

**Nutrition in the  
Ashanti Region  
of Ghana:  
Investing Now for  
the Year 2020**



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**Nutrition in the  
Ashanti Region  
of Ghana:  
Investing Now for  
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***A Profiles Application for***  
**Nutrition Policy Analysis and**  
**Advocacy**

# Ghana: Vision 2020

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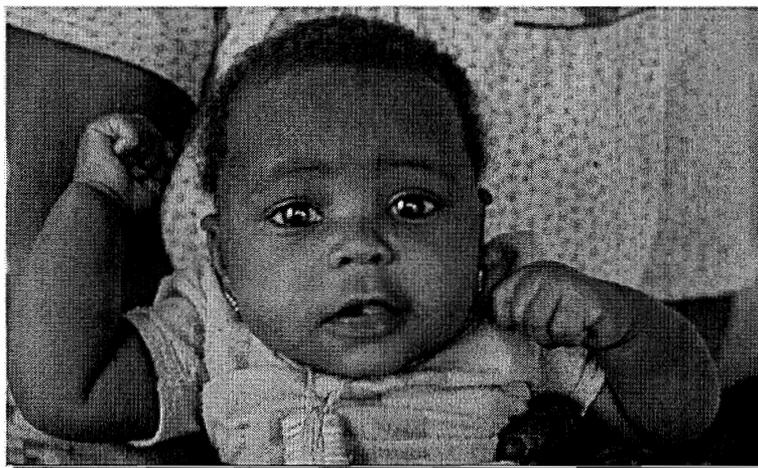


## Introduction

Ghana has a vision, the vision of becoming a middle-income country by the year 2020.

## Ghana: Vision 2020

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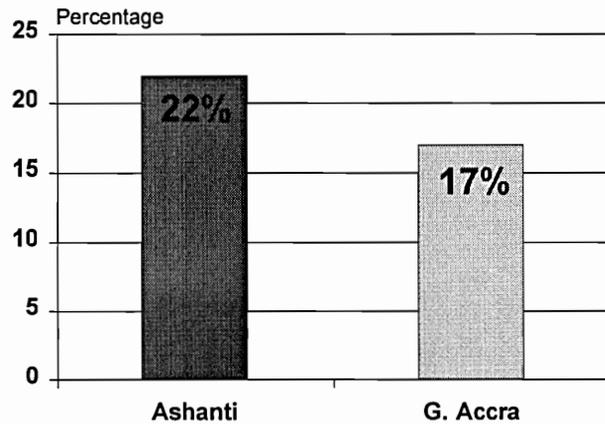


UNICEF/90-033/Sprague

This can only be realized if children being conceived and born today in every region of the country are given the opportunity to live to their full potential. Sadly, however, this opportunity is outside their reach because of malnutrition.

# Underweight Children

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GDHS'93

In the Ashanti Region 22% of children under three years of age are underweight, as compared to 17% in the Greater Accra Region. This is very high and unacceptable by any standard.

## **Nutrition Problems**

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- **energy and protein**
- **iodine**
- **iron**
- **vitamin A**

Current data indicate that the main nutrition problems in our region are:

- inadequate intake of foods providing energy and protein;
- iodine deficiency disorders;
- iron deficiency anaemia; and
- vitamin A deficiency.

## **Timely Actions**

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**→ Economic benefits**

In this presentation we will describe how timely actions to address these problems will translate into important economic benefits for the region.

# **Consequences**

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## **PROFILES**

**Current scientific data**

### **Consequences of Malnutrition and Benefits of Action**

To estimate the consequences of malnutrition in our region, we have used *Profiles*, a computer software program.

## **Consequences**

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- **Death**
- **Illness**
- **Intelligence loss**
- **Reduced economic productivity**

*Profiles* uses current scientific data to link malnutrition to death, illness, intelligence loss, and reduced economic productivity.

## **Assumptions/Data Sources**

- **Five-year period: 1997-2001**
- **Costs and benefits in dollars**
- **UN medium population projection**
- **DHS, national surveys & MOH**

The consequences of malnutrition are calculated over a five year period from 1997 to 2001, the period of the current Medium Term for the Vision 2020. Costs and benefits are quantified in US dollars because of the fluctuation of the cedi over recent years. The demographic data are based on the United Nations population projection for Ghana. The nutrition data come from the Ghana Demographic Health Survey, other national surveys, and Ministry of Health reports.

# **Malnutrition and Health**

Let's now look at the consequences of malnutrition in each of these areas, beginning with health.

## **Health Consequences**

- . Illness**
- . Death**

### **Malnutrition and Health**

The major health consequences of malnutrition are illness and death.

## **Groups Most at Risk**

- . Children**

- . Women**

The groups most at risk are children and women.

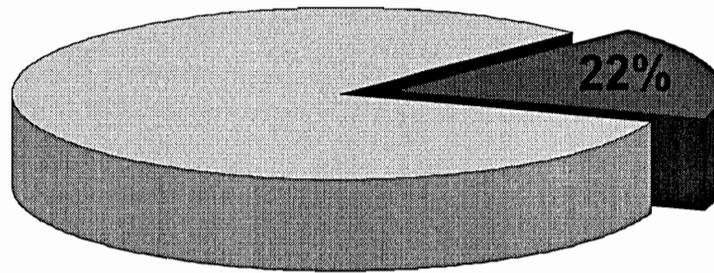
# Child Mortality

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In developing countries, malnutrition is the leading cause of death in children under five years of age. Being underweight dramatically increases the risk of death because undernourished children have lower resistance to infections.

## Underweight Children

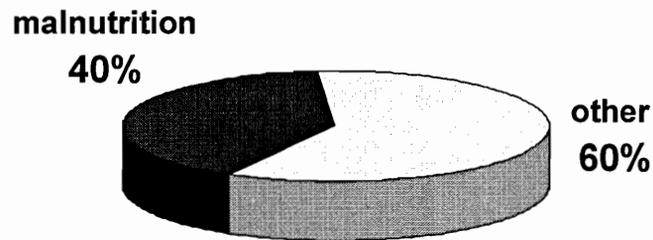


GDHS'93

We have seen that in the Ashanti Region, 22% of children under three years of age are underweight. The contribution of this to child mortality in the region is alarming.

