

# Overview of 2011 Ghana Nutrition PROFILES Results

Build the Future. Invest in Nutrition Now.

## Summary

Investing in nutrition can improve several key development outcomes in Ghana, including child survival, educational achievements, and ultimately economic productivity. The 2011 Ghana PROFILES<sup>1</sup> results estimate that, during the period 2011–2020, more than 30,000 children's lives could be saved by reducing the prevalence of underweight, more than 25,000 children's lives could be saved by reducing vitamin A deficiency, and more than 4,500 mothers' lives could be saved by decreasing maternal anaemia. Investment in effective nutrition interventions at scale would also result in earlier school enrolment, children staying in school longer, and better school performance. In addition, investing in nutrition now would result in economic gains through increased productivity. By decreasing stunting alone, economic gains could exceed 720 million cedis (US\$504 million) by 2020.

Strong political leadership and commitment are needed at the highest levels to ensure that health-, nutrition-, and agriculture-related programmes address the causes of undernutrition and are incorporated into the plans of relevant ministries. At the same time, strong coordination among government sectors, including health, agriculture, and education, and the allocation of more resources for proven nutrition interventions are critical.

## Background

Ghana has made great strides in health and economic gains, and there are on-going efforts to sustain this growth. Available data, however, show persistently high rates of undernutrition. Three in 10 women and 8 in 10 children under 5 years of age in Ghana suffer from some form of undernutrition, including stunting (short for age); wasting (low weight for height); anaemia; and deficiencies in iron, iodine, and vitamin A<sup>2,3,4</sup>.

For current and future generations, further gains in economic growth, agriculture, education, and health depend on progress in nutrition. The Ghana Shared Growth and Development Agenda document states that nutrition and food security are essential cross-cutting issues in addressing overall human resource development. This statement and Ghana's vision for becoming a middle-income country by 2020 is further illustrated in the Health Sector Medium Term Development Plan 2010–2013 and the Medium Term Agriculture Sector Investment Plan (METASIP) 2011–2015. Ghana's nutrition objectives are to reduce child malnutrition (undernutrition and overnutrition); prevent and control vitamin A, iron, and iodine deficiencies; ensure household food security; and reduce infant, child, and maternal mortality.

PROFILES was carried out in Ghana in 2011 to provide a platform for nutrition advocacy efforts. PROFILES is a tool that consists of a set of models reflecting current scientific nutrition knowledge, and is designed to estimate consequences of undernutrition to support advocacy and communication with policy makers, programme implementers, and other stakeholders. PROFILES compares two scenarios. The *status quo* scenario assumes that there is no change in nutrition indicators over the selected time period (aside from projected changes in population growth). This is

compared to the *improved* scenario, which assumes that proven, effective interventions are implemented at scale to reduce nutrition problems and reach targets that are in alignment with Ghana's development agenda. In the *status quo* scenario, consequences are expressed in terms of lives lost and economic productivity losses from 2011 to 2020. The economic consequences are based on present-day value of future productivity losses. The Ghana PROFILES 2011 team selected the time period to be used, identified the data sources for the *status quo* scenario, and decided on the targets for improvement for each nutrition problem under consideration. The demographic data were based on the United Nations population projection for Ghana and adjusted for the preliminary total population from the 2010 census, while the nutrition data come from the Ghana Demographic and Health Surveys (GDHS), national surveys, and other sources.

## Nutrition Situation in Ghana

Young children and women are the most affected by undernutrition in Ghana. Recent evidence shows how undernutrition massively contributes to mortality levels in children under 5 years of age in developing countries. Undernutrition impairs children's immune systems, which places them at much greater risk of illness and death.

