Joseph Molieri/Bread for the World

Unprecedented Gains, Undeniable Challenges: Hunger, Health, and Inequality in Developing Countries

Launching Off Point

The global hunger rate has been cut nearly in half since 1990. It is now at the lowest level in recorded human history: 1 in 9 people. The Millennium Development Goals (MDGs), launched at the beginning of this century, contributed to progress against hunger and other poverty-related hardships. As the MDG era concludes in December 2015, the global community is preparing to embark on a more ambitious set of Sustainable Development Goals (SDGs), which include a goal to end hunger by 2030.

In developing countries, it is clear that hunger and poor health are bi-directional. Death and permanent disability from hunger occur all too often, especially in vulnerable groups such as women of childbearing age and young children. Malnutrition is the underlying cause of 45 percent of deaths among children under 5, and it is one of the main factors driving the deaths of women in childbirth. More than 2 billion people in developing countries suffer from a form of malnutrition known as "hidden hunger," a lack of key vitamins and other micronutrients that contributes to early death and morbidity.

"Countries do not expect charity, they want capacity."

— Margaret Chan, Director-General, World Health Organization[1]

KEY POINTS

- Even as hunger rates decline in every region of the developing world, wide-scale malnutrition from vitamin and mineral deficiencies continues to impose a devastating cost on individuals—resulting in 45 percent of preventable child deaths, poor health outcomes, and lower lifetime productivity.
- Rising levels of obesity are imposing a huge burden on weak health systems in developing countries.
- Universal health coverage is a viable strategy for all developing countries seeking to reduce health inequities related to poverty.
- Violent conflict was a major obstacle to achieving the Millennium Development Goals (MDGs) and could prove an even greater challenge to achieving the more ambitious Sustainable Development Goals (SDGs).
- The worsening effects of climate change are a major threat to sustainable progress against hunger and malnutrition.
- The impact of climate change on global health is an opportunity to focus public attention on the devastating human costs of failing to confront this challenge more aggressively.


Erly Tatontos/World Bank

Indonesian preschool-age children receive nutritious meals as part of the services offered though the national government's Early Childhood Education and Development Program.

Economic growth in developing countries has given people more to eat but, in some respects, it has also worsened their diets. Obesity rates in the developing world are climbing rapidly and, as a result, so are the rates of noncommunicable diseases such as diabetes, hypertension, and cardiovascular disease. There are now three people in developing countries who are overweight or obese for each one in the developed world. Most death and disability from noncommunicable diseases in developing countries occur in working-age people.

The triple burden of hunger, micronutrient deficiencies, and obesity presents a major challenge to the capacity of national health systems in developing countries. Building more capacity to treat all of these conditions will be essential to achieving the SDGs. For one thing, in the years after 2030, countries will have to rely mainly on their own capacity to adapt to climate change. Every country faces the challenge of developing such capacity; how well they do will determine whether hunger and malnutrition can not only be ended, but also prevented from recurring, in an era where the climate is changing unpredictably.

Ending Hunger Is Within Reach

At a United Nations (U.N.) summit in the year 2000, leaders of every country in the world came together to agree on a set of eight global development goals, the Millennium Development Goals (MDGs), using 1990 as a baseline for measuring progress. The period covered by the MDGs comes to a close in 2015, so let's take stock of what has been accomplished.

The first goal (MDG 1) called for cutting global poverty in half. In 1990, 37 percent of people in the developing world lived on less than $1.90 a day, the threshold we use today to measure extreme poverty. In 2015, the extreme poverty rate was estimated to be 9.6 percent.[2] Achieving the MDG on poverty is a remarkable accomplishment that repudiates cynics everywhere who insist that poverty and its associated hardships are always intractable.