# **Causes of Child Mortality**

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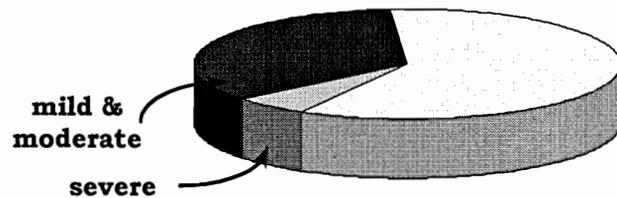


**Greatest cause  
of child mortality**

We have estimated that in our region, about 40% of all child deaths are due to protein-energy malnutrition, making this the single greatest cause of child mortality.

# Causes of Child Mortality

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**Only 1 in 7 due to  
severe malnutrition**

Because only one in seven malnutrition related deaths is due to severe forms of malnutrition such as kwashiorkor and marasmus, significant reductions in child mortality will only be achieved in our region by preventing mild and moderate malnutrition as characterized by underweight.

## **Child Mortality (1997-2001)**

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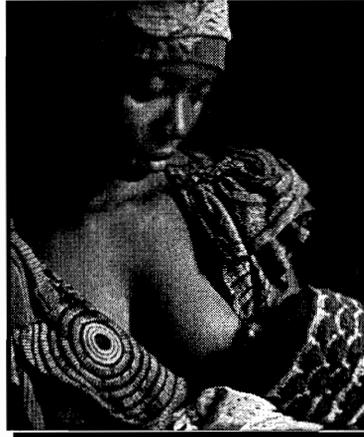
**24,000 child deaths**

If no improvements are made, malnutrition will account for over 24,000 child deaths in our region between 1997 and 2001.

## **Poor Breastfeeding**

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**Less than 6%  
of babies are  
exclusively  
breastfed during  
first 6 months**

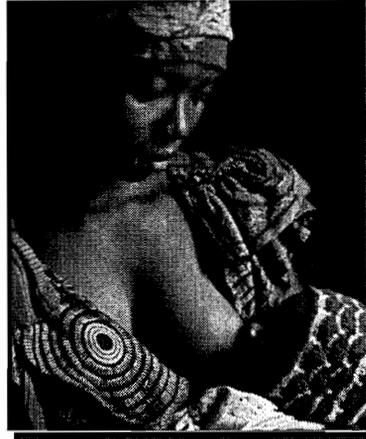


Poor breastfeeding practices contribute greatly to child death. International experts recommend that babies be exclusively breastfed for the first six months of life with no additional liquid or foods given, not even water.

## **Poor Breastfeeding**

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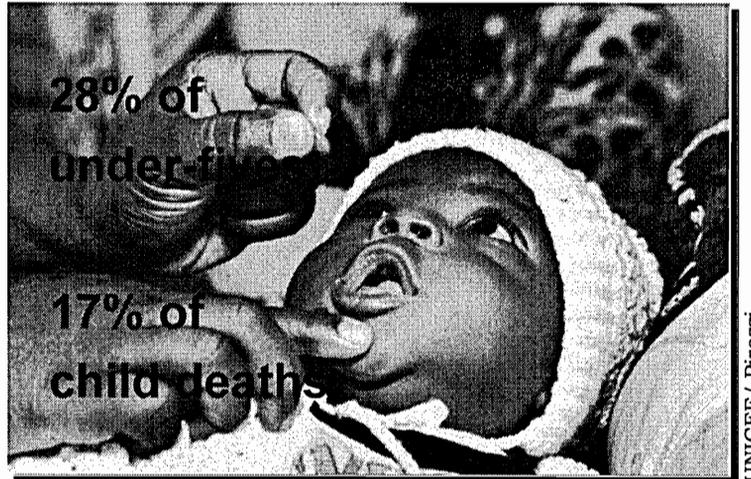
**Over  
850  
infant  
deaths  
each year**



However, in the Ashanti Region, less than 6% of babies are exclusively breastfed for the first six months of life. The mortality rate in the region during the first year of life is 65 deaths per 1000 live births. We have estimated that poor breastfeeding practices contribute to about 10% of these infant deaths—that is, over 850 infant deaths each year. Improved breastfeeding practices would also contribute to increased birth intervals, improving the health and nutrition of mothers and infants.

# Vitamin A Deficiency

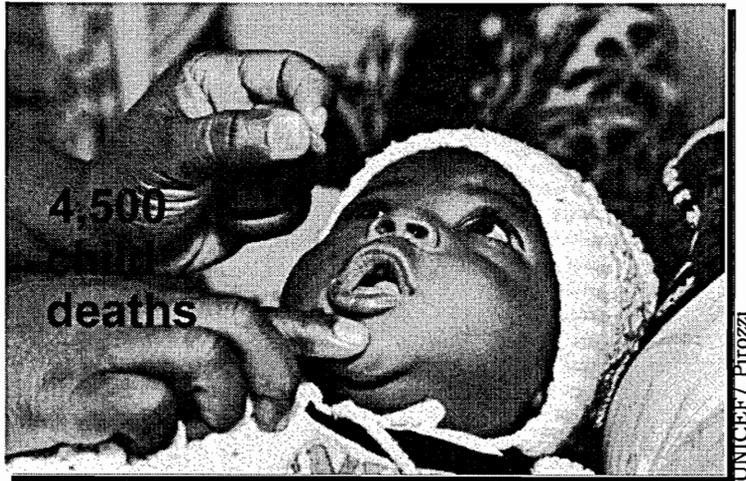
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In our region, vitamin A deficiency and iron deficiency anaemia also have an immense impact on mortality. Vitamin A deficiency affects 28% of the region's children under five, and accounts for 17% of all deaths of children between the ages of 6 and 59 months.

