

Nutrition: What Needs To Be Done?

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About 805 million people – one in nine people worldwide – remain chronically hungry. Ending hunger and malnutrition requires strong political commitment at the highest level, effective coordination among various ministries and partners, and broad-based social participation. Three policy priorities are crucial to ending malnutrition – expansion of social protection; making smallholder agriculture more nutrition sensitive; and focusing on under-five child and maternal nutrition deficiencies. An integrated approach is needed to ensure that food consumed is nutritious, wholesome, acceptable, safe and affordable, especially to the poorest and most vulnerable.

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1 Introduction

At the first International Conference on Nutrition in 1992, world leaders made clear in the World Declaration on Nutrition that “Hunger and malnutrition are unacceptable in a world that has both the knowledge and resources to end this form of catastrophe.” Twenty-two years later, the world continues to face several nutrition-related challenges.

The latest Food and Agriculture Organization (FAO) estimate of the Prevalence of Undernourishment shows that, despite abundant food supplies and considerable progress in reducing hunger in some regions, more than 805 million people had chronically inadequate levels of dietary energy intake during 2012-14 (FAO 2014).¹

“Hidden hunger”, or micronutrient deficiencies, is much more widespread than hunger, which only refers to inadequate dietary energy intake. Although there is a paucity of regular and time series data on micronutrient deficiencies, there is no doubt that the number of people who suffer one or more micronutrient deficiency is staggering and much more than the number of people who chronically experience inadequate dietary energy.

According to the latest data available from the World Health Organization’s (WHO) Vitamin and Mineral Nutrition Information System, about 1.6 billion people globally are anaemic.² Iron deficiency, the primary cause of anaemia, is only one micronutrient among many – vitamin A, zinc, and iodine, to name a few – missing from or insufficiently included in the diets for many around the world. Data from WHO’s Global Database on Iodine Deficiency (2003) suggest that about 2 billion people of all ages and about 285 million school-age children

globally suffer from iodine deficiency (Benoist et al 2004). Estimates for 1995-2005 show that 190 million preschool children and 19.1 million pregnant women globally had vitamin A deficiency, while about 5.2 million preschool children and 9.8 million pregnant women suffered night blindness because of this (WHO 2009). Meanwhile, more than 1.5 billion people are overweight, with half a billion obese, exposing them to greater risk of cardiovascular problems and other diet-related non-communicable diseases.

Micronutrient deficiencies impair cognitive and physical development, especially among young children, making people less able to learn and work, as well as more susceptible to disease and reduced life expectancy.³ A detailed review of studies and statistical evidence showed that about 3.7 million child deaths were associated with maternal or child underweight status. These deaths and increased morbidity, from pneumonia, diarrhoea and malaria associated with low weight-for-age, among children accounted for a loss of about 127 million disability-adjusted life years (DALYs) (Ezzati et al 2004a). Horton (2008) estimated excess mortality globally attributable to different types of malnutrition. She found 3.75 million deaths associated with being underweight; 0.84 million deaths because of iron deficiency; 0.78 million deaths because of vitamin A deficiency; 0.79 million deaths because of zinc deficiency; and 2.59 million deaths associated with being overweight. Of the 8.75 million excess deaths on account of malnutrition, about 3 million were in sub-Saharan Africa, with 2.34 million in south and south-east Asia (Horton 2008).

Studies have noted that receiving the right nutrients in the first years of life is not only a matter of life and death, but also a major determinant of future life chances. The evidence summarised by Ezzati et al (2004a) shows that early child under-nutrition is associated with impaired cognitive development and lasting intellectual deficits. Under-nutrition among adults

also results in diminished work capacity and lower productivity.

There have been some attempts at quantifying the economic consequences of malnutrition. Although such estimates have methodological limitations, it is clear that there are significant economic consequences of malnutrition, particularly for the poorest and most vulnerable. For example, using data from 10 developing countries, Horton and Ross (2003) showed that the median value of per capita annual losses on account of reduced productivity and reduced cognitive abilities due to iron deficiency was about \$3.64 per year. For India, they estimated the value of losses on account of reduced productivity and cognitive abilities to be around \$4.8 per capita per year. The estimated costs of malnutrition would be much higher if the increased costs of healthcare due to malnutrition are taken into account. The present discounted value of the lifetime costs of malnutrition because of excess mortality, additional healthcare costs, and loss of lifetime productivity and cognitive abilities have been estimated to be more than \$500 per capita (Alderman and Behrman 2004; Shekar et al 2006) and \$2.8-\$3.5 trillion globally (FAO 2013).

