

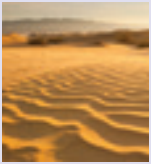
Chapter Thirteen

The Evolving World of Nutrition



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“He who has health has hope, and he who has hope has everything.”

Arabian Proverb

Key messages

- Almost everyone plays a role in nutrition through taking care of their own diet and health, as well as through involvement in the food system in one way or another.
- Nutrition is multi-disciplinary, ranging from agriculture to medicine to behavioral science and economics.
- Throughout the 20th century, knowledge and approaches for addressing malnutrition developed within the respective disciplines, but there was limited cross-disciplinary coordination, even with other players in the food and health systems.
- Understanding the forms and consequences of undernutrition, being able to cost the economic impact of undernutrition, and having examples of what is required and what works to prevent undernutrition, including good governance, has generated the strong momentum behind nutrition that exists today.

Nutrition is everybody's business

Everyone deals with nutrition – individuals who are looking after their own diet and health; mothers and fathers who are caring for their families; farmers who grow food for themselves and others; medical doctors, teachers, sports coaches and others who support people in understanding the importance of health and nutrition; food processors who produce, preserve, package and distribute foods; and community leaders, politicians and business owners, who impact other people's ability to access an affordable, healthy and nutritious diet. Food systems around the world are diverse, increasingly industrial, commercial and global, and many of us play an active role in shaping them.

However, while we affect our own and other people's nutrition every day, directly or indirectly, there are many different ways in which nutrition and health are understood, and our ability and decisions to actively influence them, either by ourselves or by seeking assistance from others, ranges widely. Furthermore, as the preceding chapters discuss, many factors that impact on the health and nutrition of individuals and populations are beyond the direct influence of the individual, as these are determined by their environment and circumstances.



Silvopastoral cultivation, in which livestock live in wooded areas
Source: CIAT

171 **Early discoveries in nutrition**

Throughout the centuries, there has been a growing understanding of the relationship between diet and health and about how poverty and related living circumstances affect a population's health, for a substantial part through the diet.

In the late 19th and early 20th centuries, scientists in the fields of chemistry, biology and medicine started conducting animal experiments in which they supplemented basic diets consisting of carbohydrates, fat and protein, with specific foods or food components such as milk and butter to determine which components made the animals live or die. While doing so, they observed conditions in the animals that were comparable to symptoms that had been described in humans, such as in records from naval medicine in the 19th century.

Over the course of a few decades, the various vitamins were isolated and named, and their deficiency states described. For several of the deficiencies, the ultimate consequence was death. It was realized that severe deficiencies could occur without starvation, and that many people were probably affected by nutritional deficiencies. To address vitamin A deficiency, some European countries and the US introduced school milk distribution schemes (fortified with vitamin A in the case of skimmed milk) as well as encouraging, or even enforcing, consumption of butter and/or cod liver oil in the 1920s–1940s.

Vitamin	Alternative name	Discovery	Isolation	Structure	Synthesis
Vitamin A	Retinol	1909	1931	1931	1947
Provitamin A	β-Carotene	1831	1831	1930	1950
Vitamin D	Calciferol	1918	1932	1936	1959
Vitamin E	Tocopherol	1922	1936	1938	1938
Vitamin K	Phylloquinone	1929	1939	1939	1939
Vitamin B1	Thiamin	1897	1926	1936	1936
Vitamin B2	Riboflavin	1920	1933	1935	1935
Vitamin B3	Niacin	1936	1936	1937	1994
Vitamin B5	Pantothenic acid	1931	1938	1940	1940
Vitamin B6	Pyridoxine	1934	1938	1938	1939
Vitamin B7	Biotin	1931	1935	1942	1943
Vitamin B9	Folic acid	1941	1941	1946	1946
Vitamin B12	Cobalamin	1926	1948	1956	1972
Vitamin C	Ascorbic acid	1912	1928	1933	1933

From November 1944 to December 1945, 36 conscientious objectors participated in the historical Minnesota Starvation Experiment, which was designed to study the physiological and psychological effects of severe and prolonged dietary restriction and the effect of dietary rehabilitation strategies, as was a reality for many people in Europe during the Second World War. This work, led by Ancel Keys, provided

key insights into nutrition, including the understanding that starvation dramatically alters personality and that nutrition directly, and predictably, affects mind as well as body.