By 2013, some 17,000 fewer children under the age of 5 worldwide were dying each day than in 1990.[1]

17,000

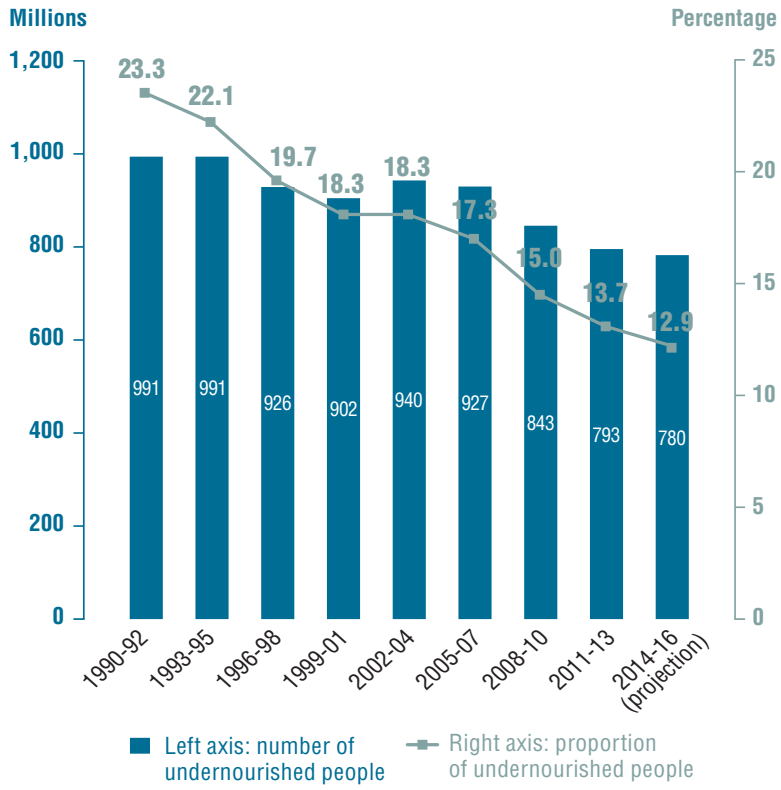
Malaria mortality rates have fallen by **47 percent** globally since 2000. Most deaths occur among children living in Africa where **a child dies every minute** from malaria.[2]

Most remarkable of all, the goal was achieved five years ahead of schedule. By 2011, the extreme poverty rate had dropped still further, to 14.2 percent.[3]

Most of the progress in reducing the global poverty rate has been made since 2000.[4] While people may disagree over how much the MDGs drove this progress, there is no denying that they made a difference. Otherwise, governments would have been less inclined to negotiate goals to succeed the MDGs. In fact, the new Sustainable Development Goals (SDGs) have been the focus of spirited debate for the past couple of years and, at this writing, are on the eve of being adopted by the U.N. member states. The effort to reach the SDGs will last until 2030. One target is to eradicate extreme poverty. If this can be done–particularly in just 15 years–it will be one of the greatest feats in human history.

Figure 3.1 **Progress on Ending Hunger Has Been Significant Despite the Challenging Global Environment**

Number and Proportion of Undernourished People in the Developing Regions, From 1990-1992 to 2014-2016



Source: United Nations (2015), *The Millennium Development Goals Report.*

MDG 1 also called for reducing hunger by half. Though perhaps not as remarkable as the progress against poverty, the reduction in hunger is impressive in its own right. According to the best estimate of the Food and Agriculture Organization of the United Nations (FAO), the world is less than two percentage points away from reaching the MDG target.[5] The percentage of people in the developing world who are undernourished, what we would describe as hungry, has fallen from 23.3 percent in 1990 to 12.9 percent in 2015.[6] See Figure 3.1. The hunger rate

In 2015, **91 percent** of the world's population had access to an improved drinking-water source. Globally, **2.6 billion** people gained access to an improved drinking water source since 1990.[3]

91%

By 2035, **40-50 million new health care workers** will need to be trained and deployed to meet the need for health services.[4]

has declined in every region of the developing world, although progress has not occurred evenly. Southeast Asia recorded the steepest reduction in hunger—from 31 percent of its population hungry in 1990 to 10 percent by 2015. Currently, the highest hunger rate is in sub-Saharan Africa (23 percent), while the largest number of people affected live in South Asia (281 million).[7]