Overcoming malnutrition in all its forms – caloric undernourishment, micronutrient deficiencies, and diet-related non-communicable diseases often associated with obesity – requires a combination of appropriate interventions in food systems, public health, provision of safe water and sanitation, education, and social protection to guarantee the availability of and access to diverse diets; reduce the vulnerability of poor populations to disease; improve the utilisation of nutrients by healthier bodies; and increase popular awareness of the importance and sources of good nutrition. With widespread deprivation, unemployment, underemployment, growing inequalities as well as a slow and pro-finance economic recovery, a basic universal social protection floor will be crucial to guarantee access to nutritious food, reduce the susceptibility of the poor to disease and improve the utilisation of nutrients by healthier bodies, with increased

public awareness of the importance and sources of good nutrition.

2 Uneven Progress

At the 1996 World Food Summit (WFS), heads of government and the world community committed to halving the number of hungry people in the world in 1990 by 2015. Five years later, the Millennium Development Goals (MDGs) lowered the target to reducing the proportion of hungry people in the world by half. Considerable efforts have been made in many countries to reach these targets. Twenty-five countries have made impressive progress, achieving the more ambitious WFS target, while 63 countries have achieved the MDG target of halving the proportion of hungry people (FAO 2014).

Globally, the proportion of people unable to consume minimum levels of dietary energy fell from 18.7% in 1990-92 to 11.3% in 2012-14. Over the same period, the proportion in developing countries fell from 23.4% to 13.5% (FAO 2014). While this is significant progress, it falls short of the lower MDG Target 1c of halving the share of chronically undernourished people unless the rate of decline accelerates sufficiently in the year ahead. Meeting the target is still possible with an immediate, considerable, and additional effort, especially where the incidence of hunger continues to be widespread.

Whether or not the goal is achieved, overall progress has been highly uneven. About 805 million people – one in nine people worldwide – remain chronically hungry even by the conservative definition used in estimating the Prevalence of Undernourishment (POU; FAO 2014). Of these, only about 14 million of the world's hungry live in developed countries. Some countries and regions have seen only modest progress in reducing hunger. In several countries, the number of hungry people has increased. Meanwhile, there have been significant reductions in the prevalence of undernourishment in most countries in south-east Asia, Latin America, east Asia, central Asia, and the Caribbean, where the target of halving the hunger rate has been reached, or nearly reached (Table 1).

Table 1: Prevalence of Undernourishment and Number of Undernourished, by Region (1990-92, 2012-14)

Region	Prevalence (%)		Number (Million)	
	1990-92	2012-14	1990-92	2012-14
Africa	27.7	20.5	182.1	226.7
North Africa	<5	6.0	6.0	12.6
Sub-Saharan Africa	33.3	23.8	176.0	214.1
Latin America and the Caribbean	15.3	6.1	68.5	37.0
East Asia	23.2	10.8	295.2	161.2
South Asia	24.0	15.8	291.7	276.4
South-east Asia	30.7	10.3	138.0	63.5
West Asia	6.3	8.7	8.0	18.5
Oceania	15.7	14.0	1.0	1.4
Caucasus and central Asia	14.1	7.4	9.6	6.0
Developed regions	<5	<5	20.4	14.6
World	18.7	11.3	1014.5	805.3

Source: FAO (2014).

Progress in sub-Saharan Africa has been limited, and the region has the highest prevalence of undernourishment by far, with almost one in four chronically hungry. Meanwhile, the more populous south Asia still has many more undernourished people. Progress in south Asia and Oceania has not been sufficient to meet the MDG hunger target by 2015, while west Asia and north Africa have had a rising prevalence of undernourishment (Table 1).

Progress in reducing malnutrition has been slower and uneven. Globally, about 15% of all children under-five continue to be underweight. Between 1990 and 2012, the number of underweight children aged less than five years declined by about 38%, from about 160 million to about 99 million in 2012, well short of the second indicator for MDG Target 1c (Table 2).

