

Chapter One

Preventing Stunting: Why it Matters, What it Takes



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“Hunger is not only a physical condition. It is a drain on economic development, a threat to global security, a barrier to health and education reform, and a trap for the millions of people worldwide who work from sun-up to sun-down every day to produce a harvest that often doesn’t meet their needs... We have the resources to give every person in the world the tools they need to feed themselves and their children. So the question is not whether we can end hunger. It’s whether we will.”

Hillary Clinton, 2009

Key messages

- Stunting is the result of inadequate nutrition in early life and has severe consequences that last a lifetime.
- Stunting prevents individuals from achieving their potential, physically, intellectually and economically.
- Stunting affects not only individuals but also the entire societies to which they belong.
- The right to adequate nutrition should be recognized as a Human Right.

Recent improvements in nutrition

The world has seen significant developments in the field of nutrition since the development of the Millennium Development Goals (MDGs), which were to be reached by 2015, and included ending hunger and reducing underweight as part of MDG number 1.

In 2008, the Lancet published the first landmark series on nutrition, which summarized the magnitude and consequences of the nutrition problem, as well as a number of proven and low-cost solutions. In 2013, the follow-up series on the subject was published. Four critical points made by these two Lancet series are:

- i) chronic undernutrition, or stunting, is considered the main nutrition problem because it is a key obstacle for development;
- ii) the window to prevent stunting is very small: from conception to two years of age;
- iii) stunting at two years of age is associated with ill health, poorer school performance, and an increased risk of obesity, diabetes, and other chronic diseases later in life; and
- iv) economic analyses indicate the negative effects of poor nutrition in early life on the overall economic development of nations.

A stunted child at the age of two is deprived from achieving its full potential for the rest of his/her life, which is an enormous drain on the world’s human resources. Sufficient knowledge exists about effective strategies for prevention, and these strategies should be implemented by all parties concerned.

Prevention of stunting is central to the Scaling Up Nutrition (SUN) movement, and there is wide recognition that the prevention of stunting should also feature prominently in the post-2015 development agenda.

According to the latest report of UNICEF/WHO/World Bank (2012), 165 million children under 5 are stunted, and many school-age children, adolescents and adults today suffer the consequences of the stunting that they experienced during their early years of life.

What 'stunting' indicates

Stunting is defined as inadequate linear growth, and this is due to the fact that nutrient intake does not meet nutrient needs. Furthermore, nutrient needs may be increased by illness, and illness also reduces appetite and interferes with nutrient utilization, thus increasing the difficulty of meeting nutrient needs with existing nutrient intakes. Stunting is a relatively easy indicator to measure, and reflects undernutrition during a critical period of development, in particular from conception until two years of age (i.e., the first 1,000 days of life). Inadequate nutrition during this period has severe consequences for life, because many developmental processes occur only during certain stages of life, and cannot (re)occur later in life.

Stunting develops during life *in utero* and the first two years after birth. It is a process of suboptimal growth and development that gradually accumulates to such an extent that body length is below that of 97.7 percent of children in the reference population. Children born with a low birth weight (<2500 g) due to restricted intrauterine growth are at great risk of remaining stunted. Beyond 24 months of age, stunting prevalence may still increase, but at a much slower pace.



Malawi president Joyce Banda at the Nutrition for Growth conference in London, June 8, 2013

Soucre: Marisol Grandon/Department for International Development



United Kingdom Secretary of State for International Development Justine Greening concludes the successful Nutrition for Growth conference, where world leaders gathered with businesses, scientific and civil society groups, committing to a historic reduction in undernutrition.

Soucre: Marisol Grandon/DfID

Consequences of stunting

Lack of adequate nutrients in the first 1,000 days will, for example, lead to irreversible gaps in brain development. The outcome of brain development by the age of two years determines to a large extent a person's mental capacity for the rest of his/her life, including success in schooling and income earning.

Not only stunted children are affected by undernutrition: non-stunted children in populations with a considerable prevalence of stunting are also likely to be affected, i.e., they have not reached their full potential either, although their length is not below the cut-off which classifies them as 'stunted'.