Poverty and hunger are interlocking hardships, which is why they were grouped together as MDG 1. Why was progress against poverty so much more rapid than progress against hunger? People living on $1.90 per day or less spend, on average, between 50 percent and 80 percent of their entire income on food.[8] Global food prices started climbing in the early 2000s and then spiked in 2008—plunging millions more people into hunger and leading to rioting in dozens of countries. Food prices have returned to their levels from before the food price crisis, but in real terms, they remain much higher than in the 1990s.[9] Most hungry and poor people in the developing world live in rural areas and work in agriculture. The poorest rural people are landless laborers and farmers who produce less food than their families need. But although they earn a living as food producers, rural poor people are net food consumers: they spend more on food than they get back in the marketplace as sellers.


Danilo Pinzon/World Bank

Most hungry and poor people in the developing world live in rural areas and work in agriculture.

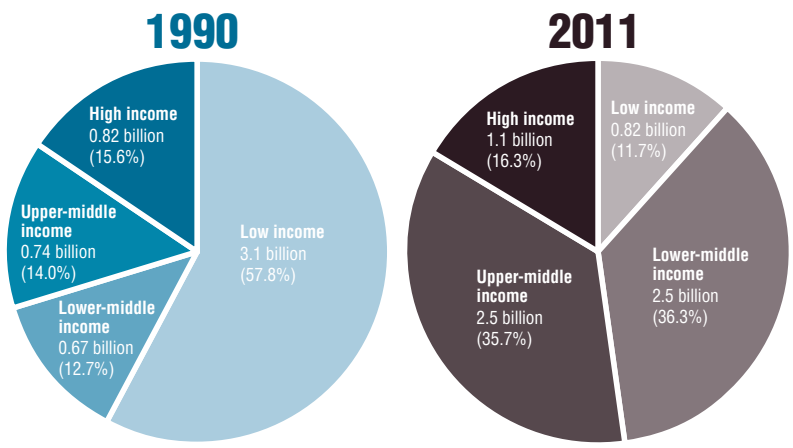
Social protection programs, such as cash transfers, can help households strengthen their ability to cope with crises such as hikes in food prices. Research in Latin American countries shows that cash transfers increase the amount families spend on food and have helped reduce food insecurity.[10] Similarly, in sub-Saharan Africa, national cash transfer programs have made important improvements in food consumption and dietary diversity and have generated economic and productive impacts even among the poorest and most labor constrained.[11] Social protection programs have expanded exponentially since 1990. More than 130 developing countries have established social protection programs, most commonly cash transfers and school feeding programs.[12]

Climate change had little bearing on the design of the MDGs. The "sustainable" in Sustainable Development Goals underscores that climate change now shapes the global development agenda. The MDG era showed that countries could withstand economic shocks and get back on track with development quite quickly. The negative effects of climate change in the SDG era and beyond will require ever more resilience and greater cooperation within the global community, a subject we take up later in this chapter.

As the SDG era begins, economic conditions are much different than at the start of the MDGs. Hunger is no longer largely confined to low-income countries. Middle-income countries are home to the majority of people who struggle with hunger.[13] This is a result of economic growth in countries that were formerly categorized as low-income. In 1990, 57.8 percent of the world's population lived in low-income countries; by 2011, the share living in low-income countries had fallen to 11.7 percent.[14] See Figure 3.2. Nearly half of the world's hungry people live in five middle-income countries with rapidly growing economies: China, India, Indonesia, Brazil, and Mexico.[15] Together, China and India accounted for 81 percent of the reduction in hunger in developing countries. Almost two-thirds of the reduction in global hunger during the MDG era took place in China—and yet there are still 134 million hungry people in China. This number is second only to India with 195 million hungry people—nearly one-quarter of the global total.[16]

Although in some contexts economic growth has lifted millions out of poverty, a close look at the data will also show that inequality is on the rise. One main criticism of the MDGs is that they focused on the "low-hanging fruit" and failed to tackle the underlying social issues that affect people in the deepest poverty. For example, people with disabilities make up 15 percent of the global population but are estimated to be 20 percent of people living in extreme poverty.[17] There is no mention in the MDGs of people with disabilities. Ninety percent of all children with a disability do not attend school, and the literacy rate of disabled adults has been estimated to be as low as 1 percent.[18] Often, poverty is an even more pressing issue for people with disabilities than the disability itself.[19]

Figure 3.2 **Movement of Populations From Low-Income to Higher Income Countries Between 1990 and 2011**



Source: Dean T. Jamison et al. (2013), Global health 2035: a world converging within a generation, *The Lancet*.

