing their income-earning potential for non-manual work. Adults who suffered from stunting as children tended to have less lean body mass and are therefore more likely to be less productive in manual-intensive activities than those who were never affected by growth retardation. Moreover, the population loss in a country due to child mortality hinders economic growth, as they could have been healthy productive members of society.

An estimated **40%** of the working age population, or **270,000** people were stunted as children

Average Schooling by Nutritional Status



The Cost of Hunger in Africa model analyses the differential impact of undernutrition of a person's productivity based on the type of labour. For non-manual activities, the analysis considers the consequences of lower schooling levels in income earning capacity in the labour market. In the case of manual and manual-intensive activities, the analysis is based on the average productivity loss due to lower physical capacity, and not to the educational level achieved.

For activities that are not manual-intensive, in which 38% of the population in Swaziland is engaged, the model generates an estimation of differential income, per each grade of school and for each age group, based on the nutritional situation of the population. In the case of Swaziland, in which the stunted population has on average, 0.8 years less of education, the economic loss in non-manual activities is estimated at 251 million SZL, which is equivalent to 1% of the GDP in 2009.

On the other hand, for manual-intensive activities, where 62% of the Swazi working population is currently engaged, the model estimates the economic consequences based on the reduced physical capacity of a stunted person compared to a person who was never stunted. The analysis is carried out by applying a differential risk factor, to the current earnings of the population by the different age groups. As a result, the model estimates annual losses surpassing 126 million SZL in potential income lost due to lower productivity, which is equivalent to 0.5% of GDP .

Age groups n 2009	Population in non-manual labour who were stunted	Loss in productivity due to reduced schooling (SZL)	Loss in productivity due to reduced schooling (US$)	Population in manual labour who were stunted	Loss in productivity due to stunting (SZL)	Loss in productivity due to stunting (US$)
15-24	46,773	43,340.5	5,098.9	75,603	26,947.6	3,170.3
25-34	27,423	89,184.4	27,107.7	43,591	32,709.1	3,848.1
35-44	15,427	56,623.2	21.7	24,769	25,677.2	3,020.9
45-54	1,002	43,599.8	39.2	18,421	24,673.6	2,902.8
55-64	7,562	18,153.1	10.2	13,048	16,168.8	1,902.2
Total	**108,187**	**250,861.0**	**32,277.7**	**175,432**	**126,176.4**	**14,844.3**
% GDP		**1.00%**			**0.50%**	

Undernourished children have a higher risk of dying compared to children who are not underweight.

As such, the COHA model estimates the proportion of child mortalities that are associated to undernutrition. Further, the model estimates those mortalities who would have been of working age (15-64) today, but are absent from the workforce. The model estimates that the 16,000 people of working age population that would be part of the economy in 2009 could have increased national productivity in excess of 37 million working hours.

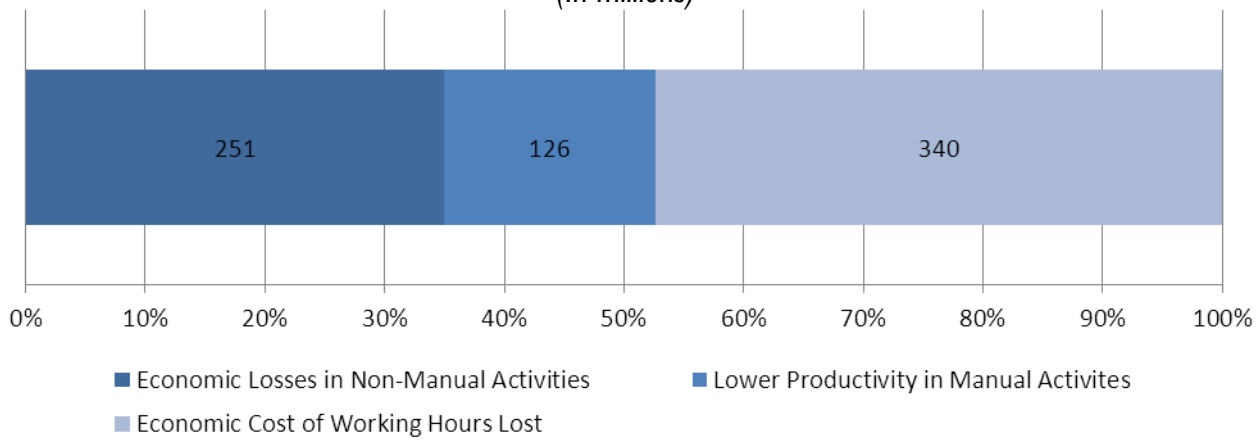
Considering the productivity levels of the population, by their age and sector of labour, the model estimates that the economic losses of the working hours due to mortality is estimated at 340 million SZL, which represents 1.4% of the country's GDP for 2009.