During that first half of the 20th century, undernutrition was primarily of interest a) as a medical condition with specific symptoms characterizing specific nutrient deficiencies, and b) as a problem of lack of food resulting in starvation.

Different worlds of nutrition

Between the 1940s and 1970s, the medical field evolved dramatically, and after the Second World War, the economic development of Western Europe and North America increased access to a more nutritious diet for a large part of the population, while living circumstances such as hygiene and education continued to improve substantially. Together, these developments resulted in lower child mortality, increased life expectancy, and a marked reduction of nutrient deficiency diseases (e.g rickets and night blindness).

With these developments, the momentum behind nutrition in Europe and North America from the early part of the 20th century was not sustained, as undernutrition was not perceived to be much of a problem anymore. The attention for the role of nutrition in health continued in developing countries and among international agencies, and regained strength globally when case reports and survey data on health and nutrition started to be reported from more and more developing countries from the early 1970s.

In the period following the Second World War, most of the attention regarding diet and food was focused on ensuring that there would be enough food for the growing world population, and on making sure that protein deficiency was prevented or treated (see the chapter in this volume by Victoria Quinn on the ‘protein fiasco’). This meant that agriculture was largely focused on the production of cereals (green revolution, increase of scale) to ensure that caloric requirements were met, and on cash crops for income.

The signs of undernutrition from developing countries that drew attention from professionals in the biomedical field were particularly those related to micronutrient deficiencies, which could be solved by a medical-type intervention, such as providing supplements of vitamin A, iron, iodine and/or zinc.

Meanwhile, it was also realized that the causes of nutrition problems were rooted in poverty, and that, besides being related to food, they were also related to water, hygiene, sanitation and caring practices, and that approaches for addressing malnutrition therefore had to be multi-disciplinary. Due to this, social and behavioral scientists also became involved in nutrition, and there was an increasing sense that individuals and communities should be able to rely on their own resources and means, including food production, to achieve adequate nutrition.

The UNICEF Conceptual Framework of causes of malnutrition, which was developed at the time of the Iringa project in Tanzania in the early 1980s, clearly illustrated the multi-factorial causes of malnutrition and indirectly assigned a role for many disciplines for addressing malnutrition. However, for a couple of decades, there was limited focused attention on addressing malnutrition, because the comprehensiveness of the framework indicated that there were many factors involved but at the same time it was not clear which one(s) to prioritize where and who should take which action. There was also limited awareness of the consequences of not tackling the problem, and several signs of undernutrition were not yet properly understood.



Women farmers in East Africa
Source: CIAT



Women have a key role to play in improving the nutritional status of the world's population
Source: The Gates Foundation

Momentum for concerted action on nutrition

Fortunately, the past ten years have seen a marked increase of attention as well as momentum for action on nutrition, due to several coinciding developments:

- **Advances of our knowledge of the consequences of undernutrition**, which goes beyond the signs and symptoms of specific deficiencies on the one hand and starvation on the other, to lifetime consequences of inadequate nutrition in early life in terms of early morbidity and mortality, as well as impact on cognitive ability affecting performance in school and income-earning potential, and non-communicable diseases later in life such as cardiovascular disease and diabetes;
- **Increased understanding of the biology of malnutrition**, including the relationship between two apparently different forms of malnutrition, i.e., undernutrition and overnutrition, that are actually very much related (both include micronutrient deficiencies, both are related to poverty – the world’s wealthier and well-educated people have the healthiest diet, and undernutrition in early life predisposes to overnutrition and non-communicable disease later in life);
- **Evidence of effective nutrition interventions**, including their cost-benefit ratio. Also, the Copenhagen Consensus 2012 expert panel of economists, which included four Nobel laureates, identified that the smartest ways to allocate money to respond to ten of the world’s biggest challenges is by fighting malnourishment. Nobel laureate economist Vernon Smith said: “One of the most compelling investments is to get nutrients to the world’s undernourished. The benefits from doing so – in terms of increased health, schooling, and productivity – are tremendous”;
- **The observation that economic development and large-scale production of cheap, convenient food does not lead to better health** but instead is related to an epidemic of obesity and related non-communicable diseases, has led to people’s rethinking of food systems and healthy and sustainable diets (it has become everybody’s problem);
- **Increased ownership of nutrition and collaboration by a wide range of disciplines**, including biomedical, behavioral, agricultural, and economics;
- **Increased access to information** through media such as Internet and mobile-phone technology, which increases the awareness as well as the ability to act and hold politicians, companies and others accountable for their actions;