Table 2: Estimated Prevalence and Number of Children under Five Years of Age Affected by Low Weight-for-Age, by Region (1990, 2012)

Region	Prevalence (%)		Number (Million)	
	1990	2012	1990	2012
North Africa	9.9	4.9	2	1
Sub-Saharan Africa	29.3	20.8	27	32
Latin America and Caribbean	7.3	2.8	4	1
East Asia	15.0	2.9	21	3
South Asia	50.4	29.9	86	52
South-east Asia	31.4	16.2	18	9
West Asia	13.5	5.6	3	1
Oceania	18.4	18.8	0.4	0.2
Caucasus and central Asia	11.6	4.5	1	0
Developed regions	1.1	1.6	1	1
Global	24.9	15.1	160	99

Source: UNICEF, WHO and World Bank joint child malnutrition estimates, <http://data.worldbank.org/child-malnutrition>

East Asia has led all regions with a decline of the prevalence of underweight children to below 3%, followed by central Asia, Latin America and the Caribbean, and west Asia. South Asia, with a 41% decline in prevalence of underweight children, continues to be home to the largest number of underweight children. There were 52 million underweight preschool children in south Asia in 2012. Despite a 29% increase in the proportion of underweight children, sub-Saharan Africa had 5 million more underweight children in 2012 than in 1990 (Table 2).

A quarter of the children in the world, and a third in developing countries, are stunted due to a range of factors including poor diets. Four of five stunted children are in just 20 countries, including almost half of Indian children under the age of five. Although the prevalence of stunting fell from an estimated 40% in 1990 to about 25% in 2012, an estimated 162 million children under five remain at risk of diminished cognitive and physical development associated with such chronic under-nutrition (Table 3).

Table 3: Estimated Prevalence and Number of Children under Five Years of Age Affected by Stunting (Moderate or Severe), by Region (1990, 2012)

Region	Prevalence (%)		Number (Million)	
	1990	2012	1990	2012
North Africa	29.2	19.7	5	3
Sub-Saharan Africa	47.2	38.0	44	58
Latin America and Caribbean	22.6	11.4	13	6
East Asia	36.7	7.9	52	7
South Asia	60.0	35.4	103	62
South-east Asia	47.3	27.7	27	16
West Asia	29.9	18.1	6	4
Oceania	37.8	38.1	0.4	0.4
Caucasus and central Asia	37.3	16.5	3	1
Developed	3.6	4.1	3	2
Global	39.8	24.7	257	162

Source: UNICEF, WHO and World Bank joint child malnutrition estimates, <http://data.worldbank.org/child-malnutrition>

Nearly all regions of the world have experienced declines in the number of children affected by stunting. The exception is sub-Saharan Africa, where the number of stunted children increased by a third, from 44 million to 58 million between 1990 and 2012 (Table 3). In Nigeria, over half the poorest children are stunted, while children in poor rural

counties in China are six times more likely to be stunted than urban children. In Indonesia, a sharp rise in wasting – or acute under-nutrition – in the wake of the recent food crisis hit children from the poorest households hardest.

3 An Integrated Approach

How can malnutrition, particularly in its most extreme forms, be eradicated?

Good nutrition starts with access to diverse foods for healthy diets. Improving food systems is key to fostering more diversified and healthier diets. As shown by FAO's 2013 *State of Food and Agriculture*, food systems must be improved to make such foods available and affordable. Everyone should have access to a diversity of foods and be able to make healthy dietary choices. Consumers need help making better dietary choices for improved nutrition with regulation, education, information, and other interventions. Improvements in post-harvest processing and marketing systems can reduce food losses and waste, and contribute to sustainable resource use. Efforts to improve diets need to be combined with improvements in access to safe water, sanitation, and healthcare, all crucial for absorption of nutrients.

Transforming Food Systems to Sustainably Provide Healthy Diets for All:

Regions and countries with the highest burden of micronutrient deficiencies also have high stunting prevalence and high disease burdens. The problems are closely connected, and thus require a systemic approach involving all relevant sectors to make progress. The food system involves people, institutions, agricultural production, processing, storage, retailing, transportation, commerce, international trade, and consumption. Improved nutrition involves and depends on every aspect of the food system. This is why an integrated approach is needed to ensure that food consumed is nutritious, wholesome, culturally acceptable, safe and affordable, especially to the poorest and most vulnerable.

Creating sustainable healthy food systems is key to overcoming hunger and malnutrition around the world. Food

production has tripled since 1945 while average food availability per person has risen by 40%. But food systems often do not function in ways most conducive to ensuring that everyone has access to safe food and balanced diets. We have to increase our efforts to address these problems. The most effective and sustainable approach involves reshaping food systems to ensure better diets.

Much of the food output augmentation achieved in the past has put increasing stress on natural resources – degrading soils, polluting and exhausting fresh water supplies, encroaching on forests, depleting wild fish stocks, and reducing biodiversity. More intensive farming systems and continued deforestation for agriculture and other land uses have also become major sources of greenhouse gas emissions, particularly in industrialised countries. Harvest and post-harvest food losses, particularly in developing countries, as well as high food wastage at the end of the food chain, particularly in middle- and high-income countries, lower the availability of food (FAO 2011).