Girls who grow up stunted are more likely to suffer complications during childbirth as adolescents or adults, because they have a smaller pelvis. Breaking the intergenerational cycle of undernutrition thus also requires good obstetric care, to facilitate the birth of a larger baby, born to a mother who may have been stunted herself but then had good nutrition pre-pregnancy and during pregnancy, resulting in the development of a larger infant in the womb.

Stunting typically co-occurs with micronutrient deficiencies, because foods that are rich in nutrients that are essential for linear growth are also good sources of other micronutrients. This also explains why stunting is such an important

indicator, reflecting a shortage of essential nutrients during the most critical developmental phase in life.

As such, stunting has been linked to increased morbidity and mortality, delayed mental development, poor school performance, and reduced intellectual capacity. This in turn affects income in adult life, as well as economic productivity at national level. Furthermore, stunting is also related to increased risk of overweight and non-communicable disease such as diabetes and cardiovascular disease later in life.

The fact that much of this damage cannot be undone later in life means that it is essential to prevent stunting.

Prevention of stunting requires a nutritious diet

The prevention of undernutrition, or stunting, should start early in life, with interventions among at-risk populations that ensure that pregnant and lactating mothers are adequately nourished, that children receive exclusive breastfeeding during the first 6 months of life, and provision of adequate complementary feeding in addition to breastfeeding for children aged 6–23 months.

Ensuring that pregnant women are adequately nourished may require intervening before pregnancy, i.e., during adolescence and before a next pregnancy, also because the impact of undernutrition already starts at conception.

The ultimate aim of interventions to prevent stunting should be that nutrient requirements of the individual child, also during life in utero, are met and that illness is prevented.

An individual needs approximately 40 different nutrients, in different amounts, in order to grow, develop and remain healthy. Meeting these requirements requires consumption of an adequately diverse diet, including breast milk, and a variety of plant-source foods (vegetables, fruits, staples), animal-source foods (dairy, eggs, fish, meat) as well as fortified foods. Where such a variety of foods is not available, or for those who (usually for economic reasons) cannot access such a variety, specially formulated foods may be required that fill the so-called ‘nutrient gap’. These may need to be made available at lower than normal or no cost.

A home-fortification approach, where a small amount of a powder or lipid-based spread (<20 g, <100 kcal/d) is added to home-prepared foods, which adds vitamins, minerals and some other essential nutrients that are unlikely to be available in adequate amounts in the prevailing diet, is a promising strategy for preventing stunting, because it hardly changes the local diet and food practices. Another good option, which may be more familiar to families, is the introduction of specially formulated complementary foods, such as infant porridges that have a good content of essential nutrients.



Tanzanian campaigner Frank shares his experience of hunger with British Prime Minister David Cameron at the Nutrition for Growth Summit
Source: Simon Davis/Department for International Development

Sun by the numbers



Status: June 2013. Please see the SUN website for more recent updates.

17 **Starting at stunting's basic cause, poverty and inequity**

Both dietary diversity, which determines nutrient intake, and disease, which affects nutrient utilization and nutrient needs, and also food intake, are strongly linked to poverty. Stunting at the age of two years is therefore a reflection of inequity and also perpetuates this, due to its long-term negative health, economic, and social consequences for the individual, their offspring and the population they live in. Extreme poverty is the most critical problem the world has to cope with.

The first millennium development goal (MDG), which was formulated in 2000, set two indicators for reducing hunger: the number of undernourished people (energy intake not meeting requirements – based on food availability at national level and estimates of the population's energy needs) and the percentage of underweight children under five. Underweight, or too low weight-for-age, reflects both stunting as well as wasting, which are two different forms of undernutrition, in terms of immediate causes and possible solutions, and are therefore better recognized separately.

Since the 2008 and 2013 Lancet series identified stunting as the most critical indicator for malnutrition and the 65th



Paul Polman makes a heartfelt address to the assembled guests at the Nutrition for Growth conference, held in the Unilever building in central London, June 8, 2013

Soucre: Marisol Grandon/Department for International Development

World Health Assembly in 2012 set 6 global targets for nutrition, including as its first goal a 40 percent reduction of the global number of children under five who are stunted, there is a strong push among many stakeholders to include stunting as a target in the post-2015 development agenda (successor of the MDGs).