Total losses in productivity for 2009 are an estimated 717 million SZL, which is equivalent to 2.9% of Swaziland's GDP.

The figure below, illustrates the distribution of losses. The largest share of cost, at 47%, is due to working hours lost of individuals who died due to high rates of undernutrition. Due to the distribution of labour market of the population in Swaziland, lower productivity in non-manual activities represents an important element of the cost at 35%. For manual-intensive activities, the costs seem relatively low, at 18%, due to the lower income of this group.

Distribution of Losses in Productivity

(In millions)



Total Costs

Results from Swaziland

Total losses associated with undernutrition are estimated at SZL 783 million, or US$ 92 million for the year 2009. These losses are equivalent 3.1% of GDP of that year.

Scenarios for Improved Nutrition

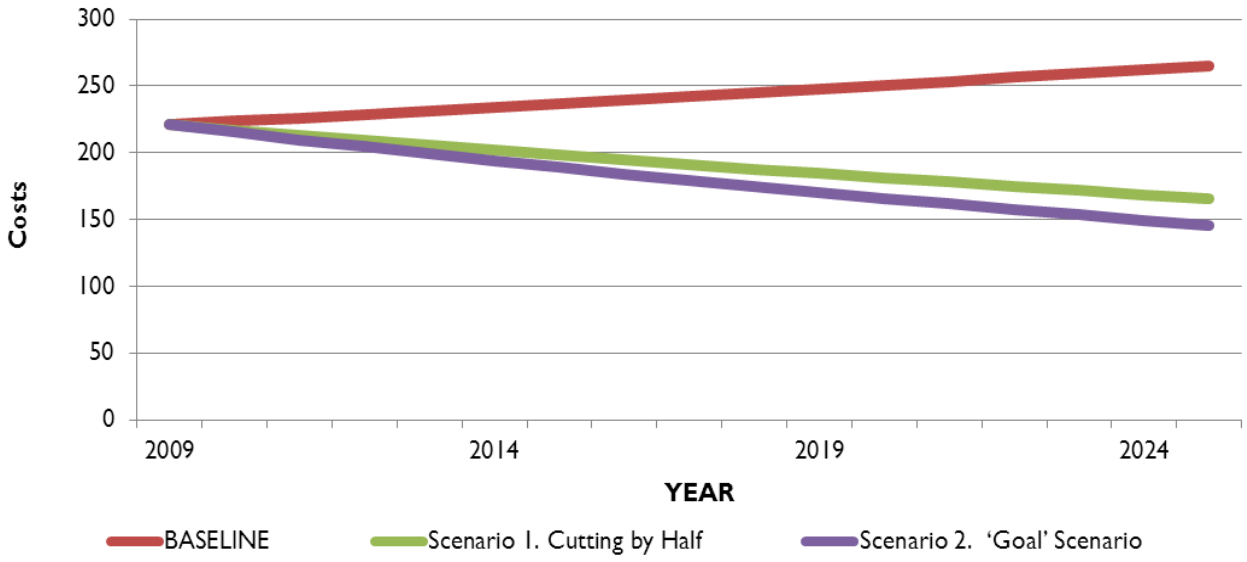
The previous chapter showed the social and economic costs that affected Swaziland in 2009 due to high historical trends of child undernutrition. Most of these costs are already cemented in the society and policies must be put in place to improve the lives of those already affected by childhood undernutrition. Nevertheless, there is still room to prevent these costs in the future. Currently, 3 out of every 10 children under the age of five in Swaziland is stunted.

A key element of the discussion is the potential economic savings that could be achieved in each context with a firm reduction of the prevalence of stunting. In this sense, the model is able to generate a baseline for various scenarios, based on nutritional goals established in each country. For this initial analysis, two different change scenarios are being proposed.