While this approach to food production has become unsustainable, we have the means to transform our production systems and consumption patterns to create better food systems to ensure healthier people. Creating more resilient food systems that take into account the special needs of the more vulnerable is the most practical, cost-efficient, and sustainable way to address all forms of malnutrition. We need to produce nutritious food for all people today, while also protecting the capacity of future generations to feed themselves. Nutrition must become a primary objective of food system policies and interventions, ensuring access to a diverse, balanced, and adequate combination of dietary energy and nutrients.

At every stage along the way, resources must be used more efficiently, with less adverse impacts. Getting more and better food from water, land, fertiliser, and labour saves resources and makes food systems more sustainable. An additional challenge is to manage livestock production more sustainably, as it contributes increasingly to greenhouse gases

(climate change), resource depletion, disease transmission, and health problems due to growing meat consumption. Consumption of meat, milk, and eggs is growing rapidly in developing countries, providing nutritious diets to previously food insecure populations. The livestock sector also improves livelihoods and contributes to economic growth and rural incomes.

Improving Access to Safe Water, Sanitation, and Basic Health Services: Unsafe water, poor sanitation, and lack of access to basic health services are important causes of diarrhoea, which in turn reduces the absorption of nutrients consumed. Unsafe water and poor sanitation cause a number of other diseases as well, which result in diminished appetites but increase the need for nutrients (Ezzati et al 2004b; Spears 2013; Shekar et al 2006).

This is particularly relevant in India, and in south Asia more generally, where a large proportion of households do not have access to safe water and open defecation is widely prevalent. According to data from the 2011 Census of India, only 32% of Indian households had access to tap water from a treated source. About 74% of India's households did not have hygienic sanitation facilities in their houses. Among rural households, the proportion was 81%.⁴ There is strong statistical evidence to show that poor access to safe water, sanitation, and hygiene are major determinants of nutritional outcomes in India. Detailed statistical analysis by Spears (2013) showed that "open defecation can account for much or all of excess stunting" among children in India.

Tackling Hidden Hunger – The Role of Supplementation and Fortification: Nutrition is complex and multidimensional. While there has not been a consensus on a broad-based plan to tackle malnutrition across the world, the problems are better understood now, with options for addressing malnutrition increasingly well known. The underlying cause of hidden hunger is the poor quality of diets, lacking sufficient nutrient-dense animal-source foods, fruits, and

vegetables. Food-based approaches therefore provide the most viable, cost-effective, and sustainable long-term solutions for controlling and overcoming micronutrient deficiencies. In other words, micronutrient requirements should be met primarily through food intake.

This has led to increasing recognition that agriculture must be more "nutrition sensitive", with agricultural policies and practices supporting and facilitating more healthy – balanced and diverse – diets. Nutrition-enhancing agricultural research and development must therefore focus more intensely on nutrient-dense foods such as millets, legumes, fruits, vegetables, and animal-source foods, as well as diversified farming systems. Popular nutrition education is crucial for people to be able to select the right foods. This is essential to a comprehensive approach to micronutrient deficiencies, and represents both a challenge and an important economic opportunity for agriculture.

In addition to improving the composition of diets, fortification, or the enhancement of the nutrient content of staple food, is known to be a cost-effective and technically convenient means of delivering specific nutrients such as iron, zinc, and vitamins. Iodine and iron fortification of salt, as well as iron and vitamin fortification of flour are commonly used fortification practices. Distribution of nutrients for home fortification of flour, in countries where local small-scale milling of grain is common, is also done in some countries. Bio-fortification, which involves enhancing the nutrient content of crops through breeding and changing agronomic practices, is increasingly seen as an effective, safe, and feasible option.⁵ Fortification through soil enrichment is known to be effective in dealing with zinc deficiency. In Turkey, for example, fertilisers enriched with zinc for zinc-absorbent plant varieties have been successfully used to address widespread zinc deficiencies. Similarly, selenium-enriched NPK (nitrogen, phosphorous, and potassium) fertilisers have been successfully used in Finland.

In addition, targeted use of nutrition supplements – in specific circumstances like natural disasters and other emergencies, when providing nutritious and

balanced food can be difficult – may be crucial for ensuring that specifically vulnerable sections of population like pregnant women and small children get the most important nutrients.