Former UN Secretary-General Kofi Annan and chairman of the Alliance for a Green Revolution in Africa talks to USAID administrator Dr Raj Shah at the conclusion of the Nutrition for Growth conference in London, 8 June, 2013

Soucre: Marisol Grandon/Department for International Development

Prevention of stunting should be a human right

Although child undernutrition has long been used as an indicator or proxy for poverty, the world has never united behind making prevention of undernutrition a goal in itself. As stunting is now recognized as so detrimental to development, depriving individuals of the possibility of having equal chances for the rest of their life, the prevention of undernutrition, or stunting, should be recognized as a human right. In view of the fact that it has such widespread consequences, impacting on so many aspects of life, it should not be regarded as merely a ‘nutrition problem’ that nutritionists should solve.

While nutrition has been mentioned as a component of the “right to food”, “right to health” and “Convention on the Rights of the Child”, the prevention of chronic undernutrition has not yet been recognized as a right. In fact, nutrition is mentioned sparsely in the various ‘human rights’ documents, which is apparently due to the fact that nutrition is not regarded as a right in itself but as an element of health or an outcome of lack of access to food.

The Universal Declaration of Human Rights, article 25, mentions both health and access to food as rights:

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”

The International Covenant on Economic, Social and Cultural Rights, meanwhile, provides the most comprehensive article on the right to health in international human rights law. Nutrition is mentioned as one of the determinants of health:

Article 12 of the Covenant recognizes the right of everyone to “the enjoyment of the highest attainable standard of physical and mental health.” “Health” is understood not just as a right to be healthy, but as a right to control one’s own health and body (including reproduction), and be free from interference such as torture or medical experimentation. States must protect this right by ensuring that everyone within their jurisdiction has access to the underlying determinants of health, such as clean water, sanitation, food, *nutrition* and housing, and through a comprehensive system of healthcare, which is available to everyone without discrimination, and economically accessible to all.

The UN Committee on Economic, Social, and Cultural Rights defines the “right to food” as follows:

“The right to adequate food is realized when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement. The right to adequate food shall therefore not be interpreted in a narrow or restrictive sense, which equates it with a minimum package of calories, proteins and other specific nutrients. The right to adequate food will have to be realized progressively. However, States have a core obligation to take the necessary action to mitigate and alleviate hunger as provided for in paragraph 2 of article 11, even in times of natural or other disasters.”

However, as argued above, the prevention of chronic undernutrition, or stunting, should be a human right because of its widespread and irreversible lifelong consequences.



Bill Gates pledged \$800 million to support the work of the Gates Foundation on nutrition and agriculture at the Nutrition for Growth conference
Source: The Children’s Investment Fund Foundation

19 **All stakeholders need to work together to prevent stunting**

As thoroughly recognized by the Scaling Up Nutrition movement, all stakeholders need to work together to prevent stunting, including governments, the United Nations network, donor networks, civil society, and the private sector. These stakeholders must work together at national, regional and global level, in order to ensure access to adequate nutrition for all – in particular women and young children – and to prevent disease, which for example requires action by the healthcare sector as well as implementation of hygiene and sanitation measures. The call for all stakeholders to work together is easily made, but requires the laying out of a strong, localized roadmap that clearly identifies areas and responsibilities for action for the different stakeholder groups. Division of tasks within stakeholder groups should be done transparently. Tracking of implementation and progress is key to ensuring that the country stays on track relative to its roadmap.

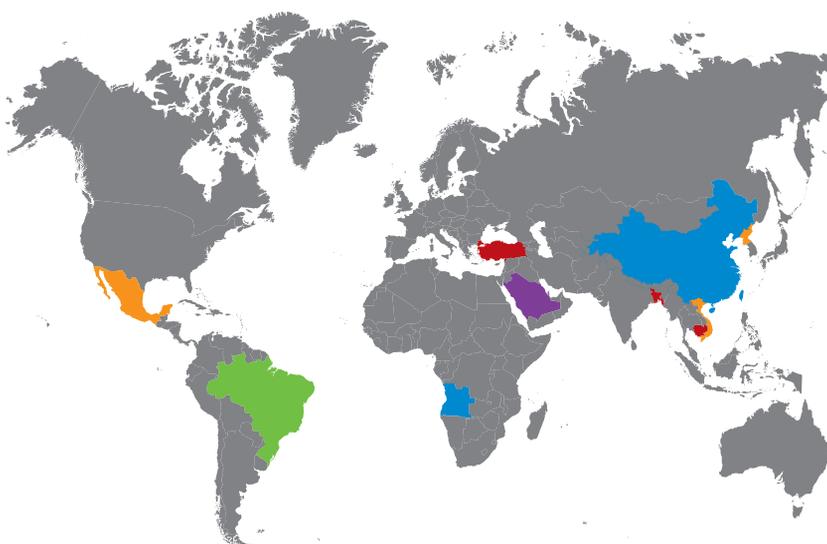
It is increasingly recognized that the private sector, particularly the food industry, plays a critical role in achieving adequate nutrition and preventing stunting, and has to take that role even more seriously. The increase of