- **Baseline. The Cost of Inaction. Progress in reduction of stunting and underweight child stops.** For the baseline, the progress of reduction of the prevalence of undernutrition stops at the level achieved in 2009. 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 2009 values corresponding to the reference year. In the case of Swaziland this would mean a constant reduction of 0.9% points annually in the stunting rate, from 29.5% (estimate for 2009) to 14.8% in 2025. With the right combination of proven interventions, this scenario would be achievable, as the average rate of reduction for stunting between 2000 and 2006 was estimated at 0.9%, which is higher than the progress rate required in achieving this scenario. Nevertheless, in 2008, a national survey appeared to show an important increase in the prevalence rate, which might indicate the need for a new survey to validate the current levels of stunting in the country.
- **Scenario #2: The 'Goal' Scenario. Reduce Stunting to 10% and Underweight children to 5%, by 2025.** In this scenario, the prevalence of stunted children under 5 would be reduced to 10% and the prevalence of underweight children under the age of five, to 5%. Currently, the global stunting rate is estimated at 26%, with Africa having the highest prevalence at 36%. This Goal Scenario, would require a true call for action, and would represent an important regional challenge for which countries of the region could collaborate jointly to achieve. The progress rate required to achieve this scenario would be a 1.2% annual reduction for a period of 16 years, from 2009 to 2025.

The progressive reduction of child undernutrition generates a similar reduction in the cost associated with it. The distances between the trend lines would indicate the savings that would be achieved on each scenario.

Trends of Estimated Costs of Child Undernutrition



Scenarios for Improved Nutrition

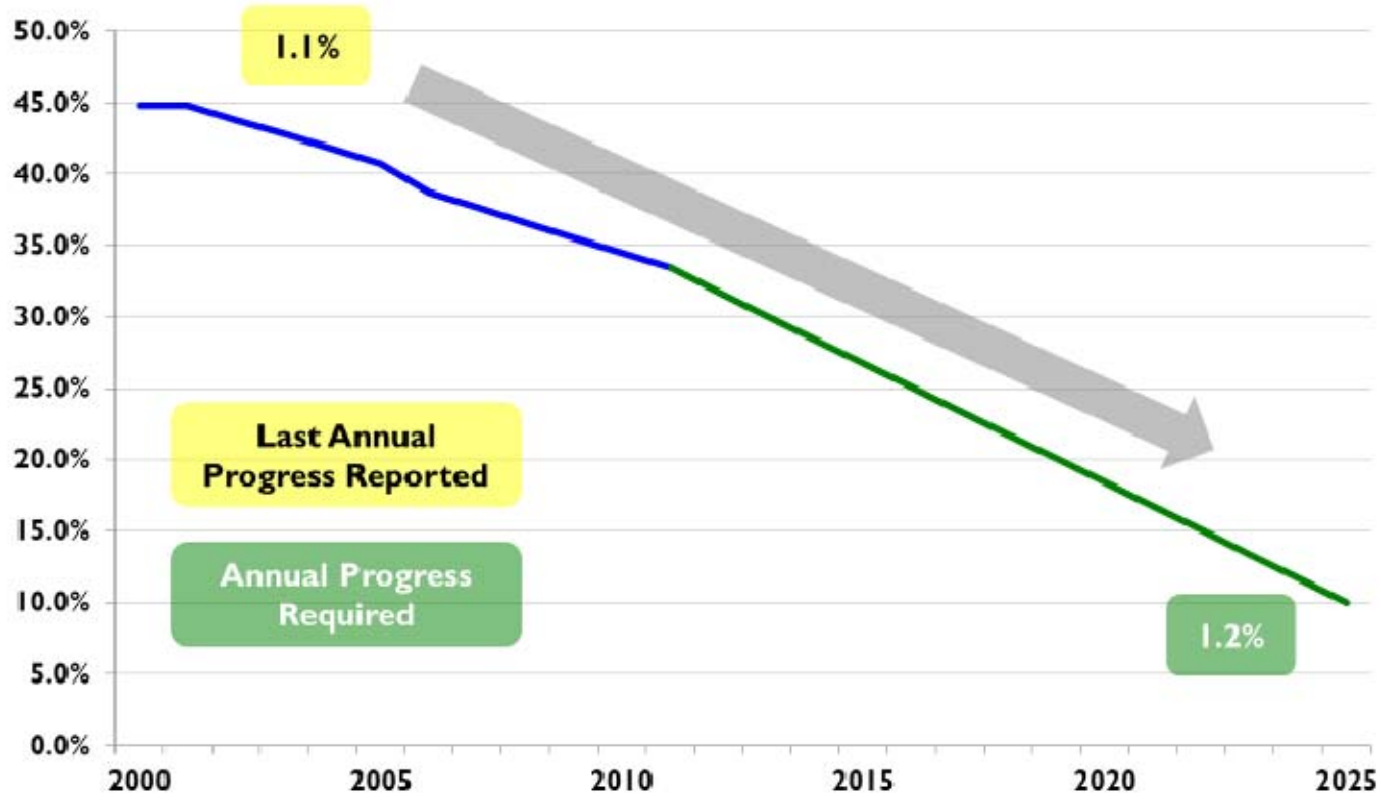
The potential economic benefits of reducing undernutrition are a key element in making the investment case for nutrition investments. The reduction in clinical cases for the health system, grade repetition, improvements in educational performance and physical capacity are elements that have a direct contribution in national productivity.