- **A more connected world** where heads of state agree on mutual goals (Millennium Development Goals, post-2015 development agenda), low-income countries evolve to become middle-income countries and grow from being the recipients of donor funding to being donors themselves, and the private sector becomes involved in solving the problems of the most vulnerable.

The first Lancet series on Maternal and Child Nutrition, which was published in 2008, summarized the magnitude and consequences of the nutrition problem, and provided evidence of a number of proven and low-cost solutions. This publication galvanized substantial action on multiple fronts, and not only the questions of ‘**why** to address undernutrition, by doing **what**, and **where**’, but also the question of ‘**how** to do it’ received attention. Moreover, this happened at a time when it was realized that everyone has a role to play, including, for example, the private sector, which had previously been regarded by some as mainly contributing to the problem rather than building a path to the solution. It also showed convincingly that poor fetal growth or stunting in the first two years of life leads to irreversible damage, including shorter adult height, lower attained schooling, reduced adult income, and decreased offspring birth weight. This very much focused everyone’s attention on the prevention of stunting and on prioritizing nutrition during the first thousand days from conception until two years of age.

Furthermore, in May 2012, the 65th World Health Assembly (WHA) endorsed six global nutrition targets to be achieved by 2025 as part of WHO’s comprehensive plan on maternal, infant and young child nutrition, including reducing by 40 percent the number of children under age 5 who are stunted from 171 million in 2010 to 100 million by 2025. This means that there is very broad commitment to these goals, as the WHA is the forum through which WHO is governed by its 194 member states and it is composed of health ministers from these states.

Malnutrition remains a serious impediment to the progress towards achieving the Millennium Development Goals. Yet many of the nutrition challenges that have persisted for decades can be resolved within our generation.

Recognizing that accelerated global action is needed to address the pervasive and corrosive problem of malnutrition, the World Health Organization (WHO) recently identified a set of global targets designed to reduce the unacceptably high burdens of disease and death

caused by poor nutrition, particularly during the critical 1,000 days between a woman's pregnancy and a child's second birthday.* By aligning the global community behind six targets aimed at improving the nutritional status of mothers, infants and young children and committing to a decade of investment to expand nutrition interventions, we can prevent the deaths of one million children per year and help to build the foundations for healthier and more prosperous societies.

GLOBAL TARGET 1

By 2025, reduce by 40% the number of children under age 5 who are stunted.

Problem:

Stunting is the irreversible result of chronic nutritional deprivation during the most critical phase of child development - the 1,000 days between a woman's pregnancy and her child's 2nd birthday. Stunted children have weaker immune systems making them more likely to die from common illnesses and disease, and suffer from impaired brain development making them less able to learn in school and earn a good living as an adult.

Results:

A reduction in the number of stunted children from 171 million in 2010 to approximately 100 million.

GLOBAL TARGET 2

By 2025, achieve a 50% reduction in anemia in women of reproductive age.

Problem:

Anemia in women increases the risk of dying during childbirth and increases the risk of babies being born with low birth weight. Iron deficiency anemia affects 1/3 of all women of reproductive age throughout the world.

Results:

A reduction in the number of anemic, non-pregnant women from 468 million to approximately 230 million.

GLOBAL TARGET 3

By 2025, achieve a 30% reduction of the number of infants born with low birth weight.