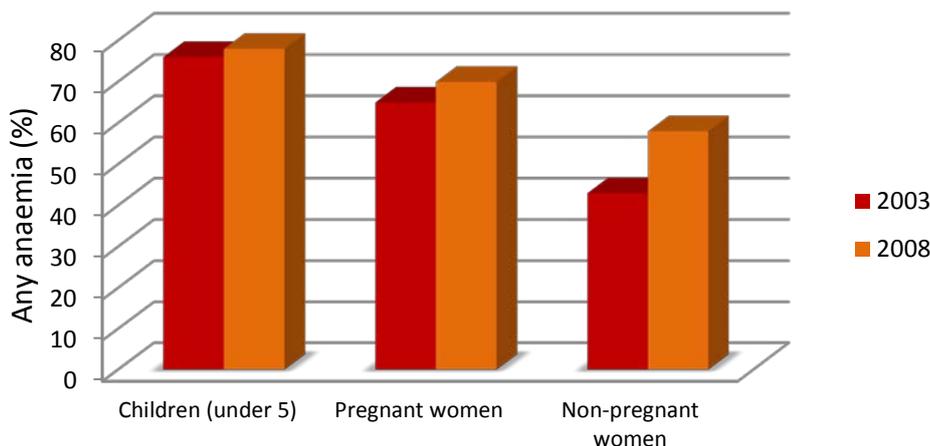
## Undernutrition

In Ghana, 1 in 13 children dies before his or her fifth birthday<sup>2</sup>. Undernutrition contributes to about half of all child deaths beyond early infancy, making this a major contributor to child mortality<sup>1</sup>. Every year in Ghana, 12,000 children die<sup>1</sup> because their weight is too low for their age (underweight)<sup>1</sup>. It is estimated that, for the period 2011–2020, there are 97,000 deaths of children under 5 years of age related to stunting alone<sup>1</sup>.

The most recent DHS<sup>2</sup> conducted in 2008 in Ghana showed that:

- Three in 10 young children were too short for their age (stunted) and 1 in 7 had a weight that was too low for their age (underweight).
- One in 10 children is wasted (weight too low for height) and 2% suffer from severe forms of wasting.
- Almost 8 in 10 children under 5 are anaemic, including those that have low levels of iron.
- About 7 in 10 pregnant women in Ghana have anaemia, which is worse than the situation was in 2003.

**Figure 1. Anaemia Trends among Children and Women**



Deficiencies of micronutrients, particularly vitamin A, iron, and iodine, have an immense impact on child mortality in Ghana.

### Vitamin A Deficiency

A significant problem in Ghana is vitamin A deficiency, which affects about 7 in 10 children under 5 years of age<sup>4</sup>. Estimates show that vitamin A deficiency contributes to 1 in 3 deaths of children 6–59 months of age<sup>1</sup>. This means that between 2011 and 2020 the number of child deaths attributable to vitamin A deficiency will total 110,000<sup>1</sup>. Improving nutrition would lead to substantial savings for the country because of the positive impact it would have on illness reduction, especially in children under the age of 5.

### Iron Deficiency Anaemia

Good nutrition is a major determinant of educational performance in children. Iron deficiency anaemia in children reduces learning ability and impairs intellectual development. Women that are anaemic are more likely to face serious reproductive health problems, which can lead to maternal and infant death. And anaemia during pregnancy has implications for maternal mortality.

Between 2003 and 2008, the prevalence of anaemia (including anaemia due to iron deficiency) increased in children under 5, non-pregnant women, and pregnant women. The 2008 GDHS show that almost 8 in 10 children under 5 are anaemic<sup>2</sup>, which is a slight increase from about 7 in 10 children in 2003<sup>5</sup>. A national survey among schoolchildren showed that about 4 in 10 are anaemic<sup>6</sup>. These rates are high by any standard, greatly reducing the cost-effectiveness of investments in education and the contribution of these children to Ghana’s future economy.

The prevalence of anaemia among pregnant women also increased between 2003 and 2008, from 65%<sup>5</sup> to 70%<sup>2</sup>, while among non-pregnant women, there was a large increase from 48%<sup>5</sup> to 58%<sup>2</sup>. Ghana has an unacceptably high maternal mortality ratio of 451 per 100,000 live births, and it is estimated that about 20% of maternal deaths are due to anaemia<sup>7</sup>. By 2020, about 9,000 mothers will die of anaemia if anaemia levels during pregnancy do not improve<sup>1</sup>.

## **Iodine Deficiency**

Iodine is essential for the development of the brain during the foetal and early childhood stages. Pregnant women that are iodine deficient in pregnancy are likely to give birth to mentally disabled children. Results from various studies show that 3% of all babies born to iodine-deficient mothers will have cretinism, 10% will be severely mentally disabled, and 87% will present some degree of intellectual deficit—all permanent yet preventable disabilities<sup>8</sup>. In iodine-deficient communities, scientific evidence shows that there is an average loss of about 13.5 IQ points<sup>9</sup>. Using the projected birth rates for the period 2011–2020, if investment in nutrition is not made now, almost 1.5 million children<sup>1</sup> will be affected by mild to severe irreversible brain damage due to iodine deficiency. The mental impairment resulting from iodine deficiency is permanent, having considerable impact on children's ability to learn and on school drop-out rates.