Costs and Savings by Scenario
(All values in millions)

	Baseline		S1. Cutting by Half		S2. Goal Scenario	
	SZL	US$	SZL	US$	SZL	US$
Annual projected costs	265.3	31.2	165.6	19.5	145.5	17.1
Total projected savings			401.7	47.3	511.2	60.1
Annual projected savings			25.1	3.0	31.9	3.8
Average annual percentage points reduction in stunting rates required achieve scenario	Progress stops		0.9%		1.2%	

In order to make the goal scenario achievable, stronger effort must be made at national level. The following graph illustrates the progress rate required in the reduction of stunting by each country to meet the 10 percent stunting and 5 percent underweight targets.

Current and Required Progress to Achieve Goal Scenario



Conclusions

Child Undernutrition: Implications for the Implementation of the National Poverty Reduction Strategy in Swaziland

The Cost of Hunger Study is an important step forward to better understand the role that child nutrition and human development can play as a catalyser, or as a constrain, in the social and economic transformation. This report marks the first analysis on the social and economic impact of child undernutrition specific for Swaziland, opening the way for increased understanding of its consequences.

Its results strongly suggest that in order for the country to achieve sustainable human and economic growth, special attention must be given to the early stages of life as the foundation of human capital. The results of the study are supported by a strong evidenced base, and a model of analysis specially adapted for Africa, which demonstrates the depth of the consequences of child undernutrition in health education and labour productivity. This study further quantifies the potential gains of addressing child undernutrition as a priority. Now, stakeholders have, not only the ethical imperative to address child nutrition as a main concern, but a strong economic rationale to position stunting in the centre of the development agenda.

The study estimates that child undernutrition generates health costs ranging to an equivalent of 0.6% of the total public budget allocated to health. These costs are due to episodes directly associated with the incremental quantity and intensity of illnesses that affect underweight children and the protocols necessary for their treatment. Although this amount might seem relatively small, it is important to note that only 3 out of every 10 children are estimated to be receiving proper health attention. As the health coverage expands to rural areas, there will be an increase of people seeking medical attention; this can potentially affect the efficiency of the system to provide proper care services. The study illustrates that a reduction of child undernutrition could facilitate the effectiveness of this expansion by reducing the incremental burden generated by the health requirements of underweight children.

Further, the study estimates that 1 out of every 10 child cases of mortality is associated with the higher risk of undernutrition. Hence, a preventive approach to undernutrition can help reduce this incremental burden to the public sector, and also reduce the costs that are currently being covered by caretakers and families.

Increasing the educational level of the population, and maximizing the productive capacity of the population dividend, is a key element to increase competitiveness and innovation. This represents a particular opportunity in Swaziland where the population under 15 years is estimated to be 38% of the total population. These children and youth must be equipped with the skills necessary for competitive labour. Thus, the underlying causes for low school performance and early desertion must be addressed. As there is no single cause for this phenomenon, a comprehensive strategy must be put in place that considers improving the quality of education and the conditions required for school attendance. This study demonstrates that stunting is one barrier to attendance and retention that must be removed to effectively elevate the educational levels and improve individuals' labour opportunities in the future.

The study estimated that children who were stunted experienced a 4.9% higher repetition rate in school. As a result, 12% of all grade repetitions in school are associated to the higher incidence of repetition that is experienced by stunted children. 86% of these cases of grade repartition occur in primary school. These numbers suggest that a reduction in the stunting prevalence could also support an improvement in schooling results, as it would reduce preventable burdens to the education system.

