

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



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

A Profiles Application for
Nutrition Policy Analysis and
Advocacy

Ghana: Vision 2020



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

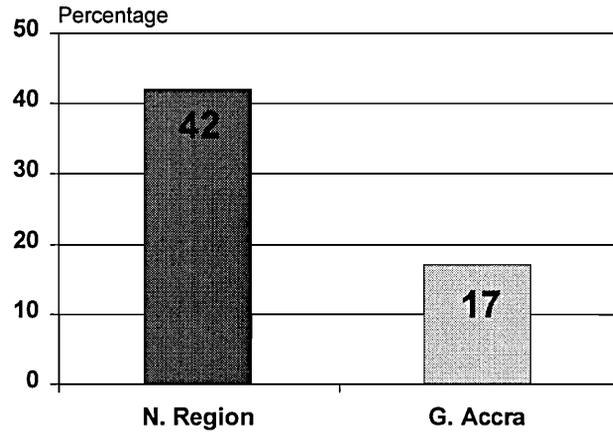
Ghana: Vision 2020



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



GDHS'93

In the Northern Region 42% of children under three years old are underweight, as compared to 17% in the Greater Accra Region. This is very high and unacceptable by any standard.

Nutrition Problems

- **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

→ 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

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 that uses current scientific data.

Consequences

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

Profiles uses this 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.

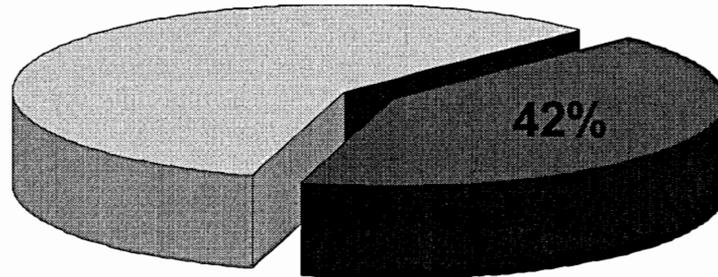
Child Mortality



UNICEF/ Pirozzi

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.

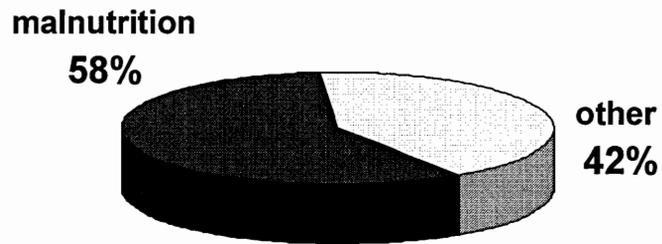
Underweight Children



GDHS'93

We have seen that in the Northern Region, 42% of children under three years of age are underweight. The contribution of this to child mortality in the region is alarming.

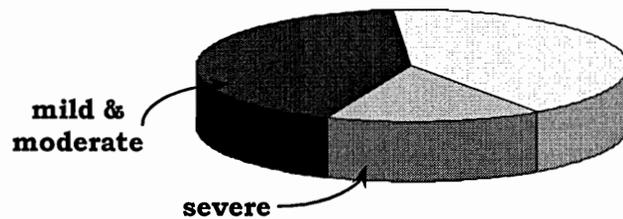
Causes of Child Mortality



**Greatest cause
of child mortality**

We have estimated that in our region, about 58% of all child deaths are due to protein-energy malnutrition, making this the single greatest cause of child mortality.

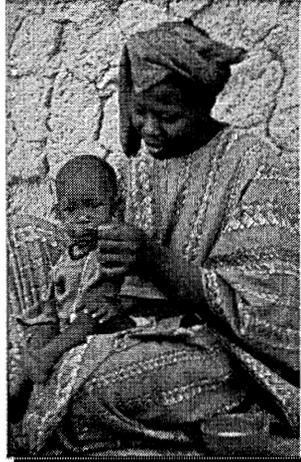
Causes of Child Mortality



**Only 1 in 4 due to
severe malnutrition**

Because only one in four 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)



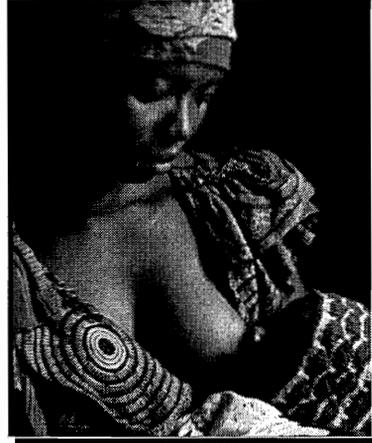
UNICEF/94-1155 Pirozzi

51,000 child deaths

If no improvements are made, malnutrition will account for over 51,000 child deaths in our region between 1997 and 2001.