Fortification and supplementation can also be important where naturally-occurring anti-nutrients present in traditional diets and in food provided in complementary feeding programmes prevent absorption of crucial micronutrients.

Of late, it has been argued – most importantly, by the June 2013 issue of the Maternal and Child Nutrition Series of the British Medical Association's influential journal, *Lancet* – that nutritional supplements provide a rapid and cost-effective means of dealing with the widespread problem of malnutrition.⁶ In the issue, Bhutta et al (2013) argued that, unlike conventional strategies based on breastfeeding and provision of nutritious foods through noon-meal schemes and other social protection programmes targeting pregnant women, lactating women, and children, considerable evidence based on randomised control trials show the benefits of supplements in reducing the incidence of stunting. Using detailed analysis of quantitative evidence on the effects of supplements on nutritional outcomes, they showed that a global investment of \$9.6 billion on 10 nutrition-related interventions in 34 focus countries could reduce mortality among children aged less than five years by about 15%. This was used to make the argument that a supplementation-based strategy to deal with maternal and child malnutrition is a promising, cost-effective strategy.

While supplementation-led interventions may be appropriate in some contexts, especially in the short term or in emergencies such as conflicts or natural disasters, exclusive focus on micronutrient supplementation distracts from addressing the deeper causes of malnutrition and undermines the development of sustainable long-term solutions to hidden hunger. The case for a supplement-led strategy for dealing with malnutrition is problematic on various grounds.

As pointed out by Pinstrip-Andersen (2013) in a comment on the *Lancet*

Maternal and Child Nutrition series papers, the fixation on randomised control trials as the only legitimate evidence is misplaced as it is impossible to apply such methods of testing to food systems.

An exclusive focus on micronutrient supplementation, without addressing the fundamental causes of malnutrition, particularly those related to the food system, can be extremely problematic and render nutrition policies ineffective. In most cases, micronutrient supplementation cannot be very effective without adequate food. Providing micronutrients without adequate food can even have negative effects.

The most effective way to address hidden hunger varies with the type of micronutrient deficiency. In fact, the choice between supplement-based and food system-based strategies to end malnutrition is not always clear-cut. Some micronutrients, such as iron and folic acid, are commonly delivered to pregnant women through supplements in both rich and poor countries. Others, such as iodine, are easily delivered through mineral fortification of foods such as salt. In most cases, however, micronutrients can be delivered effectively through nutrition-optimised food systems.

Additionally, focusing on supplements often implies major involvement of the pharmaceutical industry and develops a vested interest in discouraging alternative long-term options for addressing malnutrition on a more affordable and sustainable basis. If the supplements are produced domestically – which may be better for the national economy – time and resources will be needed to establish local manufacturing systems, distribution systems, and regulatory structures. However, such efforts to develop national capacities are likely to be thwarted by trade and intellectual property rights regulations driven by powerful corporate lobbies.

In view of these problems, it is important that strategies to address the problem of malnutrition are centrally based on making food systems and agricultural practices nutrition-sensitive, ensuring both the availability of and access to diverse and more nutritious foods. Food

fortification and nutrition supplements should be used selectively, where necessary or to urgently address acute deficiencies. Supplementation is often crucial for urgent short-term interventions when people are severely nutrient deficient, but people should move to eating nutrient-dense foods as soon as possible.

4 Governance and Policy Issues

Nutrition is now close to the apex of the international development agenda. There is a global movement gathering force to end hunger and malnutrition – reflected in the calls for a single, standalone food security and nutrition goal in the post-2015 sustainable development agenda and in the United Nations (UN) system's mobilisation behind the Zero Hunger Challenge. Strengthening policy coordination nationally and cooperation internationally to overcome malnutrition will be the main agenda of the second International Conference on Nutrition (ICN2) to be held in November 2014.

International Efforts: At the Rio+20 Sustainable Development Conference in June 2012, the UN secretary general set the ambitious, but feasible, goal of hunger eradication captured by the originally Brazilian slogan “Fome Zero” or Zero Hunger. The Zero Hunger Challenge calls for a world without hunger and stunting (under-nutrition); and with minimal food waste and losses; sustainable agriculture; and a doubling of poor farmers' incomes.⁷

In mid-2013, the High-Level Panel on the Post-2015 Development Agenda endorsed a goal to “ensure food security and good nutrition” (United Nations 2013). A goal with targets to ensure food access for all and to end all forms of malnutrition by 2030 has been prominently placed in the final proposal of the Open Working Group on the Post-2015 Sustainable Development Goals (Open Working Group 2014).