Problem:

An infant's weight at birth is a strong indicator of his or her chances for survival, growth, and long-term health and development. In the developing world, low birth weight stems primarily from poor maternal nutritional status before conception, maternal short stature due mostly to undernutrition and infections during childhood and poor nutrition during pregnancy.

Results:

3.9% relative reduction in the number of infants born with low birth weight per year.

GLOBAL TARGET 4

By 2025, ensure that there is no increase in the number of children who are overweight.

Problem:

Obese children are likely to grow into obese adults, have an increased risk of diabetes and liver disease, and have poorer economic prospects later in life.

Results:

The number of overweight children under age 5 would not increase from current levels of 43 million to forecasted levels of approximately 70 million.

GLOBAL TARGET 5

By 2025, increase to at least 50% the rate of exclusive breastfeeding in the first six months.

Problem:

A non-breastfed child is 14 times more likely to die in their first six months of life than a child who is exclusively breastfed. Though breastfeeding is the single most effective nutrition intervention for saving lives, global breastfeeding rates have stagnated or dropped in most regions of the world to an estimated 37%.

Results:

2.3% relative increase per year would lead to approximately 10 million more children per year being exclusively breastfed until six months of age.

GLOBAL TARGET 6

By 2025, reduce and maintain childhood wasting to less than 5%

Problem:

Commonly used to indicate the severity of a famine or food crisis, wasting is the result of grave disease and/or deprivation of nutritious food at a specific point in time and is seen as an early warning for future increases in chronic undernutrition. The proportion of childhood wasting rose in the second half of the last decade, likely as a consequence of the dramatic spikes in food prices.

Results:

Current global prevalence of wasting of 8.6% should be reduced to less than 5% by 2025 and maintained below such levels.

*These targets were endorsed by the 65th World Health Assembly in May 2012 as part of WHO's comprehensive plan on maternal, infant and young child nutrition. Sources: Black, R. et al "Maternal and Child Undernutrition" *The Lancet*, January 2008; Save the Children "The Child Development Index 2012"; UNICEF, "Committing to Child Survival: A Promise Renewed" Progress Report 2012.

The second Lancet series of 2013 has reaffirmed the findings of the first series and particularly emphasizes the importance of adequate nutrition for pregnant and lactating women as well as for adolescent girls (before they become pregnant). It also highlights the potential for nutrition-sensitive fields and programming to contribute to preventing undernutrition and/or deliver some nutrition-specific interventions.

The current momentum in nutrition is particularly coordinated through the SUN (Scaling Up Nutrition) Movement, to which more than 40 countries have now committed themselves. They have committed to implementing nutrition-specific and nutrition-sensitive action, and have joined a movement that is coordinated by a special representative to the UN Secretary-General and has been endorsed by more than 100 organizations.

My personal view

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Having worked in the field of nutrition for almost 20 years, I find this time very exciting because of the great momentum to improve nutrition and health worldwide and the increased understanding and commitment among a very wide range of stakeholders and experts.

The involvement of so many is essential, and while everyone should focus on what they are good at, there is a great deal of cross-disciplinary work to be done in a target-oriented manner.

It is important to develop context-specific solutions based on the global body of knowledge and expertise, and to monitor, evaluate and share these experiences using the information and communication technology available today.

Conclusion

The world of nutrition has evolved substantially over the last century and a half, reaching a high level of knowledge, convergence and momentum, especially during the past ten years. This should result in more sustainable and nutritious diets and in better health and life chances for children being born in the next few decades.

Further reading

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Kalm LM, Semba RD. *They starved so that others be better fed: Remembering Ancel Keys and the Minnesota Experiment*. *J Nutr* 2005;135:1347–1352.