Poor Breastfeeding

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

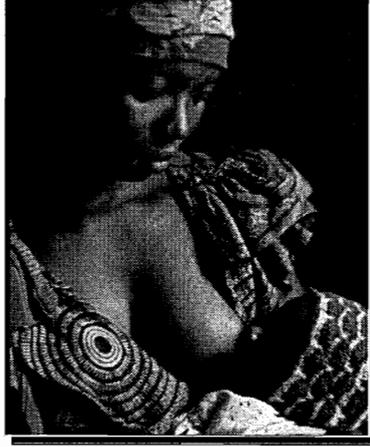


Poor breastfeeding practices contribute greatly to child death. International experts recommend that babies be exclusively breastfed for the first six months of life with no additional liquid or foods given, not even water.

However, in the Northern Region less than 6% of babies are exclusively breastfed for the first six months of life.

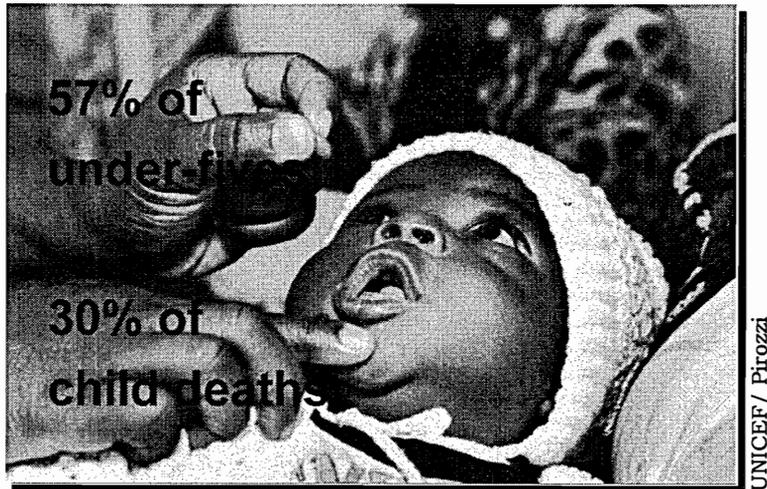
Poor Breastfeeding

**Over
1,100
infant
deaths
each year**



The mortality rate in the region during the first year of life is 113 deaths per 1000 live births. We have estimated that poor breastfeeding practices contribute to about 10% of these infant deaths—that is, over 1,100 infant deaths each year. Improved breastfeeding practices would also contribute to increased birth intervals and improvements in the health and nutrition of mothers and infants.

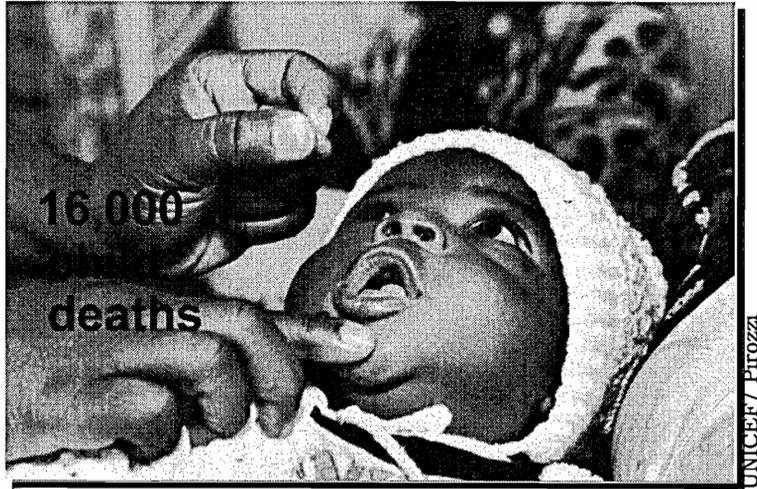
Vitamin A Deficiency



In our region, vitamin A deficiency and iron deficiency anaemia also have an immense impact on mortality.