Meanwhile, discussions of making food and agriculture systems better address nutrition challenges and nutrient deficiencies have taken centre stage in the global nutrition discourse. After the 2012 Olympics and just before the

Group of Eight (G8) meeting in mid-2013, the UK and Brazil governments hosted high-level nutrition meetings in London. The Nutrition for Growth event hosted by the UK government in July 2013 preceded the formation of a Global Panel on Agriculture and Food Systems for Nutrition. Among its main objectives, the panel seeks “to drive change by catalysing collaborative actions in agricultural and food systems that will improve diets and equitable nutrition outcomes for all, with special attention to the nutritional needs of women and children.” In May 2014, the US Agency for International Development (USAID) announced its Global Nutrition Strategy.

On 19-21 November 2014, the FAO and WHO, together with others in the UN system, will convene the intergovernmental ICN2, 22 years after the first ICN in 1992. The ICN2 is expected to establish the bases for sustained international cooperation, improved nutrition interventions, and policy coordination to overcome malnutrition. It will offer a once-in-a-generation opportunity to galvanise, broaden, and deepen the political commitment and international solidarity to enhance nutrition for all through better interventions, institutions, and policies. It will bring world leaders, policy experts, and scientists – including agricultural, water, and sanitation specialists – together to reaffirm commitments and to revitalise the political will to address the scourge of hunger and malnutrition. All this will be critical in the ongoing struggle against malnutrition in all its forms – dietary energy inadequacy, micronutrient deficiencies, and diet-related non-communicable diseases associated with obesity. Hidden hunger and its many unacceptable consequences for well over 2 billion people will be central to the deliberations.

Policymaking and Implementation at the National Level:

At the country level, the most difficult challenges are often ultimately political. In most governments, nutrition lacks integrated coordination and committed leadership. Tackling malnutrition is a complex task, requiring strong political commitment, leadership at the highest level, as

well as unprecedented cooperation and coordination among various ministries and partners.

A large number of country experiences demonstrate that achieving and sustaining rapid progress in eliminating hunger and food insecurity is feasible, but the evidence also suggests that the world faces significant challenges in overcoming obstacles impeding progress (FAO 2014). Improvements in food security and nutrition generally require a range of complementary policies, including improving health conditions, hygiene, water supply, and education. All this requires better and more creative approaches to coordination and governance.

There are three political requirements in developing a coherent strategy for nutrition that need to be flagged.

Deepen Political Commitment: First, political commitment at the highest level has been a necessary condition for successful national initiatives to reduce hunger, food insecurity, and malnutrition. It is necessary to make these government-wide priorities, and to address related governance bottlenecks inhibiting progress. Initiatives to drastically reduce hunger, food insecurity, and malnutrition only seem to succeed when the highest political authorities make the necessary political commitment and adequately address governance, financial, and other institutional bottlenecks inhibiting progress. Each national path has been unique, but there appear to be some common features.

The strong political commitment and sustained support of the head of the government to ensure that food security and nutrition truly become a national priority has generally been a precondition of success. Establishing a constitutional guarantee to the right to food can help consolidate and sustain such commitment, while the elaboration and implementation of enabling legislation and policies have generally been crucial to their realisation.

Prioritise and Coordinate Food Security and Nutrition: Ending hunger and malnutrition requires a sufficiently large-scale and comprehensive approach,

integrating macroeconomic, social, health, sanitation, environmental, agricultural, public information, and education policies. Such multi-sector efforts need to be effectively coordinated in order to achieve progress.

Investing in food security is not just a moral imperative. Investing in food security and nutrition, when well designed and implemented, brings benefits in the form of healthier, more productive citizens, and triggers other development dynamics.

Ensure Social Participation: Broad social participation is generally crucial to sustain such efforts, especially in the face of changes of government, budgetary constraints, and socio-economic and climatic shocks. Broad public interest and participation help sustain national and local efforts, even in the face of these factors. Such popular inclusion also enhances accountability, enables experimentation and learning, and broadens the responsibility for, and burden of, implementation. At the national level, civil society organisations representing peasants and other stakeholders, including the private sector, in a national council for food security and nutrition can be key to ensuring that policymaking involves broad-based consultation.

Similar complementary institutions and mechanisms at the provincial and local/municipal levels are necessary for broad participation and public support. Institutional mechanisms involving various stakeholders, especially the politically, socially, and economically marginalised, can help ensure more inclusive and meaningful social participation. Institutionalisation of inclusion and participation can serve to enhance accountability and broaden responsibility for implementation.