# Vitamin A Deficiency

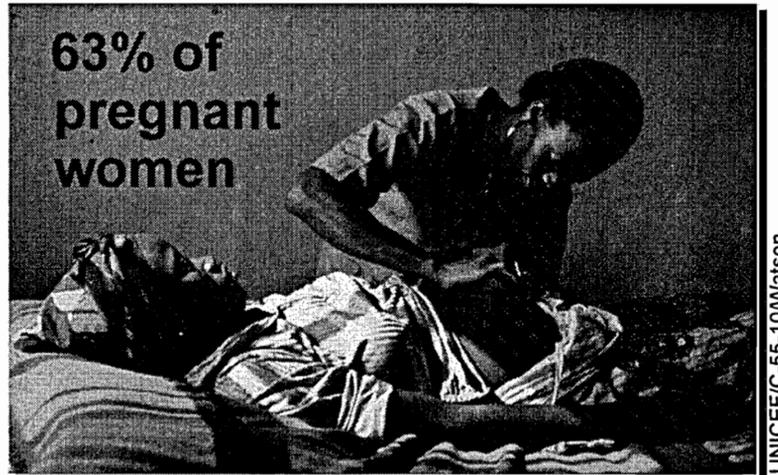
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This means that from 1997 to the year 2001, over 4500 children will die in our region as a consequence of vitamin A deficiency.

# **Anaemia in Pregnancy**

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Anaemia affects 63% of the pregnant women in our region. Anaemic women are more likely to face reproductive health problems which can lead to their death and that of their infants.

## Maternal Mortality

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**20%  
due to  
anaemia**



UNICEF/Pirozzi

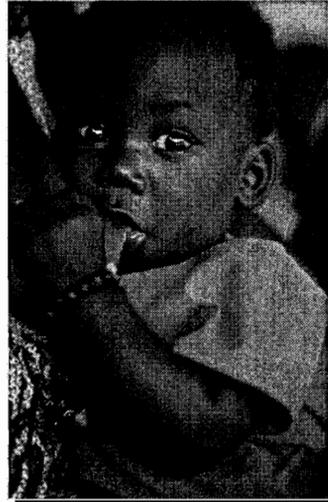
Our region has an unacceptably high maternal mortality rate of 279 out of 100,000 live births. About 20% of these deaths are due to anaemia.

This strong relationship between malnutrition and death comes about through illness.

# **Optimal Breastfeeding**

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**Protects  
infants  
against  
infections**

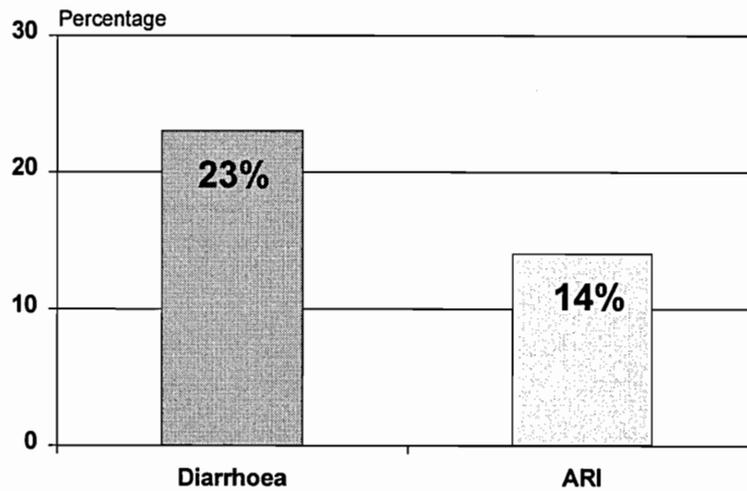


UNICEF/90-033/Sprague

Optimal breastfeeding protects infants against infections.

# Poor Breastfeeding

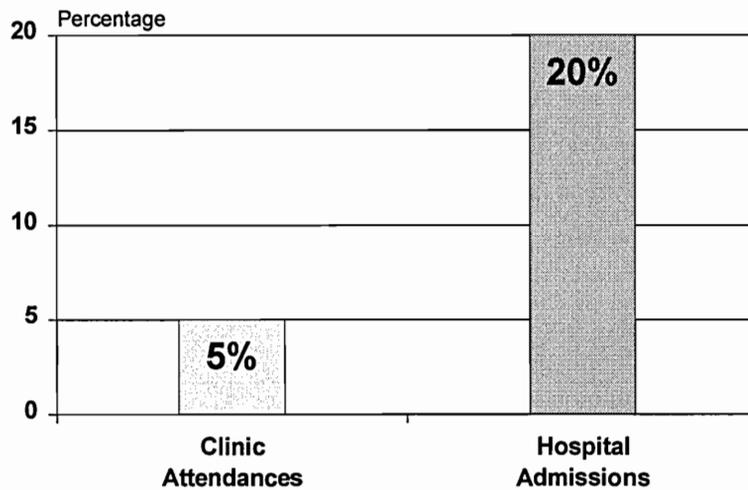
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In our region, about 23% of all diarrhoea cases in infants are due to poor breastfeeding practices, as are 14% of all acute respiratory infections.

# Vitamin A Deficiency

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Vitamin A deficiency also has an immense impact on illnesses among children. For example, in our region vitamin A deficiency accounts for close to 5% of clinic attendances and 20% of hospital admissions of children under five years old.