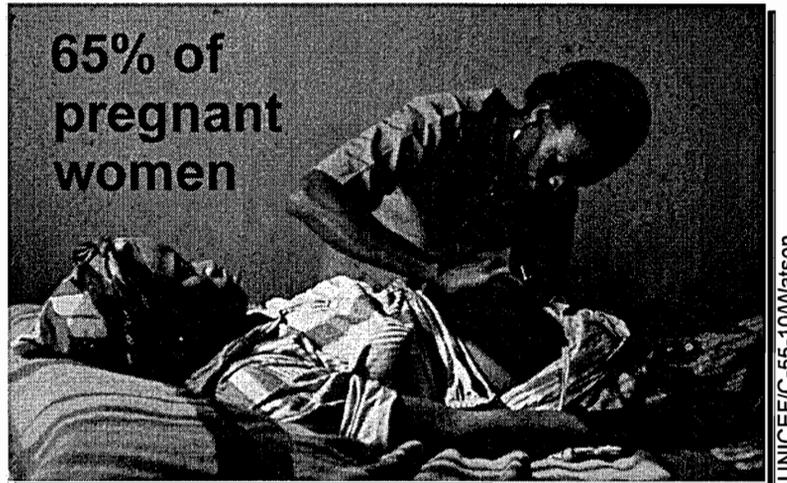
Vitamin A deficiency affects 57% of the region's children under five years of age and accounts for 30% of all deaths of children between the ages of 6 and 59 months.

Vitamin A Deficiency



This means that from 1997 to the year 2001, over 16,000 children will die in our region as a consequence of vitamin A deficiency.

Anaemia in Pregnancy



Anaemia affects 65% of the pregnant women in our region. Anaemic women are more likely to face reproductive health problems that can lead to their death and that of their infants.

Maternal Mortality

**20%
due to
anaemia**

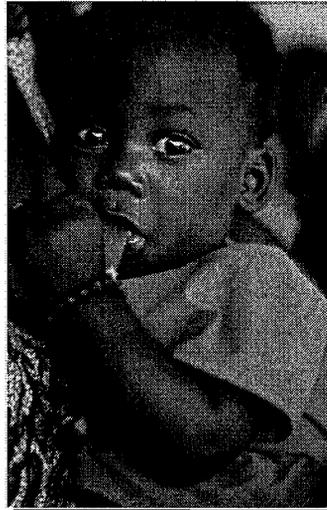


UNICEF/Pirozzi

Our region has an unacceptably high maternal mortality rate of 244 out of 100,000 live births. About 20% of these deaths are due to anaemia.

