

# Investing in the future

## A united call to action on vitamin and mineral deficiencies

GLOBAL REPORT  
SUMMARY 2009



**Flour Fortification Initiative**  
A Public-Private-Civic Investment in Each Nation



**gain**  
Global Alliance for  
Improved Nutrition



**Micronutrient  
Initiative**



**USAID**  
FROM THE AMERICAN PEOPLE



**THE WORLD BANK**

**unicef** 

[www.unitedcalltoaction.org](http://www.unitedcalltoaction.org)

The global community should be outraged by the millions of children that either die or are disabled each year because of malnutrition. We know how to prevent and treat it. The missing link is the political will to place nutrition squarely on the development agenda and to commit the necessary resources to implement programs, particularly food fortification, that we know can deliver sustainable improvements not only to the current generation of people at risk but to the lives of generations to come.

**Marc Van Ameringen, Executive Director, GAIN**

We encourage all of our industry peers to find their niche in these proven, cost-effective strategies to reduce vitamin and mineral deficiencies around the world.

**Scott Montgomery, Vice President and Global Procurement Leader, Cargill Inc.,  
FFI Executive Management Team Chairman**

The global community has committed, through the Millennium Development Goals, to meet the rights and needs of all the world's citizens. We are working to reduce poverty and child mortality, improve maternal health, provide universal primary education and ensure gender equality. Empowering people in all countries to consume adequate amounts of essential micronutrients plays an important role in meeting these objectives.

**Venkatesh Mannar, President, Micronutrient Initiative**

Good nutrition, especially in the first years of a child's life, provides lifelong benefits in health, education and productivity. However, one in four children under-five in the developing world – approximately 148 million children – suffer from undernutrition. Affordable and proven micronutrient interventions to address undernutrition exist. We must work collectively to scale up access to these micronutrients, so children everywhere have the chance to reach their full potential and contribute to the development of their communities.

**Ann M. Veneman, Executive Director, UNICEF**

More than two children die every minute of the day for the lack of protection that a vitamin A supplement can provide. In the span of two decades, micronutrient supplementation programs have become a mainstream national health goal to reduce childhood mortality and morbidity. The goal now must be universal supplementation for all children at risk.

**Alfred Sommer, Dean Emeritus and Professor, Johns Hopkins University**

The development and production of this report was funded by the Micronutrient Initiative, with the financial support of the Government of Canada through the Canadian International Development Agency (CIDA).

# Executive Summary

**VITAMINS AND MINERALS ARE VITAL COMPONENTS** of good nutrition and human health, advancing physical and intellectual development in many important ways. A number of vitamins and minerals – also known as micronutrients – are particularly important because of the large numbers of people around the world who are deficient in them. These are vitamin A, iodine, iron, zinc and folate.

Around the world, billions of people live with vitamin and mineral deficiencies. For instance, approximately one third of the developing world's children under the age of five are vitamin A-deficient, and therefore ill-equipped for survival. Iron deficiency anaemia during pregnancy is associated with 115,000 deaths each year, accounting for one fifth of total maternal deaths.

Children, whose mothers died giving birth, may be neglected. Children who themselves have insufficient micronutrient intake and absorption can suffer serious lifelong repercussions. If they survive infancy, their bodies may be weak and prone to disease. They may have birth defects or become blind. They may not go far in school.

When whole populations suffer from malnutrition, including a lack of critical vitamins and minerals, nations likewise cannot fulfill their potential. Health-care costs rise, education efforts are thwarted, the workforce is less capable and productive, and economic activity is curtailed. Human capital overall is significantly diminished.



*Dora, 3, receives a dose of vitamin A outside a mobile health clinic in Namurava village in Mozambique. The clinic provides a range of maternal and child health services, including vaccination, vitamin A supplementation, growth monitoring, deworming and diagnosis and treatment of readily identifiable illnesses.*

*© UNICEF/NYHQ2006-2237/Pirozzi*

Yet there is encouraging news from many corners. Working together, national governments, donors, science and industry have made huge strides in delivering cost-effective solutions to vulnerable populations. These successes, if further scaled-up, present exciting opportunities to improve the lives of those who have thus far not been reached.

## The Causes of Vitamin and Mineral Deficiencies

The causes of vitamin and mineral deficiencies are multiple and interconnected. At the most basic level, the problem is related to diet. Throughout the world, poor people do not consume sufficient amounts of nutrient-rich foods such as meat, eggs, fish, milk, legumes, fruits and vegetables. The problem is made worse by inadequate health care and sanitation, disease, and a lack of education in infant and childcare.