# **Improving Nutrition**

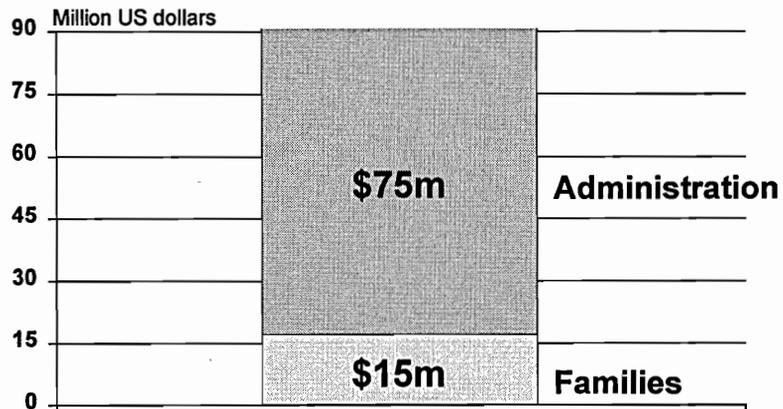
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**Positive Impact  
on the Health of Children**

Improving nutrition would lead to many benefits for the region because of the positive impact it would have on the health of children under five.

## **Savings from Elimination of VAD by the Year 2001**



For example, significant financial savings could be made in the region if vitamin A deficiency were to be eliminated by the year 2001. The savings in terms of the care of sick children would be about 15 million US dollars to families and 75 million to the regional and district administrations in terms of provision of health facilities, drugs, and other services.

# **Malnutrition and Education**

Let's see now how malnutrition can affect the education of children.

# Iodine Deficiency and Intelligence

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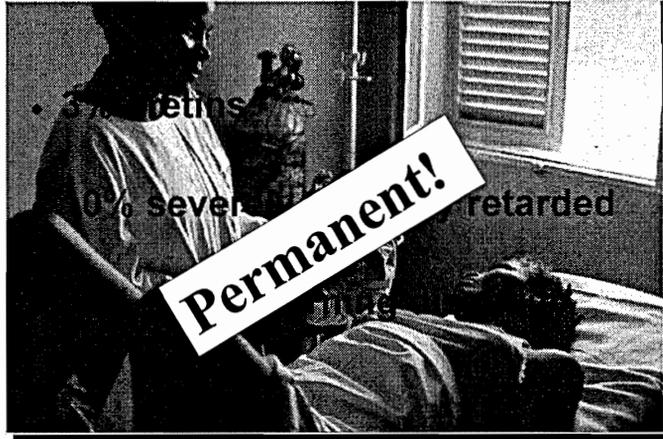


## Malnutrition and Education

Good nutrition is essential for good school performance in children. Iodine, for example, is necessary for the normal development of the baby's brain during pregnancy. Pregnant women living in iodine-deficient regions are more likely to give birth to mentally retarded children. Results from various studies show that 3% of all babies born to iodine-deficient mothers will be cretins, 10% will be severely mentally retarded, and 87% will present some degree of learning disability.

# **Iodine Deficiency and Intelligence**

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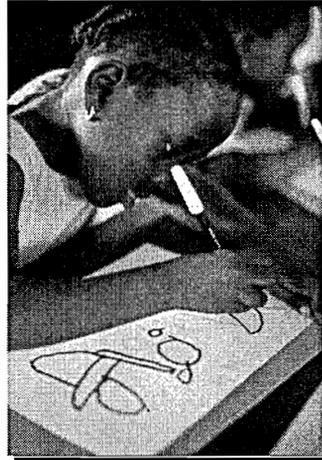
The learning disability resulting from iodine deficiency is permanent.

# **Iodine Deficiency and Education**

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**School performance**

**Drop-out rates**

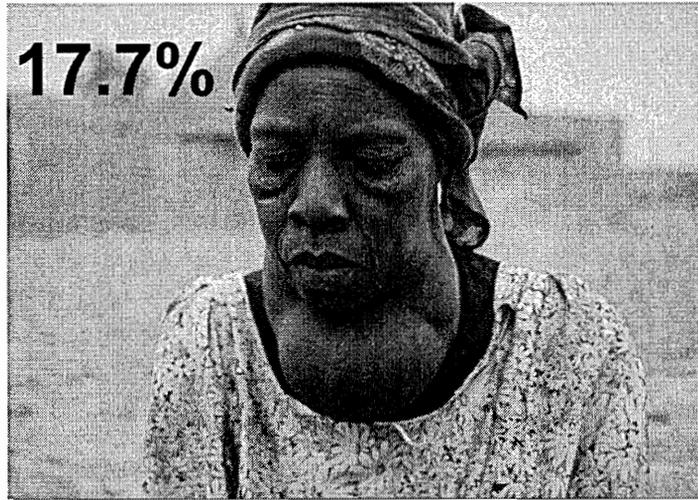


UNICEF/C-56-19/Murray-Lee

Iron deficiency has considerable impact on children's school performance and drop-out rates.

## Goiter Rate

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UNICEF/95-0065 Shadid

The total goiter rate in our region is 17.7%.

## **Iodine Deficiency (1997-2001)**

- ➔ **3,000 cretins**
- ➔ **11,000 severely mentally retarded**
- ➔ **95,000 mildly impaired**

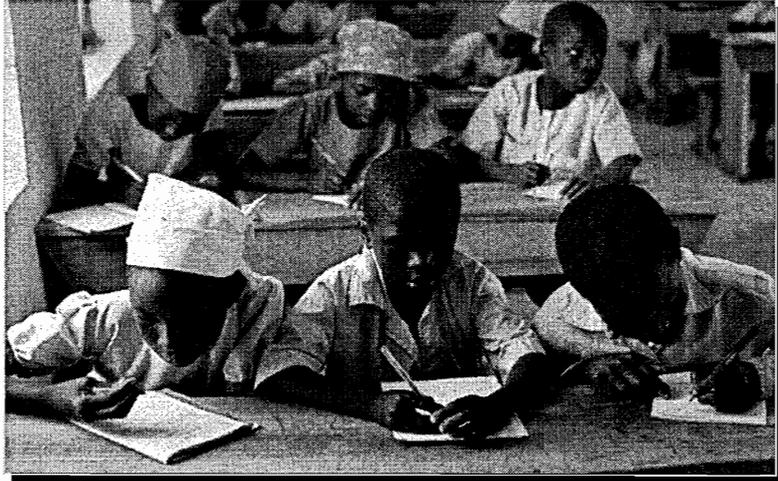
**55,000 children saved  
from mental retardation**

Using the projected birth rates for the five years, approximately 3,000 babies will be cretins, 11,000 babies will be severely mentally retarded, and 95,000 will be mildly impaired, making it impossible for the region to derive many benefits from the investments being made in education.