Optimal Breastfeeding

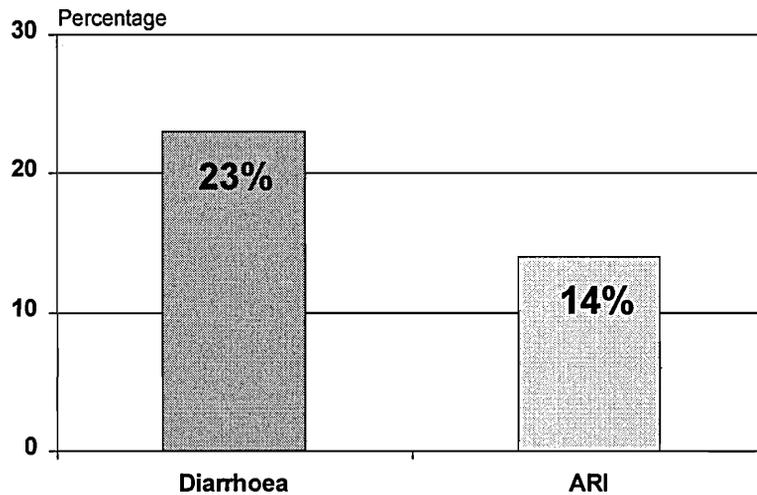
**Protects
infants
against
infections**



UNICEF/90-033/Sprague

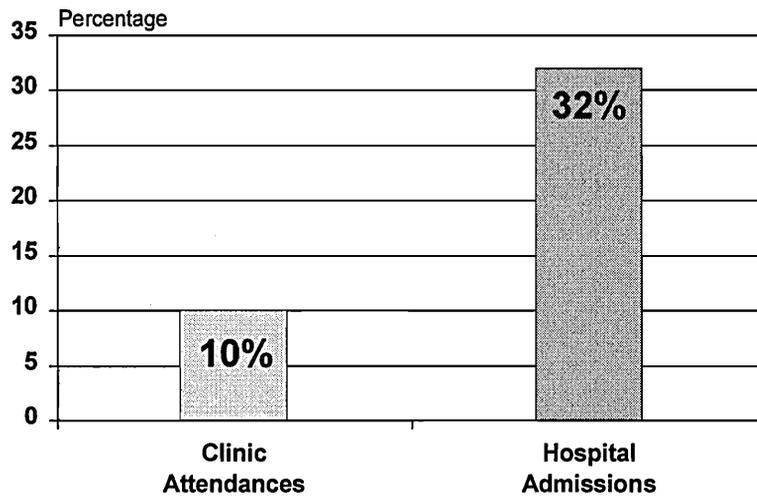
Optimal breastfeeding protects infants against infections.

Poor Breastfeeding



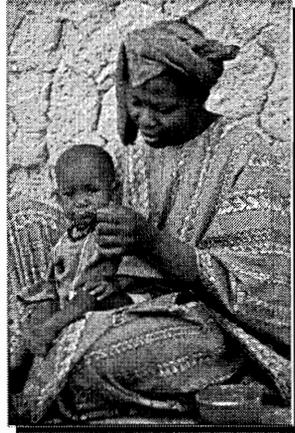
In our region, about 23% of all diarrhoea cases in infants are due to poor breastfeeding practices, as are 14% of all acute respiratory infections.

Vitamin A Deficiency



Vitamin A deficiency also has an immense impact on illnesses among children. For example, in our region vitamin A deficiency accounts for close to 10% of clinic attendances and 32% of hospital admissions of children under five.

Improving Nutrition

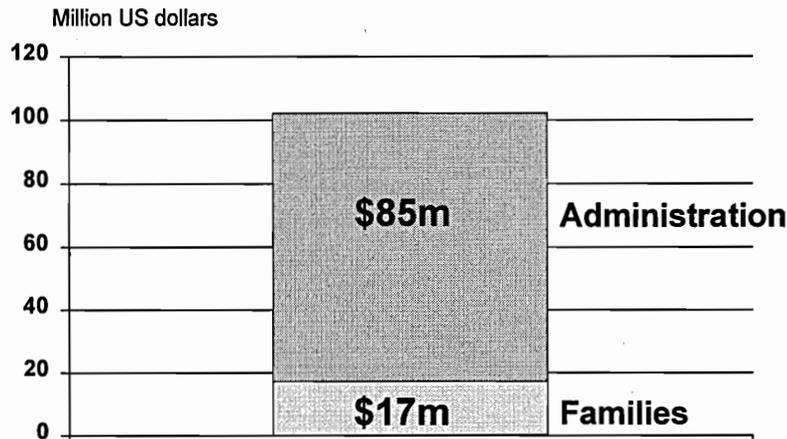


UNICEF/94-1155 Pirozzi

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 17 million dollars to families and 85 million to the regional and district administrations in terms of provision of health facilities, drugs, and other services.

Malnutrition and Education

Malnutrition and Education

Good nutrition is essential for good school performance in children.

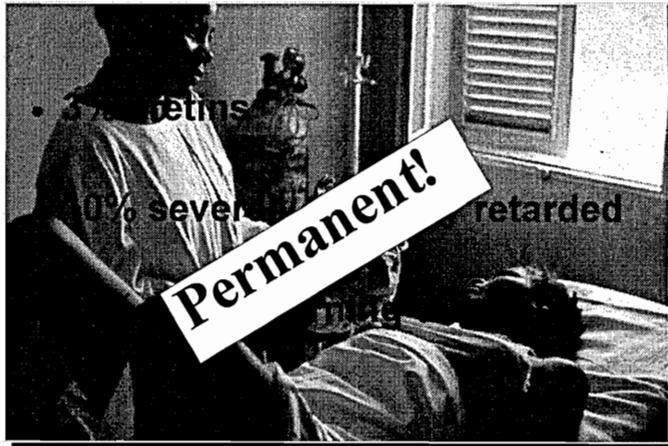
Iodine Deficiency and Intelligence



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

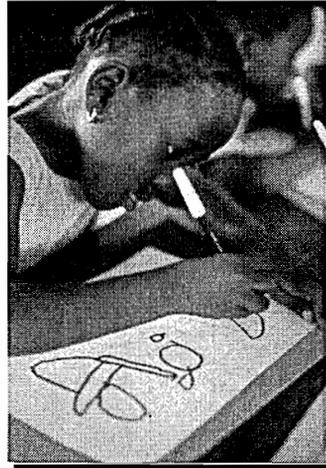


The learning disability resulting from iodine deficiency is permanent.