the average height of populations in the US, Europe, and parts of East Asia and Latin America in the second half of the 20th century coincided with dramatic economic development, and because access to healthcare, water and sanitation, and primary education was already good and did not change much during this period in these parts of the world, the improvement of nutritional status was to a large extent due to better access on the part of the lower economic strata of these populations to a more diverse diet, including improved, processed, complementary foods as well as animal-source foods such as dairy products. A good example is the average height of the Dutch male population, which increased from 165 cm in 1935 to 185 cm at the end of the 20th century. Increased height, which reflects better nutrition, is associated with higher IQ, a lower risk of cardiovascular diseases, but a slight increase of some kind of cancers, however, overall with a more healthy population.

The increase since the 1960s of cardiovascular diseases, obesity, type 2 diabetes, cancers, and other chronic diseases related to overconsumption of foods with a high content of fats and/or sugars but at the same time a low content of

The ten countries with the fastest annual reduction of stunting between 1990 and 2010

Average annual reduction rate



Country	% Children Stunted	Average annual reduction rate
Saudi Arabia	9.3	7.3
Angola	29.2	6.6
China	13.7	6.0
Brazil	7.1	5.7
Mexico	15.5	4.7
Vietnam	30.5	4.1
Korea DPR	43.1	4.1
Turkey	15.6	3.9
Cambodia	39.5	3.0
Bangladesh	43.2	3.0

vitamins, minerals and other essential nutrients, however, has further complicated the nutrition field. This requires corrective action from the food and beverage manufacturers.

This is also where the collaboration of the private sector with governments (who have legislative and norm-setting responsibilities) and civil society, donors and UN (who, for example, are important partners in healthcare, education and promoting consumer awareness of health and nutrition) is important, and the only way to ensure adequate nutrition for all.

Conclusion

There is an urgent need to give every child equal opportunities at the age of two. To achieve this, the prevention of stunting should be recognized as a human right. All stakeholders, including the private sector, need to collaborate to prevent stunting.



Two girls, Juhora Akter (left) and Asma Akter, who are both 12 years old, stand in front of a wall with a black tape line indicating the normal projected height for a 12-year-old child, in a rural area near the town of Shahrasti, Chandpur, Bangladesh

Source: UNICEF/NYHQ1997-0518/Gilles Vauclair

Because when...



<http://scalingupnutrition.org>, June 2013



MixMe™ micronutrient powder being added to a meal to improve its nutritional value

Source: Mike Bloem Photography

The General Assembly proclaims this Universal Declaration of Human Rights as a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.

Declaration of Human Rights, 10 December 1948

The first known instance of a human rights agenda can be traced back to 539 BCE, when Cyrus the Great of Persia conquered the city of Babylon. In the wake of his triumph, he did something totally unexpected, freeing all the slaves in the city to return home. Moreover, he declared that the people under his rule should choose their own religion. The Cyrus Cylinder, a clay tablet containing these pronouncements, is one of the first human rights declarations in history.¹

The idea of human rights spread quickly in the ancient world to India and Greece, and eventually Rome. The most important advances since then have included the 1215 British Magna Carta, which not only gave people new rights but also made the king subject to the law; the British 1628 Petition of Right, which formalized the rights of the people; the 1776 United States Declaration of Independence, which proclaimed the right to life, liberty and the pursuit of happiness; and the 1789 French Declaration of the Rights of Man and of the Citizen, a document stating that all citizens are equal under the law.²