If everyone in our region consumes iodated salt, over 55 thousand children could be saved from these various forms of mental retardation over the next five years.

# Universal Education

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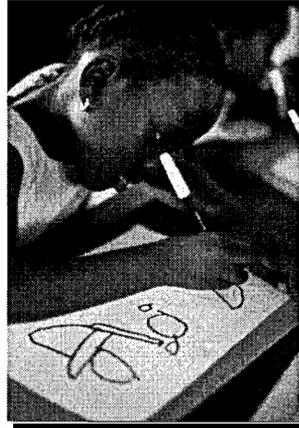
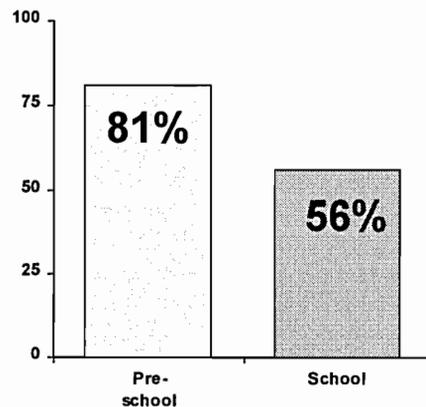


UNICEF/C72-15/Sprague

This intervention would have an enormous impact on the FCUBE program.

# Anaemia and Learning Ability

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UNICEF/C-56-19/Murray-Lee

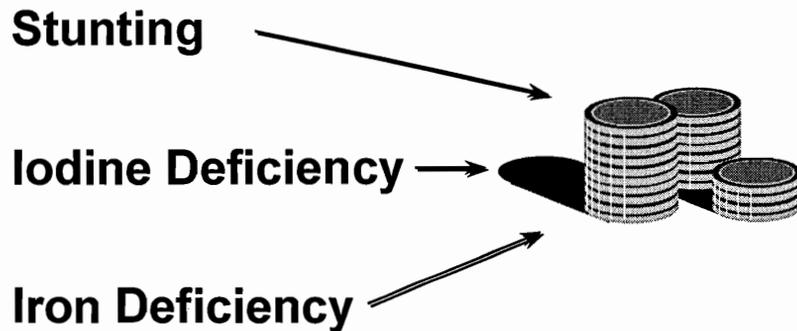
Iron deficiency anaemia also reduces the learning ability of children. Recent data from the Ministry of Health's Nationwide Anaemia Survey show that in the Ashanti Region, 81% of pre-school children and 56% of school-age children are anaemic. These rates are high by any standard, reducing the benefits of the investments in education and the contribution of our children to Ghana's future economy.

# **Malnutrition and Economic Development**

Now let's look at the effects of malnutrition on the economic development of our region.

## **Three Nutrition Problems**

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### **Malnutrition and Economic Productivity**

Malnutrition affects productivity in several ways. We will look at three nutrition problems that affect the economic productivity of our region.

These nutrition problems are:

- stunting due to protein-energy malnutrition;
- mental impairment due to iodine deficiency;
- and iron deficiency anaemia.

We will see that these three problems have a profound impact on the economic productivity of our region. Let's explore this issue in greater detail, starting with stunting due to protein-energy malnutrition.

# Stunting

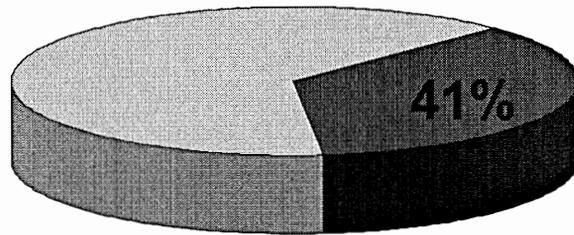
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Stunting, that is reduced height for age, occurs when children do not get enough food both in quantity and quality during the first two years of life.

## **Stunting at Two Years of Age**

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Source: DHS, 1993

Currently about 41% of all two-year-olds in our region are moderately or severely stunted.

# Consequence of Stunting

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## Reduced productivity

**1% decrease in height =  
1.4% decrease in productivity**

Haddad & Bouis, 1990



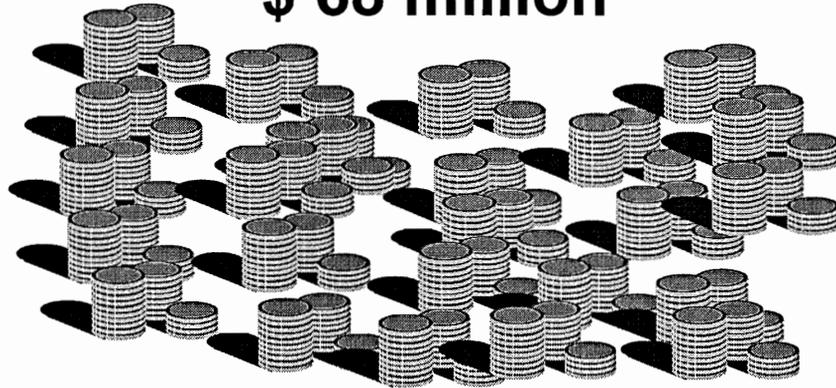
UNICEF/91-029 J Schytte

Stunted children grow up to become stunted adults. And one of the most significant consequences of adult stunting is reduced productivity. Productivity of physical labor declines by 1.4% for every 1% reduction in adult height.

## **Economic Losses 1997-2001**

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**\$ 68 million**



If current levels of stunting remain unchanged over the next five years, our region will lose 68 million dollars in economic production as a result of the poor nutrition of our children.