Iodine Deficiency and Education

School performance

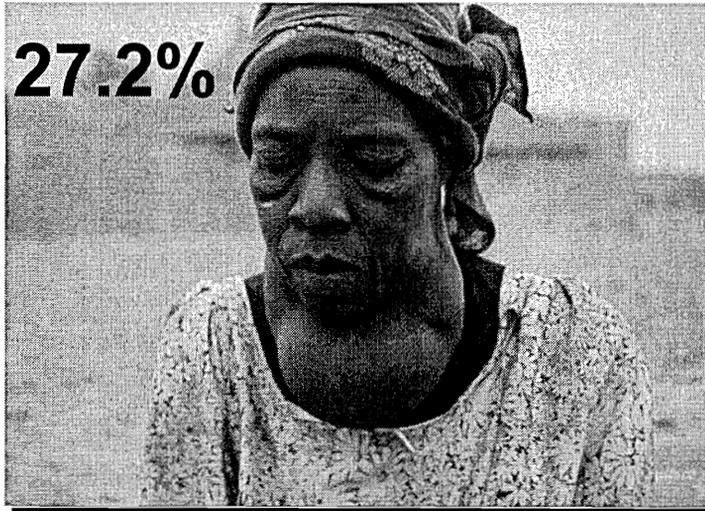
Drop-out rates



UNICEF/C-56-19/Murray-Lee

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

Goiter Rate



UNICEF/95-0065 Shadid

The total goiter rate in our region is 27.2%. This is almost three times the national average.

Iodine Deficiency (1997-2001)

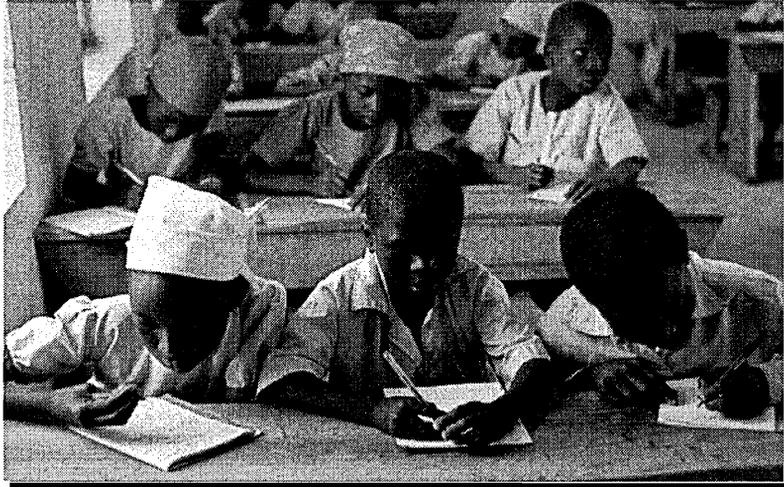
- ➔ **3,000 cretins**
- ➔ **10,400 severely mentally retarded**
- ➔ **90,000 mildly impaired**

**49,000 children saved
from mental retardation**

Using the projected birth rates for the five year period, approximately 3,000 babies will be cretins, over 10,000 babies will be severely mentally retarded, and about 90,000 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 would consume iodated salt, over 49 thousand children could be saved from these various forms of mental retardation over the next five years.

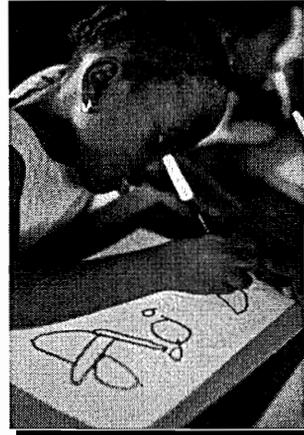
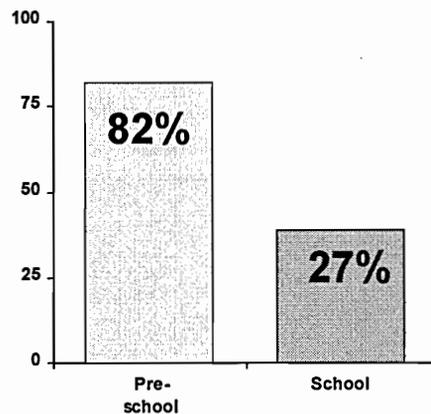
Universal Education