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The SUN Movement website: www.scalingupnutrition.org

Table 1: Progress in Micronutrient Science and Policy

1975	Formation of International Vitamin A Consultative Group (IVACG)
1991	Ending Hidden Hunger: The Montreal Micronutrient Conference, Montreal, Canada
1992	Helen Keller International Bellagio Meeting on Vitamin A Deficiency and Childhood Mortality
2002	UN General Assembly special session on children Creation of GAIN (Global Alliance for Improved Nutrition)
2006	Creation of Micronutrient Forum
2007	World Bank report Repositioning Nutrition as Central to Development
2008	Lancet Series, Maternal and Child Undernutrition Copenhagen Consensus places micronutrients center stage World Economy Forum formed the Global Agenda Council (GAC) on Food Security
2009	Castel Gandolfo Declaration Private Sector Declaration and United Call to Action on Vitamins and Mineral Deficiencies during Micronutrient Forum, Beijing Creation of Amsterdam Initiative for Malnutrition (AIM) Obama administration signals its commitment to addressing hunger International Congress on Nutrition in Bangkok – Nutrition Security for All G8's \$20 billion commitment on Food Security and Nutrition Scaling Up Nutrition (SUN): A Framework for Action – up-scaling of 13 highly cost-effective interventions
2010	G20 pledge additional \$5.0 billion over the next five years towards achieving MDGs 4&5 African Union summit places safe motherhood and child health high on Africa's agenda SUN Framework and Roadmap launched Feed the Future (FTF), the new US government global hunger and food security initiative, is launched The Global Strategy for Women's and Children's Health launched by UN Secretary-General UN Secretary-General includes nutrition security and the importance of nutrition at the MDG summit Nutrition included in the 2010 MDG outcome document 1,000 Days Partnership: Change a Life, Change the Future launched by Hillary Rodham-Clinton, the United States Secretary of State, and Irish Minister of Foreign affairs, Micheál Martin African First Ladies sign a call for action to put nutrition at the heart of development.
2011	High-level event on Scaling Up Nutrition at UN Headquarters, New York (September)
2012	Copenhagen Consensus – bundled nutrition interventions ranked highest Hunger Summit at Olympic Games, London
2013	Hidden Hunger Conference, Hohenheim, Germany Launch of Lancet Series on Maternal and Child Nutrition Nutrition for Growth meeting, London - \$4.1 billion new funding for nutrition-specific actions and \$19 billion for nutrition-sensitive activities International Congress on Nutrition in Granada – Joining Cultures Through Nutrition Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda

Source: Amended after *Micronutrients, Macro-Impact: The story of vitamins and a hungry world*, Sight and Life, 2012. Copyright Sight and Life.

Table 1: Important Milestones in Nutrition Policy Development

Year	Organization	Purpose	Goals	Achieved in Moving the Agenda Forward
2002	The International Vitamin A Consultative Group (IVACG) Ancey Accord	Leading the campaign against vitamin A deficiency disorders (VADD)	<ul style="list-style-type: none"> - Provide a forum to exchange new ideas, to discuss research findings and their policy implications, and share experiences with program interventions. - Provide technical guidance through state-of-the-art publications on VADD. - Collaborate with international organizations in developing and establishing policy guidelines for diagnosis, treatment, and prevention of VADD. 	Comprehensive recommendations for the assessment and control of vitamin A deficiency (VAD) were rigorously reviewed and revised by a working group and presented for discussion at the XX International Vitamin A Consultative Group meeting in Hanoi, Vietnam.
2007	The World Bank; Report on Repositioning Nutrition as Central to Development	Provide a global framework for action and to complement the similar analyses undertaken by the World Bank's regional units for Africa and South Asia.	<ul style="list-style-type: none"> - Reinvigorate dialogue regarding what to do about malnutrition; - Encourage the development community to reevaluate the priority it gives nutrition; - Facilitate an agreement on new ways for stakeholders to work together; - Scale up proven interventions for tackling malnutrition. 	This report highlighted the burden of malnutrition and importance of addressing it, thereby justifying the increased funding for nutrition from the World Bank.
2008	Lancet Series; Maternal and Child Undernutrition	Given that that nutrition is a major risk factor for disease, the Lancet series sought to gather scientific evidence about the importance of maternal and child nutrition and aimed to fill this gap in global public health and policy action.	<ul style="list-style-type: none"> - Catalogue the long-term effects of undernutrition; - Identify proven interventions to reduce undernutrition; - Call for national and international action to improve nutrition for mothers and children. 	Provided objective evidence that there are effective interventions to reduce stunting and micronutrient deficiencies and that improved governance is desperately needed to scale up nutrition interventions, monitor and evaluate those plans, and implement laws to enhance the rights of women and children.
2008	Copenhagen Consensus	To set priorities among a series of proposals for confronting the following global challenges: Air Pollution, Conflicts, Diseases, Education, Global Warming, Malnutrition and Hunger, Sanitation and Water, Subsidies and Trade Barriers, Terrorism, Women and Development.	The panel was asked to address the ten challenges by considering the question, "What would be the best ways of advancing global welfare, and particularly the welfare of the developing countries, illustrated by supposing that an additional \$75 billion of resources were at their disposal over a four year initial period?"	Among all the worlds challenges identified at Copenhagen, the panel ranked malnutrition very highly, given the tremendously high benefits compared to costs. The expert panel ranked fighting malnutrition as follows, providing tremendous clout to our cause: <ol style="list-style-type: none"> 1. Micronutrient supplements for children (vitamin A and zinc); 3. Micronutrient fortification (iron and salt iodization); 5. Biofortification; 6. Deworming and other nutrition programs at school; 9. Community-based nutrition promotion.