Next, let's look at iodine deficiency.

# Iodine Deficiency and Productivity

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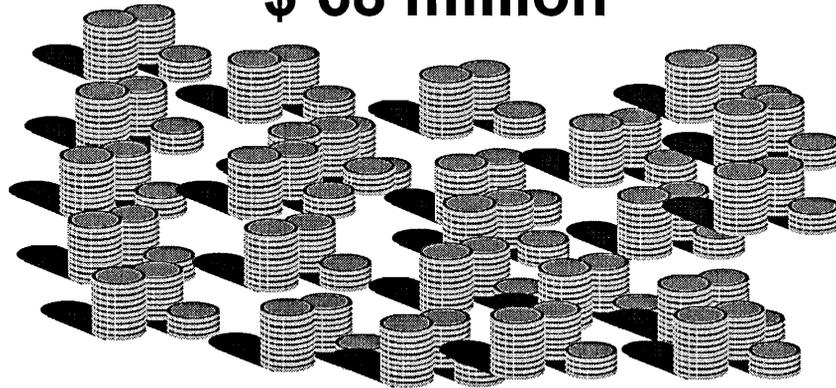
UNICEF/95-0065 Shadid

Remember, the mental impairment caused by iodine deficiency is permanent.

## Lost Wages 1997-2001

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**\$ 68 million**



The present value of lost wages in our region over the next five years is about 68 million dollars.

# Iron Deficiency Anaemia

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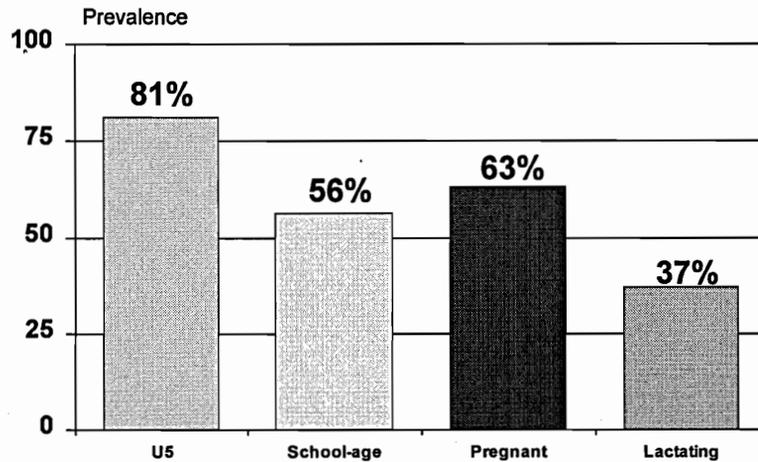


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Finally, let's look at iron deficiency anaemia, another nutritional problem that has far-reaching effects on productivity.

# Anaemia Rates

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Data from the Ministry of Health National Anaemia Survey indicate that in our region 81% of children under five, 56% of school-age children, 63% of pregnant women, and 37% of lactating mothers are anaemic.

## **Scientific Research**

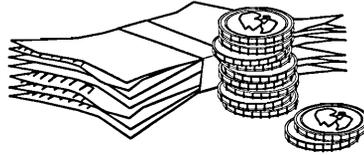
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**1% reduction in productivity  
for each  
1% drop in iron status**

Scientific research shows that there is at least a 1% reduction in productivity for each 1% drop in iron status.

## **Losses due to Anaemia**

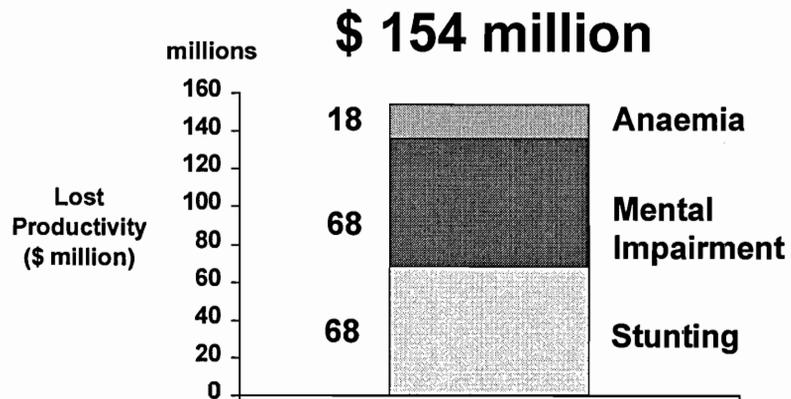
**1997-2001:**



**\$ 18 million**

We therefore project that between 1997 and 2001, over 18 million dollars will be lost in productivity in our region as a consequence of iron deficiency anaemia in the female labor force.

## **Total Losses: 1997-2001**



Thus the total cost of malnutrition to worker productivity in our region is:

- 68 million dollars due to stunting,
- 68 million dollars due to mental impairment, and
- 18 million dollars due to iron deficiency anaemia.

This is a total loss of 154 million dollars—just over the five years and just for the three problems we have examined here.

# **Productivity Gains**

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**By reducing:**

- **Stunting**
- **Iodine deficiency**
- **Iron deficiency anaemia**

Now let's look at the productivity gains that can be realized in our region by reducing stunting, iodine deficiency, and iron deficiency anaemia.