UNICEF/C72-15/Sprague

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

Anaemia and Learning Ability



UNICEF/C-56-19/Murray-Lee

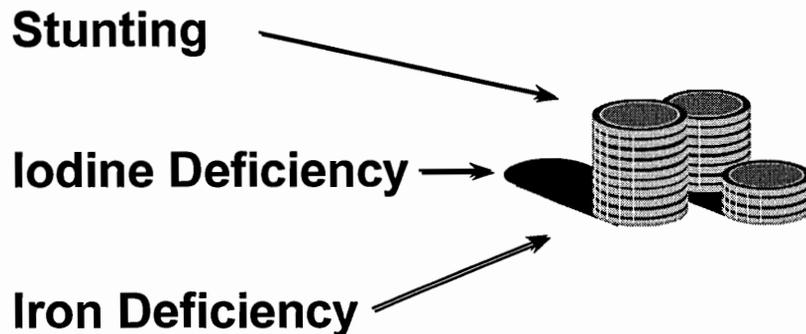
Iron deficiency anaemia also reduces the learning ability of children. Recent data from the Ministry of Health's Nationwide Anaemia Survey show that in the Northern Region, 82% of pre-school children and 27% of school-age children are anaemic. These rates are high by any standard, reducing the benefits of the investments in education and the contribution of our children to Ghana's future economy.

Malnutrition and Economic Development

Malnutrition and Economic Productivity

Malnutrition affects productivity in several ways.

Three Nutrition Problems



We will look at three nutrition problems that affect the economic productivity of our region.

These 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.

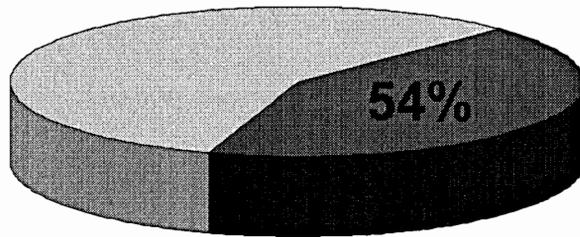
Stunting



UNICEF/C-55-10/Watson

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



Source: DHS, 1993

Currently about 54% of all two-year-olds in our region are moderately or severely stunted.

Consequence of Stunting

Reduced productivity

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

Haddad & Bouis, 1990

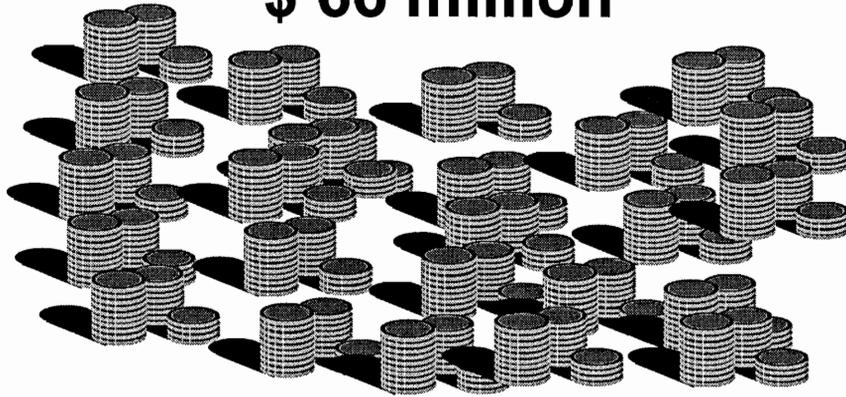


UNICEF/91-029 J Schytte

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

\$ 66 million



If current levels of stunting remain unchanged over the next five years, our region will lose 66 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