In response to the crimes against humanity that were committed during the Second World War, the human rights revolution grew rapidly, subsuming claims from minorities, women, the politically oppressed, and marginal communities from around the globe.³

The human rights revolution began with a disarmingly simple idea: that every individual, whatever his or her nationality, political beliefs, or ethnic and religious heritage, possesses an inviolable right to be treated with dignity. From this basic claim grew many more, and ever since, the cascading effect of these initial rights claims has dramatically shaped world history.⁴

The Universal Declaration of Human Rights, the first document to list the 30 rights to which everyone is entitled, was adopted by the UN General Assembly on 10 December, 1948.⁵

The first draft of the Declaration was proposed in September 1948 with over 50 Member States participating in the final drafting. By its Resolution 217 A (III) of 10 December 1948, the General Assembly, meeting in Paris, adopted the Universal Declaration of Human Rights with eight nations abstaining from the vote but none dissenting. Hernán Santa Cruz of Chile, member of the drafting sub-Committee, wrote:

“I perceived clearly that I was participating in a truly significant historic event in which a consensus had been reached as to the supreme value of the human person, a value that did not originate in the decision of a worldly power, but rather in the fact of existing – which gave rise to the inalienable right to live free from want and oppression and to fully develop one’s personality. In the Great Hall...there was an atmosphere of genuine solidarity and brotherhood among men and women from all latitudes, the like of which I have not seen again in any international setting.”

The entire text of the Universal Declaration of Human Rights was composed in less than two years. At a time when the world was divided into Eastern and Western blocs, finding a common ground as to what should constitute the essence of the document proved a colossal task.⁶

1. Adapted from *A Look at the Background of Human Rights*, <http://www.youthforhumanrights.org/what-are-human-rights/background-of-human-rights.html>, July 2013

2. Adapted from *A Look at the Background of Human Rights*, <http://www.youthforhumanrights.org/what-are-human-rights/background-of-human-rights.html>, July 2013

3. Adapted from *The Human Rights Revolution: Description* <http://global.oup.com/academic/product/the-human-rights-revolution-9780195333145?cc=gb&lang=en&tab=description>, July 2013

4. Adapted from *The Human Rights Revolution: Description* <http://global.oup.com/academic/product/the-human-rights-revolution-9780195333145?cc=gb&lang=en&tab=description>, July 2013

5. Adapted from *History of the Document* <http://www.un.org/en/documents/udhr/history.shtml>, July 2013

6. Adapted from *History of the Document* <http://www.un.org/en/documents/udhr/history.shtml>, July 2013

Case study

Household Rice Expenditure and Maternal and Child Nutritional Status in Bangladesh

Increases in global food prices have raised concerns that the prevalence of malnutrition may increase, especially in developing countries. Rising food prices may decrease the ability of households to purchase food. Because poor households use a relatively large proportion of income to purchase food, increases in the price of food can directly affect the amount and type of food their income can buy, which can be reflected by decreased amounts of fat and vegetables in meals, elimination of some meals, and an overall reduction in dietary diversity. Because dietary diversity and animal-source foods are recognized as key components of high-quality diets, rising food prices can lead to a reduction in the quality of the diet. Reduced quality of the diet may adversely affect both nutrition and health over time. Previous studies have shown that increases in food prices lead to greater levels of stunting among children, decreased maternal micronutrient status, and impaired growth of infants.

In Bangladesh, poor rural families often deal with high food costs by purchasing primarily rice. The objective of [the current] study was to characterize the relationship between household expenditure on rice and non-rice foods with maternal and child malnutrition.

A recent study of data collected in the Nutritional Surveillance Project (NSP) in Bangladesh between 1992 and 2000 evaluated how changes in rice price affected child underweight. The percentage of underweight children

declined in the situation where rice expenditures fell and households were able to spend more on non-rice foods. We sought to expand these investigations to evaluate the relationship between rice expenditure, non-rice expenditure, and household food expenditure and child stunting and maternal underweight between 2000 and 2005.