Quality, varied diets would resolve most vitamin and mineral deficiencies. However, improving the diets of the world's poor is a complex and long-term undertaking that is largely dependent on rising incomes, improved access to food, better health and nutrition services delivery, and changing infant and young-child feeding practices. Well-integrated strategies to address nutrition at the national level will be critical for long-term success in reducing malnutrition, improving health, educational achievement, and economic productivity. In the short term, however, many lives can be saved and improved through a range of cost-effective interventions, including supplementation and fortification.

## Call to Action: Solving Vitamin and Mineral Deficiencies through Partnerships

The successful delivery of large-scale interventions requires broad-based partnerships. National governments take the lead by identifying needs, setting and monitoring national policy and standards, budgeting for micronutrient programmes, training health-care providers, and

launching social marketing and education campaigns. Their long-term commitment is vital.

Non-governmental organizations can support this commitment with expertise in programme design and delivery, continuing research, advocacy, and the procurement of products. International donors – governments and philanthropic groups alike – help across the board, by assisting with large-scale procurement, boosting global supplies, and covering implementation costs.

Internationally and locally, the private sector brings its pharmaceutical and food processing expertise and ingenuity to produce, promote, and ensure quality control. Small-scale processors and farmers also play key roles. Partnerships have created some stunning successes in the past decade.

**Vitamin A** – Research has shown that, where a population is at risk of vitamin A deficiency, vitamin A supplementation reduces mortality in children between six months and five years of age by an average of 23%. Global efforts to provide young children with twice-yearly supplements have involved 103 countries. In 1999, just 16% of children in these countries received full supplementation. By 2007, that number had more than quadrupled to 72%.

**Salt iodization** – When the power of iodine is unleashed through intake of iodized salt, the results are impressive. In communities where iodine intake is sufficient, average IQ is shown to be on average 13 points higher than in iodine-deficient communities. Between 1993 and 2007, the number of countries in which iodine-deficiency disorders were a public health concern was reduced by more than half, from 110 to 47.

Like these successes, other approaches have shown great promise. One approach is food fortification, which is the process of adding vitamins and/or minerals to foods to increase their overall nutritional content. Multiple micronutrient solutions, whether in packets for in-home use or delivered through clinics and public campaigns, warrant urgent and wide expansion.

## The Best Investment in the World

As the global financial crisis unfolds and available funds from all sources are shrinking, the need for development assistance is expanding at an alarming pace. It is more important than ever that priority for investments goes to measures that yield the highest rates of return.

Micronutrients are inexpensive commodities. Low-cost supplements and fortificants are already available. For instance, it is estimated that the cost of salt iodization is a mere five cents per person per year. Vitamin A capsules cost two cents each. Micronutrient initiatives can easily be integrated into ongoing health services, or into existing methods for food production.

With the low cost of interventions and their high returns in improved capacity, the benefit:cost ratio of micronutrient programming is unmatched by any other large-scale health or economic intervention.

This simple truth has been endorsed by a panel of eight of the world's most distinguished economists. In May 2008, the Copenhagen Consensus panel considered 30 options and ranked the provision of micronutrients as the **world's best investment for development**.

They determined that vitamin A and zinc supplementation for children provided the very best returns: an annual investment of US\$ 60 million would yield benefits worth more than US\$ 1 billion per year. Micronutrient fortification ranked third; biofortification ranked a close fifth.

Achieving the Millennium Development Goals by 2015 will require strategic vision on the part of all those with resources to invest. Much is already understood about early nutrition needs and what works. Commitment and funds, supported by strong partnerships, will extend the reach of micronutrient interventions and leave no one behind.

### Cost-effectiveness data for a range of micronutrient interventions

INTERVENTION	REGION	COST/PERSON /YEAR (US\$)	BENEFIT: COST RATIO
Vitamin A Supplementation	South Asia, Sub-Saharan Africa, East Asia	\$1.20	17:1
	Central Asia	\$1.60	<13:1
	Latin America and the Caribbean	\$2.60	<8:1
Zinc Supplementation	South Asia, Sub-Saharan Africa, East Asia	\$1.00	13.7:1
	Central Asia	\$1.35	<10:1
	Latin America and the Caribbean	\$2.20	<6:1
Salt Iodization		\$0.05	30:1
Flour Fortification		\$0.12	8:1

Source: Copenhagen Consensus best practices paper on Micronutrient supplements for child survival (Vitamin A and Zinc), Horton et al., 2008; and Copenhagen Consensus best practices paper on Food fortification (Iron and Iodine), Horton et al., in press.

# Summary of Recommendations

Delivering vitamins and minerals to large populations involves commitment, coordination, planning and cooperation – all held together by strong and durable partnerships. Key partners in micronutrient interventions include national governments, non-governmental organizations, donors, aid agencies, foundations, industry, community leaders, and the agricultural sector.