There is growing evidence and consensus that with better food security and nutrition governance, as well as more sustained, integrated and comprehensive approaches, hunger can be drastically reduced – even in very poor countries. Great care must be taken in drawing lessons from very different contexts, but the accumulated experience suggests that these three types of political initiatives

have been crucial for sustained progress on food security and nutrition.

The experiences of Bangladesh, Brazil, China, Ghana, Thailand, and Vietnam, to name a few, have demonstrated that the most effective approaches to ending hunger and under-nutrition more broadly have included at least two, if not all three, conditions listed above. All these countries rapidly scaled up their efforts to the national level. Combined with appropriate and adequate public investments, they yield impressive results for the food insecure and undernourished, and thus, for all of society.

Policy Priorities: Experience shows that a few initiatives require special efforts on the part of national governments to achieve rapid progress in eradicating hunger and malnutrition. Reviewing how different countries have responded to the food security challenges they face, three main priority areas for public interventions stand out – first, social protection; second, raising the productivity and net incomes of small-scale agricultural producers; and third, using special instruments to address nutritional deficiencies, particularly among women and children.

Social Protection: First, when social protection programmes are integrated with rural or agricultural development policies and nutrition initiatives, the synergies have strong multiplier effects. Social protection measures for the poor have been key, especially when the growth of decent work and productive employment has been sluggish. When integrated with rural and agricultural development policies as well as special nutrition initiatives, impressive results follow.

Three-quarters of the world's poorest live in rural areas, and many are themselves producers of food. Historically, social protection has emerged in urban areas, primarily for wage employees, military veterans, and the unemployed. Extending social protection to the countryside requires a major reorientation and reorganisation of social protection. It is also important to orient social protection to enhance the productive, and

hence income-generating capacities and capabilities of the beneficiaries. But moving from protection to production cannot simply be subjected to a cost-benefit calculation to determine effectiveness and accountability.

Cash and in-kind transfers and other forms of social protection that raise incomes and improve diets also have positive spillover effects, such as increasing local incomes and wages, and can enhance small producers' accumulation of productive resources, thereby stimulating production and productivity increases, both on- and off-farm. Cash transfers in rural areas directly inject money at the community level, which enables and stimulates more local production, supply, and trade of goods and services, initially based on agricultural and related off-farm activities.

Social protection is most effective when designed at the national level to provide a universal minimum coverage, now often termed a social protection floor. Such broad-coverage social protection programmes need to be combined with specific interventions targeted at the nutritionally-vulnerable, such as children, and pregnant and lactating women. Also, although there are variations in the efficacy of different types of programmes depending on the socio-economic context, in-kind transfer programmes, particularly when designed to meet the specific nutritional requirements of target populations, are often more effective in improving nutritional status than cash transfers.

Raising Small Producers' Productivity and Incomes and Making Smallholder Agriculture More Nutrition-Sensitive: Second, improving small-scale farm productivity, while promoting diversification and more sustainable practices, can reduce rural malnutrition by improving the local availability and nutritional quality of food, and by raising incomes and improving access to better food. This typically requires investments in public goods, including physical infrastructure and social, including community services. Improving access to land, finance, productive assets, technology, input, and output markets as well as

other supportive measures generally enhance small producers' productivity, incomes, spending, and nutrition.

Focus on Under-Five Child and Maternal Nutrition Deficiencies: Third, focusing on under-five child and maternal nutrition deficiencies is crucial. To prevent stunting and other forms of severe under-nutrition, it is necessary to focus on measures to address nutrition deficiencies afflicting vulnerable households, particularly mothers and children of less than five years of age, to break the vicious circle perpetuating extreme poverty and hunger across generations. Access to balanced, nutritious diets by mothers and under-five children can be improved by community childcare and maternity support facilities as well as other social protection policies. This typically involves improving sanitation, hygiene, nutrition information, and education, and access to healthcare. Appropriate nutrition enhancing interventions and programmes are often key, some of which are best linked to social protection or small producer support programmes.

These three types of interventions offer significant potential synergies and are most powerful when used in combination. For example, dietitians' nutritionally planned school-feeding programmes can procure safe and more nutritious food supplies from small-scale producer cooperatives. This would stimulate the local supply of more diverse, nutritious, and safe foods by smallholder farmers, artisanal fisherfolk, and others. It would, in turn, raise producer incomes while stimulating the local supply of more diverse, nutritious, and safe foods by small producers.