## **Targets for 2001:**

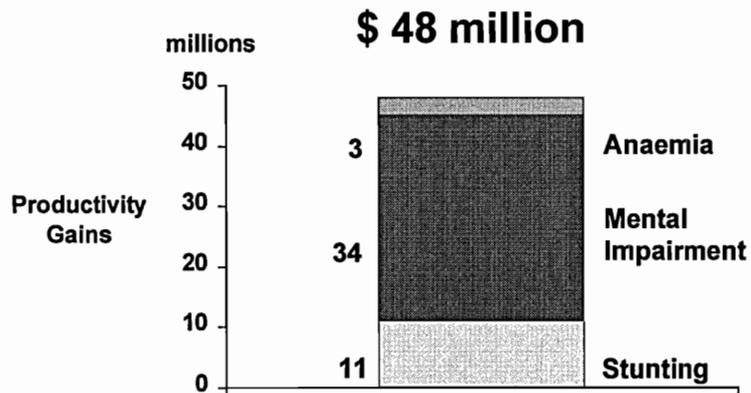
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- **Reduction of severe and moderate stunting by a third**
- **Virtual elimination of iodine deficiency**
- **Reduction of anaemia by a third**

In calculating these gains, we assume that these proposed targets will be achieved by the year 2001:

- a reduction of both severe and moderate stunting by a third;
- the virtual elimination of iodine deficiency in pregnancy; and
- the reduction of anaemia in women by a third.

## Productivity Gains: 1997-2001



Adding together all the potential productivity gains over the five years, our region is expected to gain: 11 million dollars from reduction of stunting, 34 million dollars from reduction of mental impairment, and 3 million dollars from reduction of iron deficiency. This is a total of 48 million dollars in present value gained over five years.

However, these gains cannot be realized without your commitment and effort.

# Solutions

## **Solutions**

If Ghana is to become a middle-income country by the year 2020, conscious efforts should be made in our region to reduce malnutrition, particularly in infants, children and women of reproductive age.

## **Promote Better Child Growth**

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### **Better counseling to mothers:**

**Exclusive breastfeeding for 6 months**

**Adequate complementary feeding**

### **During:**

**Ante-natal visits**

**Weighing and immunization**

**Home visits**

Specifically, intervention programs should:

1). Promote better child growth through the provision of better counseling to mothers in optimal child feeding practices. Counseling on child feeding practices should focus on two main issues: exclusive breastfeeding of infants for the first six months of life and adequate complementary foods to breastmilk for children up to two years of age. Counseling should be provided during antenatal visits, weighing and immunization sessions, and home visits.

## **Community-Based Approach**

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**Distribute vitamin A supplements:**

**Lactating women**

**Children**

**Distribute iron-folate supplements:**

**Pregnant women**

**Ensure deworming:**

**Children**

2). Strengthen the community-based approach to:

- Distribute vitamin A supplements to lactating women and children through traditional birth attendants, village health committees, and schools.
- Distribute iron-folate supplements to pregnant women through private midwives and traditional birth attendants.
- Ensure the regular deworming of children through village health committees and school teachers to address the problem of anaemia in children.

## **Consumption of Iodated Salt**

- **Enforcement of law**
- **Availability and affordability**

3). Ensure the consumption of iodated salt through:

- The enforcement of the Food and Drugs Law on iodated salt.
- The availability and affordability of iodated salt in every household.

## **Information and Education Materials**

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**Proper feeding:**

**Iodated salt**

**Iron/vit. A rich foods**

**Hygiene and sanitation**

**Through:**

**TV, radio, drama groups, and  
community-based channels**

4). Provide appropriate information and educational materials on proper feeding of all age groups, including consumption of iodated salt, iron, and vitamin A rich foods, and provide information and educational materials on hygiene and sanitation through TV, radio, drama groups, and other community based channels.

## **Knowledge and Counseling Skills**

- **Health workers**
- **Non health workers**

5). Improve the knowledge and counseling skills of both health and non-health workers involved in health and nutrition related activities.

## **Adequate Food Supply**

- **Credit to women:**
  - **Agricultural production**
  - **Food processing**

These strategies will only be successful and sustainable if they are integrated with other programs such as:

- Those that ensure adequate food supply in every house through the provision of credit, especially to women for agricultural production and food processing.

## **Agricultural Extension Services**

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- **Increase food production**
- **Improve**
  - **Preservation**
  - **Storage**

- Those that strengthen agricultural extension services to farmers to increase food production and improve preservation and storage practices.

## **Timely Relief**

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- **Drought**
- **Other emergencies**

- Those that provide timely relief from drought and other emergencies.

# **Maternal Health**

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- **Ante-natal care**
- **Supplementary feeding**
  - **Girl children**
  - **Adolescent women**
- **Labor saving equipment**
  - **Farming**
  - **Food processing**

• Those that improve maternal health through antenatal care, supplementary feeding for girl children and adolescent women, and labor saving equipment for farming and food processing.

## **Improve**

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- **Safe water supply**
- **Waste management**
- **Malaria control**
- **Treatment of illness**

- Those that improve safe water supply, proper waste management, malaria control, and treatment of illnesses.

# **Costs and Benefits**

## **Costs Compared to Benefits**

Although the initial costs of these programs are considerable, we have seen that they pay for themselves many times over.

# **Benefit:Cost Analysis**

## **Unit Costs**

<b><u>Project Component</u></b>	<b><u>Unit Costs</u></b>
<b>Salt fortification</b>	<b>\$0.05 per capita/yr</b>
<b>Breastfeeding Promotion</b>	<b>\$2.50 per infant</b>
<b>Intensive Education</b>	<b>\$10.00 per infant</b>
<b>Iron Supplementation</b>	<b>\$2.50 per pregnancy</b>

The unit costs of the program components, estimated from the literature, are shown in this table.