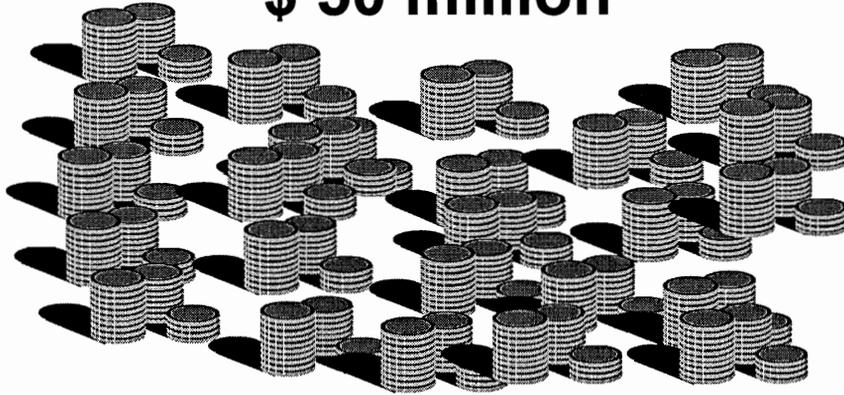


UNICEF/95-0065 Shadid

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

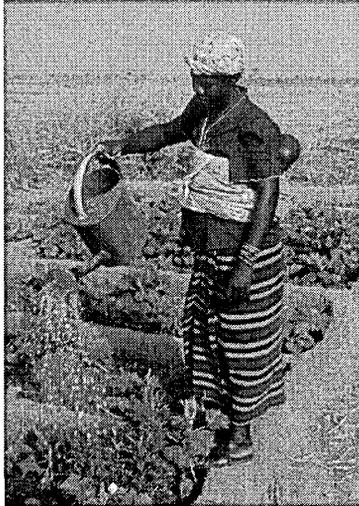
Lost Wages 1997-2001

\$ 50 million



The present value of lost wages in our region over the next five years is about 50 million dollars.

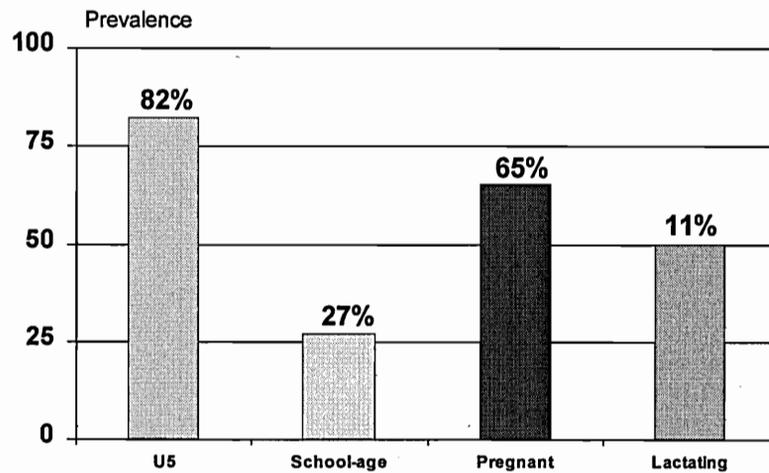
Iron Deficiency Anaemia



UNICEF/91-029 J Schytte

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

Anaemia Rates



Data from the Ministry of Health National Anaemia Survey indicate that in our region 82% of children under five, 27% of school-age children, 65% of pregnant women, and 11% of lactating mothers are anaemic

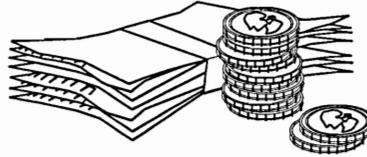
Scientific Research

**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

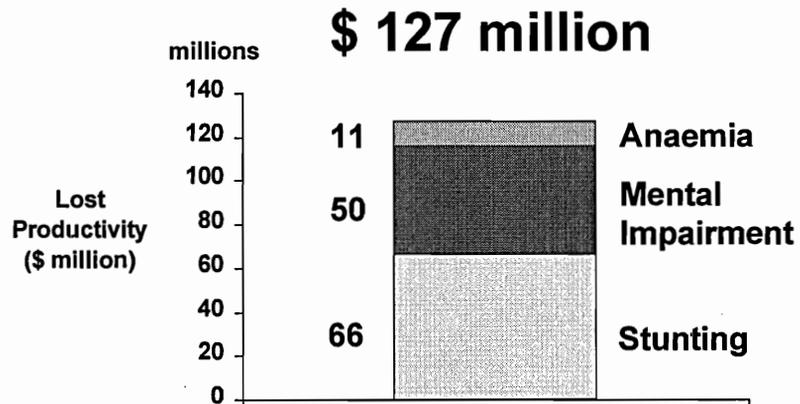
1997-2001:



\$ 11 million

We therefore project that between 1997 and 2001, over 11 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:

- 66 million dollars due to stunting,
- 50 million dollars due to mental impairment, and
- 11 million dollars due to iron deficiency anaemia.