The results of [our] study show that households with higher expenditure on rice have increased odds of child stunting. Conversely, households with a higher expenditure on non-rice foods have decreased odds of child stunting. A similar relationship was observed between rice and non-rice food expenditures and maternal underweight. Previous studies have shown that changes in weekly expenditure on rice reflect changes in rice prices ... Previous studies have shown that the percentage of child underweight increases as rice expenditures rise. The present study extends these findings and suggests that higher expenditure on rice (reflecting higher food prices) increases the likelihood of developing child stunting.

Households with highest expenditures on rice and lower expenditures on non-rice foods have greater child malnutrition across all age categories up to 59 mo and greater maternal underweight. In a situation of global food prices, these findings suggest that there will be considerable impact upon the prevalence of child malnutrition and maternal underweight in developing countries.

Source: First published November 25, 2009, doi: 10.3945/jn.109.110718 J. Nutr. January 2010 vol. 140 no. 1 189S-194S [adapted and abridged]

Further reading

2013 *Lancet Series on Maternal and Child Nutrition Scaling Up Nutrition website: scalingupnutrition.org.*

Copenhagen Consensus 2008/2012.

Baldi G, Martini E, Catharina M et al. *Cost of the Diet (CoD) tool: First results from Indonesia and applications for policy discussion on food and nutrition security.* *Food Nutr Bull* 2013;34:35S–42S.

de Pee S. *Food Security.* In: Caballero B, (ed.) *Encyclopedia of Human Nutrition (3rd ed)*, vol. 2, pp. 353-360. Waltham, MA: Academic Press, 2013.

Case study

Malnutrition is treatable: access to nutrition services saves the life of a child (Uganda)

When 7-month-old Frank arrived at the Rubaga Hospital in Uganda in 2010, he was severely malnourished. He weighed only 7.5 pounds. Frank's aunt had less than \$1 per week to feed and clothe him and his four other siblings. One of NuLife's 1,200 volunteers referred Frank to the hospital. (There are 54 NuLife-supported health facilities. NuLife is managed by University Research Co., LLC (URC) in partnership with the Uganda Ministry of Health (MOH). They are tasked with engaging multiple stakeholders to ensure nutrition care for people living with HIV/AIDS, pregnant and lactating women, and orphans and vulnerable children.

Frank was diagnosed with severe acute malnutrition. Staff prescribed and provided Frank with ready-to-use therapeutic food (RUTF) to treat his condition and enrolled him in an outpatient therapeutic care program.

His aunt also received nutrition counseling.

Frank's recovery was remarkable. After two months of RUTF he had exceeded his target weight by 20%. "Everybody gave Frank just two days to live when I first brought him, but now everybody wants to hold him and play with him," his aunt said. Frank would need to be taken back to hospital for regular follow-ups and more RUTF to ensure continued recovery.

Frank is just one of 16,000 individuals that have received treatment via NuLife. Project-supported healthcare facilities now assess close to 85% of HIV-positive individuals for malnutrition at admission, and sustainable processes are now in place allowing facilities to continue to address malnutrition. These NuLife achievements allow Ugandan health facilities to continue to treat children like Frank even after the project's completion in August 2011.

*Source: Thousand Days Partnership, USA
<http://www.thousanddays.org/success-story/malnutrition-is-treatable-access-to-nutrition-services-saves-the-life-of-a-ugandan-child/> Dec 2011 (abridged)*

My personal view

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While the prevention of chronic undernutrition, or stunting, should be everyone's concern, because of the widespread consequences for schooling, economic development, long-term health etc, its prevention should ultimately result from better meeting children's nutrient requirements, and preventing an increase thereof, during the critical window of

opportunity (conception to two years of age). Therefore, nutrition-specific actions, complemented with nutrition-sensitive approaches, are key. In the human rights documents, nutrition is only considered as a determinant to health, and the right to food only mentions access to "nutritious food" but none of the "human rights" documents recognizes the importance of nutrients in the sense that all required nutrients should be provided in adequate amounts. The particular need of children 6-24 months for nutrient-dense foods is very specific and the fact that these needs are difficult to meet from local foods for large segments of the world population urges for a discussion on the right to nutrients to prevent chronic undernutrition. Furthermore, meeting nutrient requirements of adolescent girls and women, particularly during pregnancy and lactation, should be prioritized as well, in order to protect their health and give their children the right start in life.