# **Benefit:Cost Analysis**

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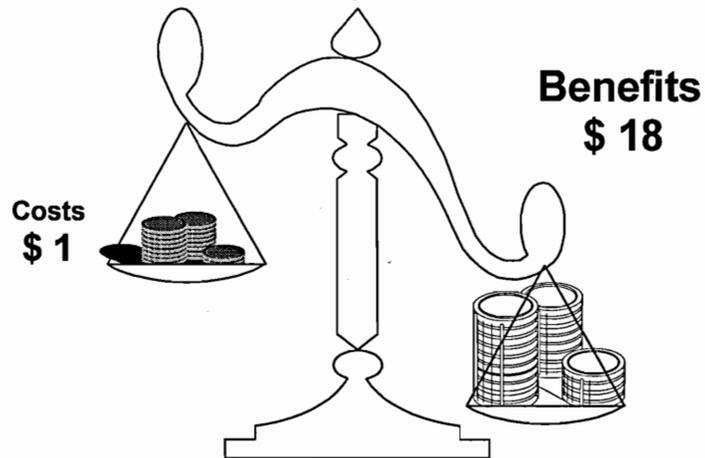
\$ millions

<b><i>Disorder</i></b>	<b><i>Benefit</i></b>	<b><i>Cost</i></b>	<b><i>B:C</i></b>
<b>IDD</b>	<b>34.76</b>	<b>0.93</b>	<b>37.38</b>
<b>PEM</b>	<b>11.75</b>	<b>0.88</b>	<b>13.35</b>
<b>Anaemia</b>	<b>3.20</b>	<b>0.91</b>	<b>3.52</b>
<b>Total</b>	<b>49.65</b>	<b>2.72</b>	<b>18.25</b>

The five-year benefits and costs of each intervention are summarized in this table. Compared to the 49 million dollars in benefits over the five year period, the 2.7 million dollar cost is relatively small.

# Return on Investment

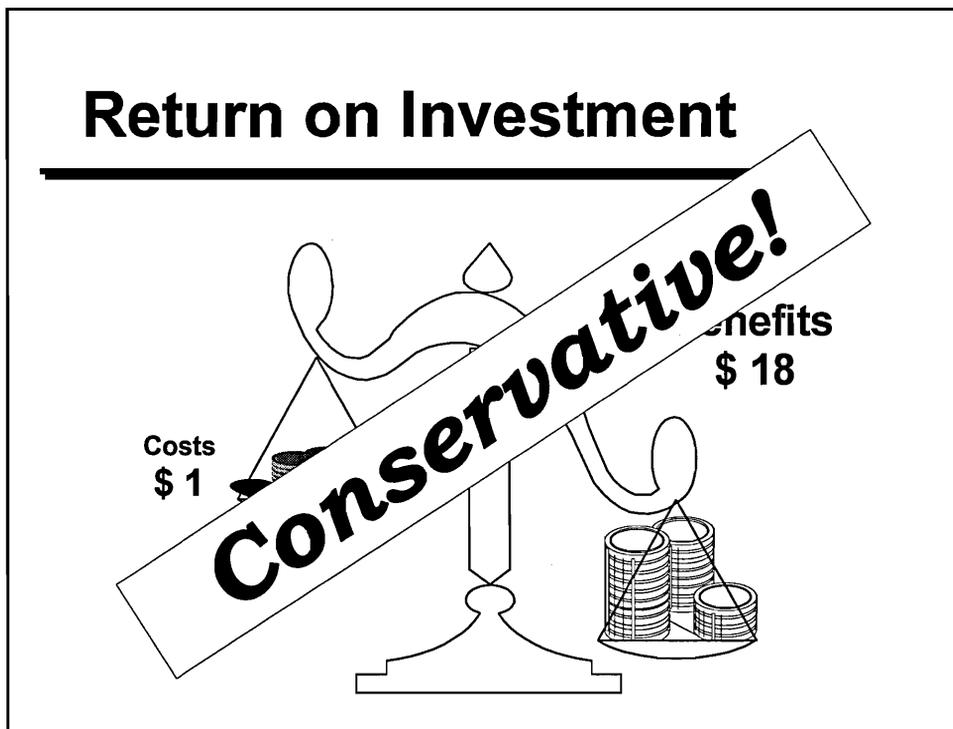
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The benefit-to-cost ratio of this investment is 18.25. In other words, every one dollar invested will generate over 18 dollars just in economic productivity gains.

## Return on Investment

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Given the conservative nature of many of our assumptions and the omission of many benefits, this must be considered an underestimate of the true return of this investment.

# **Investment in Nutrition**

## **Would avoid:**

- **Massive infant and child deaths**
- **Lowering of school performance**
- **Losses in economic productivity**

## **Summary**

In summary, our presentation shows that an adequate investment in nutrition in our region would avoid massive numbers of infant and child deaths, a drastic lowering of our children's school performance, and huge losses in adult economic productivity.

## **Two Conditions for Change**

- **Political commitment**

- Regional

- District

- **Approach to development**

- Investment in nutrition

Two conditions are needed for the current situation to change. The first is the strong commitment of our political leaders both at the regional and the district levels. The second is a new action-oriented approach to development with an emphasis on investing in nutrition as enshrined in Vision 2020.

# **Nutrition Investment**

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## **Benefits**

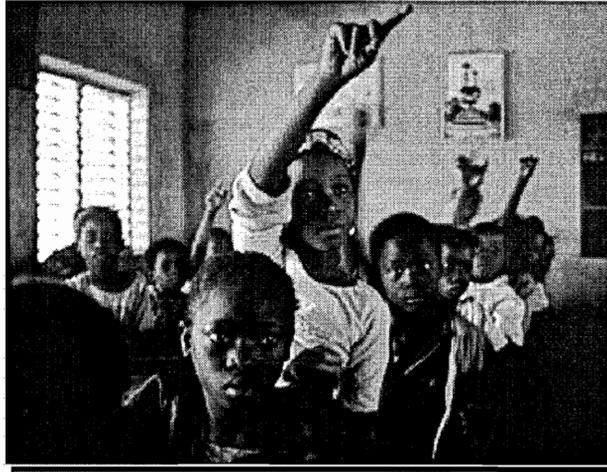
- **Education**
- **Agriculture**
- **Industry**

## **Economy**

This investment in nutrition will reap benefits far outweighing the costs; benefits to education, agriculture, industry, and to the economic future of the region.

# Ghana's 2020 Vision

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UNICEF/95-0071/Shadid

Attainment of these social and economic benefits is our only hope of making the economic vision for the year 2020 a reality in the Ashanti Region of Ghana.

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**Nutrition Unit (Ministry of Health), UNICEF & USAID**