This is a total loss of 127 million dollars—just over the five years and just for the three problems we have examined here.

Productivity Gains

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.

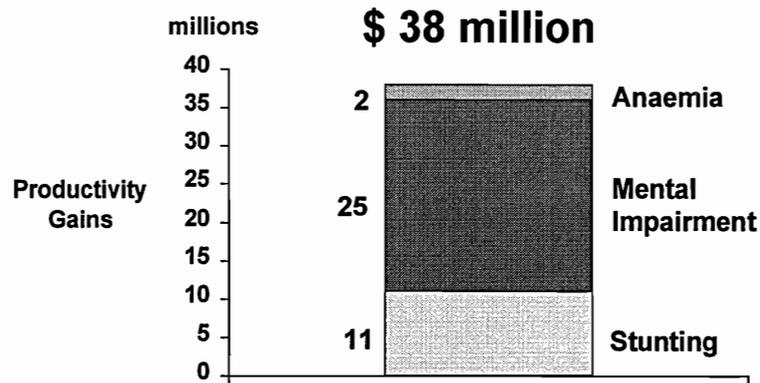
Targets for 2001:

- 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, 25 million dollars from reduction of mental impairment, and 2 million dollars from reduction of iron deficiency. This is a total of 38 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. Specifically, intervention programs should:

Promote Better Child Growth

Better counseling to mothers:

Exclusive breastfeeding for 6 months

Adequate complementary feeding

During:

Ante-natal visits

Weighing and immunization

Home visits

1. Promote better child growth through the provision of better counseling to mothers on optimal child feeding practices. This counseling 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 old. Counseling should be provided during antenatal visits, weighing and immunization sessions, and home visits.

Community-Based Approach

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

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**
- **Land use demarcations**

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, food processing, and investments in irrigation facilities to ensure year-round agricultural production.

Agricultural Extension Services

- **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

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

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

Maternal Health

- **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

- **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

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

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

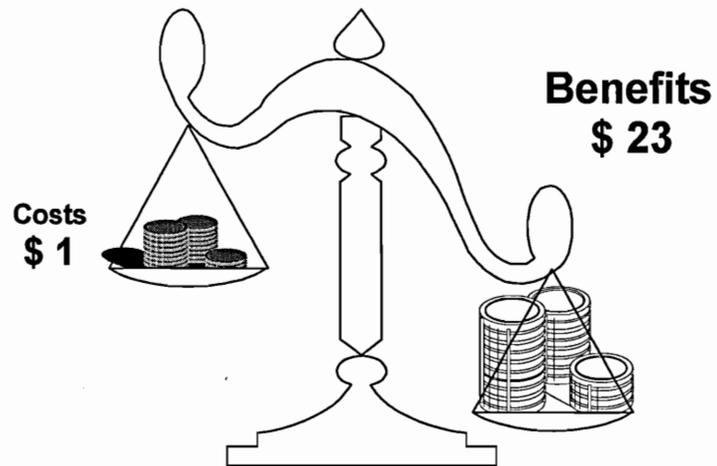
Benefit:Cost Analysis

\$ millions

| <i><u>Disorder</u></i> | <i><u>Benefit</u></i> | <i><u>Cost</u></i> | <i><u>B:C</u></i> |
|------------------------|-----------------------|--------------------|-------------------|
| IDD | 25.84 | 0.56 | 46.14 |
| PEM | 11.50 | 0.54 | 21.30 |
| Anaemia | 2.06 | 0.55 | 3.75 |
| Total | 39.40 | 1.65 | 23.88 |

The five-year benefits and costs of each intervention are summarized in this table. Compared to the 39 million dollars in benefits over the five years, the 1.6 million dollar cost is relatively small. The benefit:cost ratio of this investment equals 23.8.

Return on Investment



In other words, every one dollar invested will generate over 23 dollars just in economic productivity gains.

Return on Investment



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 emphasis on investing in nutrition, as enshrined in Vision 2020.

Nutrition Investment

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



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 Northern Region of Ghana.

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