The following provides a number of priority actions for each intervention that should be undertaken by national governments, industry and international organizations.

## Vitamin A

- ✓ Scale up the delivery of integrated package of health services, including twice yearly vitamin A supplementation for children aged between 6 months and five years, to achieve at least 80% coverage on a recurrent basis.
- ✓ Target the hard-to-reach through complementary strategies, such as special outreach programmes, to reach the final 20% who have not been reached through regular programmes.
- ✓ Improve programme sustainability by mobilizing resources in national budgets to cover costs pertaining to vitamin A supply and local distribution.
- ✓ Establish integrated delivery strategies, monitoring of programmes, and tracking of progress.

## Salt Iodization

- ✓ Enact mandatory legislation and ensure adequate resources are made available to enforce it.
- ✓ Create incentives for processors to iodize their salt.
- ✓ Build financial sustainability to transition from a donor-supported to a market-supported supply of iodate.
- ✓ Undertake strategic advocacy and communication efforts through media, health systems, and schools.
- ✓ Strengthen population-monitoring systems so that programme adjustments can be made as habits and diets change over time.

## Food Fortification

- ✓ Set and monitor national standards for food fortification programmes and ensure standards are enforceable, so that all producers have equal financial obligations.
- ✓ Identify and train fortification champions from both public and private sectors to build on success to date and help rapidly expand fortification efforts.
- ✓ Launch communication and public education initiatives to create a market demand for products and support for government investment.



*A community health volunteer, gives Sushmita Sumbhamphe, who is nine months pregnant, vitamin A, iron and folic acid supplements, during a home visit in the remote, mountainous Eastern Region of Nepal. © UNICEF/NYHQ2007-1493/Khemka*

## **Multiple Micronutrient Supplements for Children**

- ✓ Scale up availability of multiple micronutrient supplements for in-home use, such as Sprinkles, in non-malaria endemic regions.
- ✓ Direct research efforts to find safe and cost-effective ways to improve iron intake by young children in malarial areas.

## **Supplements for Women of Child-bearing Age**

- ✓ Expand and scale up iron and folic acid supplementation for all women of child-bearing age, with special focus on pregnant women.
- ✓ Bring increased focus on improving adherence rates, through community outreach, counselling, and related efforts.
- ✓ Explore the feasibility of providing women with multiple vitamin and mineral supplements.

## **Zinc Supplementation for Diarrhoea Management**

- ✓ Incorporate zinc supplementation into national diarrhoea management policy.
- ✓ Ensure zinc supply.
- ✓ Identify public and private delivery strategies.
- ✓ Create demand through social marketing campaigns.
- ✓ Provide adequate financing for start-up.



# Investing in the future

## A united call to action on vitamin and mineral deficiencies

### **Around the world, billions of people live with vitamin and mineral deficiencies**

Vitamins and minerals are vital components of human health, advancing physical and intellectual development in important ways. However, billions of people currently live with deficiencies in a range of crucial vitamins and minerals – including vitamin A, iodine, iron, zinc and folate. The results of these deficiencies are significant:

- Vitamin A deficiency annually claims the lives of almost 670,000 children under five.
- Iron deficiency anaemia during pregnancy is associated with 115,000 deaths each year, accounting for one fifth of total maternal deaths.

### **Cost-effective solutions are ready to be scaled-up**

Working together, national governments, donors, science and industry have made huge strides in delivering cost-effective solutions to vulnerable populations.

#### **Fortification**

- Fortifying flour and other staple crops with vitamin A, folic acid, iron and zinc has been an effective means of reducing anaemia and birth defects.
- Salt iodization reduces goitre and improves cognitive development. In communities where iodine intake is sufficient, average IQ is shown to be on average 13 points higher than in iodine-deficient communities.

#### **Supplementation**

- Where a population is at risk of vitamin A deficiency, providing young children with vitamin A supplementation every six months reduces mortality by an average of 23%.
- Zinc supplementation, given with oral rehydration therapy, can reduce the duration and severity of acute diarrhoea, one of the leading causes of death of children.

### **World's best investment for development**

The benefit:cost ratio of micronutrient programming is unmatched by any other large-scale health or economic intervention. In 2008, the Copenhagen Consensus panel considered 30 options and ranked the provision of micronutrients as the world's best investment for development.

For the full report or more information, please visit

[www.unitedcalltoaction.org](http://www.unitedcalltoaction.org)

or contact us through the Micronutrient Initiative at 180 Elgin Street, Suite 1000, Ottawa, Ontario, Canada, K2P 2K3  
Telephone: +1 613.782.6800 Email: [mi@micronutrient.org](mailto:mi@micronutrient.org)