## **Impact of Undernutrition on Economic Productivity**

Undernutrition affects Ghana's economic productivity and development in several ways. Three major problems that have a profound impact on worker productivity are:

- Stunting due to undernutrition (which refers to children that are too short for their age)
- Iron deficiency anaemia
- Mental impairment due to iodine deficiency

### **Economic Consequences of Stunting**

Stunting occurs when children do not get enough food or an appropriate variety of food to eat, especially during the first 2 years of life. Currently, about 32% of all Ghanaian children 2 years of age are moderately or severely stunted<sup>2</sup>. After 2 years of age, stunting is permanent. Stunted children grow up to be stunted adults. One of the most significant consequences of adult stunting is reduced physical capacity and productivity. Stunting among children is also associated with decreased ability to learn and reduced school performance, which also contributes to economic productivity losses. For example, stunting causes some children to start school late because they look too small for their age. These children have social problems in addition to low IQ, which contributes to absenteeism and repetition of school years.

It is projected that between 2011 and 2020, 5 billion cedis (US\$3.5 billion) will be lost in decreased worker productivity due to stunting<sup>1</sup>.

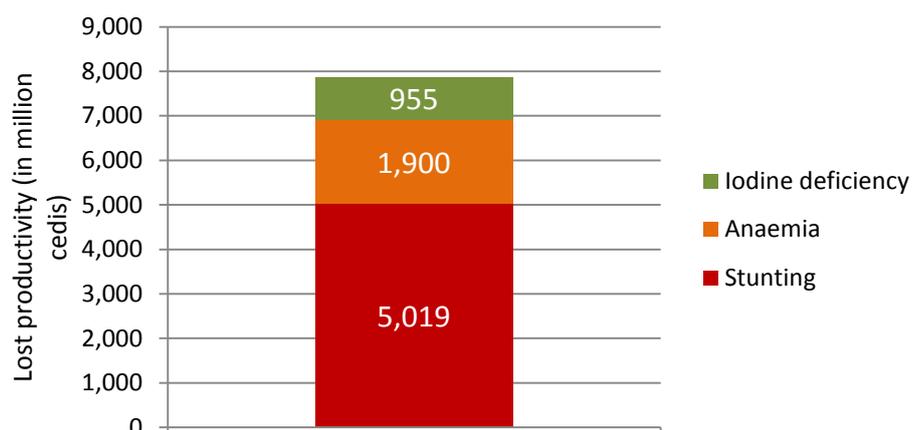
### **Economic Consequences of Anaemia**

Iron deficiency anaemia reduces worker productivity among women and men, especially for those engaged in manual labour. Based on the PROFILES analysis, it is projected that between 2011 and 2020, 1.9 billion cedis (US\$1.3 billion) will be lost in manual labour, including agricultural productivity, as a consequence of iron deficiency anaemia<sup>1</sup>.

### **Economic Consequences of Iodine Deficiency**

Iodine deficiency during early pregnancy can cause a permanent decrease in IQ points for the baby, leading to lost productivity later in life. Between 2011 and 2020, 955 million cedis (US\$668 million) will be lost due to mental impairment from iodine deficiency<sup>1</sup>.

**Figure 2. Summary of Projected Productivity Losses, 2011–2020**



### The Trend Can Be Reversed

Undernutrition is preventable. Investing in and scaling up proven, effective nutrition interventions during the next 10 years will boost economic productivity, save lives, and improve the well-being of Ghanaians, particularly women and children.