On the continent, more than half of the population is expected to live in cities by 2050. An important component to prepare for this shift is to ensure that the workforce is ready to make a transition towards a more skilled labour, and economies are able to produce new jobs to reduce youth unemployment. By preventing child stunting thus avoiding the associated loss in physical and cognitive capacity that hinders individual productivity, people can be provided with a more equal opportunity for success.

The study estimates that 40% of the working age population in Swaziland is currently stunted. This population has achieved average lower school levels than those who did not experience growth retardation of 0.8 years of lower schooling. As the country continues to urbanize, and as an increasing number of people participate in skilled employment, this loss in human capital will be reflected in a reduced productive capacity of the population. Thus, it may be a particularly crucial time to address child undernutrition and prepare future youth for better employment by prioritizing the reduction of stunting in Africa's transformation agenda.

Conclusions (continued)

The COHA model also provides an important prospective analysis that sheds light on the potential economic benefits to be generated by a reduction in the prevalence of child undernutrition. The model estimates that, in the analysed countries, a reduction of the prevalence to half of the current levels of child undernutrition by the year 2025 can generate annual average savings of SZL 25 million ($US3 million). An additional scenario shows that a reduction to 10% stunting and 5 % underweight for that same period could yield annual average savings of SZL 32 million ($US4 million). This economic benefit that would result from a decrease in morbidities, lower repetition rates and an increase in manual and non-manual productivity, presents an important economic argument for the incremental investments in child nutrition.

This study is also an important example of how South-South collaboration can work to implement cost-effective activities in development and knowledge sharing. Swaziland's participation as one of the pilot countries of the study, and its feedback in challenges faced in collecting the data at national level was an important element in adapting the COHA methodology to Africa. The contributions of the Swaziland NIT will serve to facilitate the expansion of this tool in the continent.

Lastly, this study illustrates the valuable role that data and government-endorsed research can play in shedding light on pertinent issues on the continent. This study will help the country engage within global nutrition movements such as the Scaling Up Nutrition initiative as programmes and interventions are put in place to address stunting as a national priority.

Recommendations

This study presents some key initial findings of the Cost of Hunger in Swaziland, as well both challenges and opportunities regarding the reduction of child undernutrition to the country.

1. A clear recommendation of this study is that Swaziland must review their national development frameworks to **ensure that the reduction of the stunting provenance is an outcome indicator of their social and economic development policies**. Chronic child undernutrition can no longer be considered a sectoral issue, as both its causes and solutions are linked to social policies across numerous sectors. As such, stunting reduction will require interventions from the health, education, social protection, and social infrastructure perspectives. Stunting can be an effective indicator of success in larger social programs.
2. This study encourages countries not to be content with "acceptable" levels of stunting; equal opportunity should be the aspiration of every country on the continent. In this sense, **it is recommended that aggressive targets are set in Swaziland for the reduction of stunting that go beyond proportional reduction, to establish an absolute value as the goal for the region at 10%**.
3. The achievement of this aggressive goal cannot be reached from just the health sector. In order to be able to have a decisive impact on improving child nutrition, **a comprehensive multi-sectoral policy must be put in place, with strong political commitment and allocation of adequate resources for its implementation.** This plan should look to accelerate the actions on the determinants of child undernutrition such as inadequate income, agricultural production, improving gender equality and girls' education, improving water supply and sanitation, but also by addressing deeper underlying determinants such as the quality of governance and institutions and issues relating to peace and security. To ensure sustainability of these actions, whenever possible, **the role of international aid must be complementary to nationally led investments, and further efforts have to be done in ensuring the strengthening of national capacity to address child undernutrition**.
4. An important element that must be addressed to enhance the national capacity to address malnutrition is to improve the monitoring and evaluation systems. Currently, the assessments of the prevalence of child nutrition are carried out with a periodicity of between 3 to 5 years. Nevertheless, **in order to be able to measure short-term results in the prevention of stunting, a more systematic approach with shorter periodicity is recommended, of 2 years between each assessment.** As the focus on the prevention of child undernutrition should target children before 2 years of age, these results will provide information to policy makers and practitioners on the results being achieved in the implementation of social protection and nutrition programmes.
5. Another important element is to further the understanding of the determinants of child undernutrition in each context. As an initial step, it is **recommended that the assessment of child nutrition also includes information that relates the nutritional status of the children to the livelihoods and economic activities of the households.** This information can be used to inform programme design to ensure that interventions effectively reach these vulnerable families with appropriate incentives and innovative approaches within social protection schemes.

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