Year	Organization	Purpose	Goals	Achieved in Moving the Agenda Forward
2010	SUN: A Framework for Action	Labeled as the 'forgotten' Millennium Development Goal, the primary objective of the SUN Framework is to catalyze actions to move undernutrition toward the center stage of international political and economic discourse.	The policy brief hopes to provide both the following: <ul style="list-style-type: none"> - An outline of the emerging framework of key considerations and priorities for action to address undernutrition; - Mobilize support for increased investment in nutrition interventions. 	The SUN brief concluded that the MDGs cannot be achieved without urgent attention to nutrition. SUN is a call to action for increasing high impact interventions that address undernutrition, with more than 100 organizations having endorsed the Framework to date.
2010	A Road Map for Scaling up Nutrition	Provides the principles and direction for increased support for countries as they scale up efforts to tackle undernutrition across a range of sectors. It encourages multi-stakeholder platforms that promote synergized actions and simplify coordination of support.	To serve as a resource for countries wanting to include nutrition within the context of nutrition-focused development policies	Galvanizing countries to take nutrition seriously and include it in their development agenda.
2013	Lancet Series 2	An update of issues dealt with in Lancet 1 (2008)	Re-evaluation of the problems of maternal and child undernutrition and also examination of the growing problems of overweight and obesity and their consequences in low- and middle-income countries	Its aim is to offer evidence-based consensus recommendations on what to do about the continuing problem of undernutrition. Particular attention is paid to costing actions of direct nutrition interventions in the context of nutrition-sensitive interventions.

Source: Amended after *Micronutrients, Macro-Impact: The story of vitamins and a hungry world*, Sight and Life, 2012. Copyright Sight and Life.

List of key organizations

Centers for Disease Control and Prevention (CDC)

Health Protection – Health Equity

Founded: 1946

Headquarters: Atlanta, GA, USA

Website: www.cdc.gov

Collaborating to create the expertise, information, and tools that people and communities need to protect their health – through health promotion, prevention of disease, injury and disability, and preparedness for new health threats.

Canadian International Development Agency (CIDA)

Founded: 1968

Headquarters: Gatineau, Quebec, Canada

Website: www.acdi-cida.gc.ca/home

Leads Canada's international efforts to help people living in poverty.

UK Department for International Development (DfID)

UK Government Department responsible for promoting development and the reduction of poverty

Founded: 1997

Headquarters: London and East Kilbride, Glasgow, UK

Website: www.DfID.gov.uk

DfID's mission is to eliminate global poverty by making a greater impact on achieving the Millennium Development Goals.