### Lives Saved and Improved

Investing in nutrition now will:

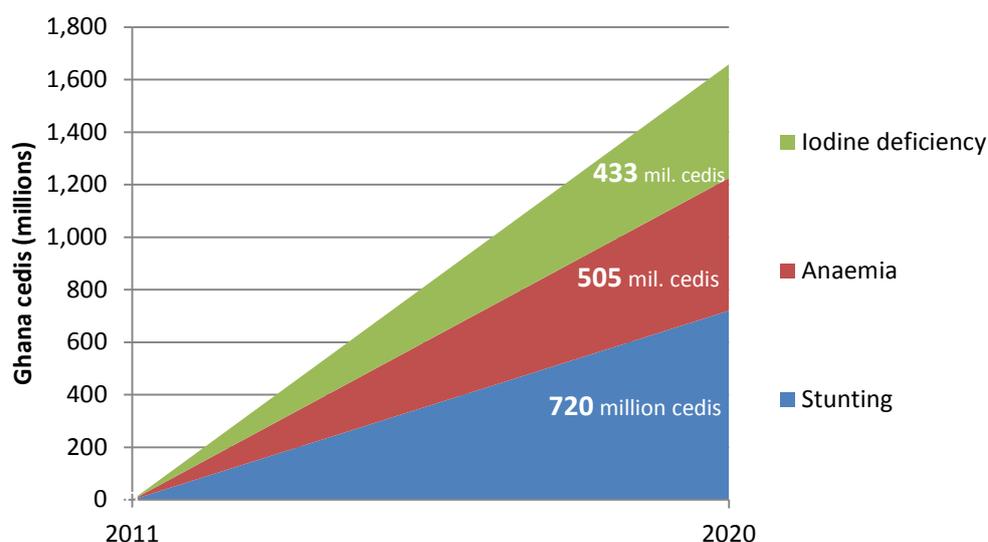
- Save the lives of 30,000 children by preventing underweight<sup>1</sup>
- Save the lives of more than 25,000 children by decreasing vitamin A deficiency<sup>1</sup>
- Prevent permanent brain damage in 500,000 children by decreasing iodine deficiency<sup>1</sup>
- Save the lives of more than 4,500 mothers by decreasing maternal anaemia<sup>1</sup>
- Increase children’s average IQ by 13.5 points by decreasing iodine deficiency<sup>9</sup>
- Result in earlier school enrolment, children staying in school for longer, and better school performance

### Economic Productivity Gains

Nutrition is critical for development, and sustained investment in nutrition will enable Ghana to increase economic productivity to make strides toward becoming a middle-income country by 2020. The potential economic productivity gains for Ghana during the next 10 years are<sup>1</sup>:

- 720 million cedis (US\$504 million) from reduction of stunting
- 505 million cedis (US\$353 million) from reduction of iron deficiency
- 433 million cedis (US\$303 million) from reduction of iodine deficiency

**Figure 3. Summary of Projected Productivity Gains by Reducing Iodine Deficiency, Anaemia, and Stunting**



## Proven, Effective Interventions to Be Scaled Up

These gains cannot be realised without sustained commitment and effort. Research has shown that targeted interventions alleviate undernutrition, but funds are needed to bring them to scale throughout Ghana.

### Examples of Proven, Effective Nutrition Solutions

- Promotion of optimal breastfeeding
- Promotion of appropriate complementary feeding
- Interventions to improve hygienic practices
- Vitamin A supplementation
- De-worming
- Iron-folate supplements for pregnant and lactating women
- Salt iodisation
- Fortification of staple food, such as flour and oil
- Multiple micronutrient powders
- Prevention of chronic undernutrition
- Treatment of severe acute malnutrition with special foods, such as ready-to-use therapeutic food
- Interventions to improve production, availability, and consumption of diversified food

### Improve Maternal Health and Nutrition

Interventions to improve maternal nutrition include strengthening the on-going iron-folate supplementation programme for pregnant women and promoting intake of a nutritionally adequate diet, including iron-rich foods.

Programmes designed to improve maternal health also include prenatal care; nutritional support for children and adolescents, particularly girls; institutional feeding; and school health programmes.

## **Promote Better Child Growth and Child Health**

Interventions to promote better infant and child growth and development include optimal breastfeeding, appropriate infant and young child feeding practices, growth monitoring and promotion, and management of children with acute malnutrition. Such interventions need to be strengthened and brought to scale.

In addition, programmes designed to improve child health will contribute to improved nutrition. Such programmes include immunisation and de-worming, food safety and hygiene, safe water supply, safe sanitation, malaria control, and integrated case management of childhood illnesses.

## **Address Micronutrient Undernutrition**

***Initiate iron supplementation for infants and children.*** Iron deficiency in infants and school-age children should be addressed by advocating for policy changes and by carrying out intensive communication to support improved diet and supplementation.