This example not only illustrates the importance of integrated multi-sector initiatives, but also how relatively low-cost and simple interventions can ensure greater community participation and control in shifting from a vicious circle of poor nutrition, low productivity, low incomes, and so forth, to a more virtuous circle involving improved nutrition, life chances, and better incomes. Such experiences in developing countries with locally procured school-feeding

programmes have shown how under-nourishment, economic development, poverty eradication, and malnutrition can be addressed efficiently in an integrated manner at the local level. Sustainable improvements in nutrition require mutually-reinforcing progress on several nutrition-related fronts or sectors.

5 Summing Up

The twin scourges of hunger and malnutrition can be ended within a generation. It is important to make a concerted effort to target not just deprivation in terms of inadequate dietary energy, but also to address micronutrient deficiencies as well as diet-related non-communicable diseases often associated with obesity and overweight.

Ending hunger and malnutrition are expected to be prominent in the Post-2015 Sustainable Development Agenda. The international community has an important role to play in enabling and supporting national efforts – in the identification and evaluation of policy options; in effective social protection design and finance; trade policy assessment; vulnerability and resilience analysis and developing and implementing measures to improve agricultural productivity and sustainability. A programme for improved international policy coordination to end malnutrition will emerge at the ICN2 in November.

However, major policy action needs to be taken at the national level. Ending hunger and malnutrition requires strong political commitment, leadership at the highest levels, effective cooperation and coordination among various ministries and partners, and broad-based social participation. Experience from many countries has shown that ending hunger and substantially reducing other forms of malnutrition can be achieved through concerted policy efforts.

The basic underlying cause of hidden hunger is the poor quality of diets, lacking sufficient nutrient-dense food such as animal-source foods, fruits, and vegetables. Unsafe water, poor sanitation, and lack of basic healthcare are other major contributors to malnutrition. The most viable, cost-effective, and sustainable long-term solutions to the problems

of malnutrition lie in making food systems nutrition-sensitive. While nutrient supplementation may be useful in specific cases and situations, micronutrient requirements should generally be met through food consumption, requiring more nutrition-sensitive agriculture, with agricultural policies and practices supporting healthier diets.

Improvement in the availability of and access to diverse and nutrient-dense foods is key to ending malnutrition. Three policy priorities are crucial in this respect – expansion of social protection and making it more nutrition-sensitive; improving the productivity and incomes of small producers; making smallholder-agriculture more nutrition-sensitive; focusing on under-five child and maternal nutrition deficiencies.

NOTES

- 1 Undernourishment is conventionally measured in terms of the adequacy of energy in the diet. FAO's Prevalence of Undernourishment (PoU) is an internationally comparable, statistically validated, and widely accepted measure of the chronic inadequacy of dietary energy. Given serious data limitations, a methodologically consistent estimate of the prevalence of hunger can only be made for a relatively low benchmark of dietary energy requirement. The precision of the estimate of the number of hungry people in the world is also constrained in other ways because of data and methodological limitations. While the PoU is crucial for estimating hunger, it needs to be complemented with other measures to capture the complexity of food security in its multiple dimensions as this headline number for world hunger only tells part of the story of under-nutrition. For this reason, FAO has developed a suite of indicators to measure different dimensions of food security, including availability, access, stability, and utilisation (nutrition). Information thus generated can shed light on specific problems to be addressed, and point the way to appropriate policy actions. FAO has also developed the Food Insecurity Experience Scale (FIES) as a tool to fill a crucial gap in global food security monitoring, particularly for assessing the access dimension at the individual and household levels. The FIES directly measures the severity of food insecurity, defined as the extent of difficulty in obtaining food.
- 2 See http://www.who.int/vmnis/database/anaemia/anaemia_status_summary/en/
- 3 See Alderman and Behrman (2004) for a review of studies on the effects of malnutrition on productivity and cognitive abilities.
- 4 See http://www.censusindia.gov.in/2011_census/hlo/Data_sheet/India/Latrline.pdf
- 5 A lot of work has been done on bio-fortification under HarvestPlus, a CGIAR programme (<http://www.harvestplus.org>). Also see, inter alia, HarvestPlus (2014); Bouis (1999, 2000); Cakmak (2008, 2009); Palmgren et al (2008); Rengel, Batten and Crowley (1999); Mayer, Pfeiffer and Beyer (2008); Stein et al (2008); Carvalho and Vasconcelos (2013); Meenakshi

et al (2010); Smith (2013); Saltzman et al (2013).

- 6 See <http://www.thelancet.com/series/maternal-and-child-nutrition>
- 7 See <http://www.un.org/en/zerohunger/> for more details

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