Food and Agriculture Organization of the United Nations (FAO)

For a world without hunger

Founded: 1945

Headquarters: Rome, Italy

Website: www.fao.org

Achieving food security for all is at the heart of FAO's efforts – to make sure people have regular access to enough high-quality food to lead active, healthy lives

GAIN (Global Alliance for Improved Nutrition)

Founded: 2002

Headquarters: Geneva, Switzerland

Website: www.gainhealth.org

GAIN is committed to accomplishing the global health goals which are related to its vision of a world without malnutrition.

Bill and Melinda Gates Foundation (Gates Foundation)

All lives have equal value

Founded: 1994

Headquarters: Seattle, Washington, USA

Website: www.gatesfoundation.org

To increase opportunity and equity for those most in need.

Helen Keller International (HKI)

HKI is a non-profit organization dedicated to preventing blindness and reducing malnutrition worldwide

Founded: 1915

Headquarters: New York City, NY, USA

Website: www.hki.org

HKI's mission is to save the sight and lives of the most vulnerable and disadvantaged. It combats the causes and consequences of blindness and malnutrition by establishing programs based on evidence and research in vision, health and nutrition.

International Food Policy Research Institute (IFPRI)

Sustainable solutions for ending hunger and poverty

Founded: 1975

Headquarters: Washington, DC, USA

Website: www.ifpri.org

To provide policy solutions that reduce poverty and end hunger and malnutrition.

International Fund for Agricultural Development (IFAD)

Founded: 1977

Headquarters: Rome, Italy

Website: www.ifad.org

The goal of the IFAD is to enable poor rural people to improve their food and nutrition security, increase their incomes and strengthen their resilience. IFAD also acts as an advocate for poor rural women and men. The multilateral orientation provides a strong global platform for discussing rural policy issues and increasing awareness of why investment in agriculture and rural development is critical to reducing poverty and improving global food security.

Micronutrient Initiative (MI)*Solutions for hidden hunger*

Founded: 1997

Headquarters: Ottawa, Canada

Website: www.micronutrient.org

To develop, implement and monitor innovative, cost-effective and sustainable solutions for hidden hunger, in partnership with others.

Program for Appropriate Technology in Health (PATH)*A catalyst for global health*

Founded: 1977

Headquarters: Seattle, Washington, USA

Website: www.path.org

PATH's mission is to improve the health of people around the world by advancing technologies, strengthening systems, and encouraging healthy behaviors.

United Nations International Fund (UNICEF)*'Unite for Children'*

Founded: 1946

Headquarters: New York, NY, USA

Website: www.unicef.org

UNICEF is mandated by the United Nations General Assembly to advocate for the protection of children's rights, to help meet their basic needs and to expand their opportunities to reach their full potential.

United Nations World Food Program (WFP)*Fighting Hunger Worldwide*

Founded: 1963

Headquarters: Rome, Italy

Website: www.wfp.org

WFP is the food-assistance agency of the United Nations system. Food assistance is one of the many instruments that can help to promote food security, which is defined as access of all people at all times to the food needed for an active and healthy life. The policies governing the use of WFP food assistance must be oriented towards the objective of eradicating hunger and poverty. Recently, WFP moved its focus from food aid to food assistance, using different modalities to improve food security and nutrition of their beneficiaries.

United States Agency for International Development (USAID)

Founded: 1961

Headquarters: Washington, DC, USA

Website: www.usaid.gov

The US Agency for International Development (USAID) is an independent agency that provides economic, development and humanitarian assistance around the world in support of the foreign policy goals of the United States.

World Health Organization (WHO)*'Working for Health'*

Founded: 1948

Headquarters: Geneva, Switzerland

Website: www.who.int

WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. In the 21st century, health is a shared responsibility, involving equitable access to essential care and collective defense against transnational threats.

The World Bank (World Bank)*Working for a world free of poverty*

Founded: 1944

Headquarters: Washington, DC, USA

Website: www.worldbank.org

To fight poverty with passion and professionalism for lasting results. To help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors.

World Vision International

Founded: 1950

Headquarters: Monrovia, USA

Website: www.wvi.org

World Vision is a global Christian relief, development and advocacy organization dedicated to working with children, families and communities to overcome poverty and injustice. World Vision serves all people, regardless of religion, race, ethnicity, or gender.