***Strengthen vitamin A supplementation and dietary intake of foods rich in vitamin A.*** Strengthening the vitamin A supplementation programme for lactating women and children, and improving dietary intake of foods rich in vitamin A would lead to improved child health.

***Promote food fortification.*** There is a need to strengthen on-going food fortification interventions; implement a national communication strategy to promote the consumption of iodised salt, fortified flour, and vegetable oil; enforce the law on salt iodisation; and strengthen monitoring.

***Strengthen household food security.*** These strategies will be successful and sustainable only if they are coordinated with other programmes, such as those designed to improve household food security through income-generating activities; increase household food production, storage, and preservation; promote appropriate food utilisation practices; and facilitate timely relief from drought and other emergencies.

## **Championing Nutrition Is Our Responsibility. Act Now.**

***Adopt a comprehensive national nutrition policy*** and integrate nutrition in development plans, with an effective structure for comprehensive nutrition services.

***Allocate more resources for proven nutrition interventions at scale and across sectors.*** Comprehensive programmes work to alleviate undernutrition, but funds are needed to scale up nutrition programmes throughout the country. Ensure that government agencies have budget lines specifically for nutrition so that priority activities are carried out and reported at all levels.

***Ensure strong intra- and inter-sectoral coordination*** within the health, agriculture, and education sectors.

## Main Sources of Information

**Main data sources include 2011 Ghana PROFILES and the Ghana Demographic and Health Survey (DHS) 2008.**

All calculations of US\$ to cedis are based on an exchange rate of 1.43 cedis to US\$1.

- <sup>1</sup> Ghana PROFILES. 2011. The multidisciplinary Ghana PROFILES team—under the leadership of the Nutrition Department of the Ghana Health Service and with technical assistance from the USAID-funded Food and Nutrition Technical Assistance III Project (FANTA) managed by FHI 360—is using the PROFILES tool to estimate the consequences of undernutrition and the potential benefits from improved nutrition to support advocacy.
- <sup>2</sup> Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF Macro. 2009. *Ghana Demographic and Health Survey 2008*. Accra, Ghana: GSS, GHS, and ICF Macro.
- <sup>3</sup> Asibey, Berko E. and Armah, J.G.A. 2007. *Biological impact assessment study on salt iodisation programme in Ghana (Jirapa and Bongo sentinel districts)*. Accra: UNICEF.
- <sup>4</sup> GHS. 2007. *Vitamin A deficiency in Ghana*. Ghana Food Fortification Baseline Survey.
- <sup>5</sup> GSS, Noguchi Memorial Institute for Medical Research (NMIMR), and ORC Macro. 2004. *Ghana Demographic and Health Survey 2003*. Calverton, MD: GSS, NMIMR, and ORC Macro.
- <sup>6</sup> GHS. 2007. *Anaemia among school children in Ghana*. Baseline study on iron levels in 50 elementary schools of Ghana.
- <sup>7</sup> GSS, GHS, and Macro International. 2009. *Ghana Maternal Health Survey 2007*. Calverton, MD: GSS, GHS, and Macro International.
- <sup>8</sup> Clugston, G.A.; Dulberg, E.M.; Pandav, C.S.; and Tilden, R.L. 1987. "Iodine deficiency disorders in South East Asia." In Hetzel, B.S.; Dunn, J.T.; and Stanbury, J.B. *The Prevention and Control of Iodine Deficiency Disorders*. pp. 65–84.
- <sup>9</sup> Bleichrodt, N. and Born, M.P. 1994. "A meta-analysis of research on iodine and its relationship to cognitive development." In Stanbury, J.B. (ed.). *The Damaged Brain of Iodine Deficiency*. New York: Cognizant Communication Corporation.

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This overview was developed by the PROFILES task team, which comprises technical experts from the Ministry of Health, Ghana Health Service, Ministry of Food and Agriculture, Ghana Statistical Services, University of Ghana, University of Development Studies, USAID, Food and Nutrition Technical Assistance III Project (FANTA), UNICEF, WFP, and WHO, and is made possible by the generous support of the American people through the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, U.S. Agency for International Development (USAID), and USAID/Ghana, under terms of Cooperative Agreement No. AID-OAA-A-12-00005, through FANTA, managed by FHI 360.



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