By and large, countries that made significant progress toward meeting the MDGs were those that enjoyed sustained economic growth and stable political conditions.[20] In sub-Saharan Africa, progress got under way later than in other regions, but it is now accelerating because of increasing political stability. Ghana has made extraordinary progress, meeting both the MDG poverty and hunger targets by 2010. In fact, it has now reduced hunger from 40 percent to less than 5 percent.[21] This accomplishment was not an automatic result of Ghana's strong economic growth, although it clearly made a contribution. Rather, progress against hunger was achieved through a strategy focused on reaching rural poor families with investments in agriculture and providing social protection policies. The latter included

nationwide programs for cash transfers, school feeding, and health insurance. The country's leaders demonstrated a commitment to good governance that has earned the trust of its development partners.[22] Ghana was the first country to form a compact with the Millennium Challenge Corporation (MCC), a U.S. development program established during George W. Bush's administration, designed for developing countries committed to good governance and investing in their people.


Natalia Cieslik/World Bank

In Gaza, a mother and child in a camp for displaced persons.

The largest-ever expansion of global development aid took place during the MDG years, 2000-2015. Much of the increase came before 2008, the year when global recession led donor governments to turn their attention to domestic priorities. The MDGs, as a donor-driven initiative, were formulated and adopted with relatively little input from developing countries. The SDGs have been created in a far more democratic way. One result is that the goals are universal: they apply to all countries. When the MDG era began, donor governments mainly dictated the terms of their aid. This has changed; partner governments are now gaining more control. MCC is just one example of this trend toward country ownership.

Many middle-income countries neither want nor need donor assistance. They can finance their own development priorities, and some have become donors themselves. This leaves traditional donors, such as the G7 group of developed economies that includes the United States, to focus their attention and resources on countries most in need of external support. In 2015, the G7 nations pledged jointly to lift 500 million people in developing countries out of hunger and malnutrition by 2030.[23]

There is good reason for optimism that the world can end hunger by 2030. At the same time, there are very real challenges ahead that cannot be denied or minimized. For example, violent conflict proved to be a major obstacle to achieving the MDGs and could be an even greater barrier to achieving the more ambitious SDGs. Many developing countries are in conflict. In 2013, an estimated 46 percent of the population of the developing world (excluding China, India, and Brazil) lived in countries affected by conflict.[24] The hunger rate is nearly 40 percent among populations trapped in protracted conflicts.[25]

"Every day," the U.N. reported in 2015, "42,000 people on average are forcibly displaced and compelled to seek protection due to conflicts, almost four times the 2010 number of 11,000."[26] Conflicts are treacherous situations for everyone, including aid workers. In 2014, there were 190 major attacks on aid operations, down from 264 in 2013. But the reason for

the decline was the reduced presence of aid agencies due to safety concerns[27]—which also, of course, reduces their ability to help those in need.

Hunger is both a cause and an effect of civil conflict. In Syria, conflict broke out against the backdrop of a devastating drought that lasted from 2006 until 2010. The drought destroyed the livelihoods of more than half of the country's farmers and herders, and, by 2009, 80 percent of the cattle in the country had died. A wave of migration from the rural areas into cities fanned the flames of longstanding political grievances, exacerbated by the Syrian government's ineffectual response to the food security crisis caused by the drought.[28] The link can also be seen in northeast Nigeria, where fighting between Boko Haram militia forces and government forces has led to rising food prices as farmers abandon their land and flee the violence.[29] As shown in Figure 3.3, food price spikes in Nigeria from 2000 to 2013 closely track the intensity of the country's armed conflicts.

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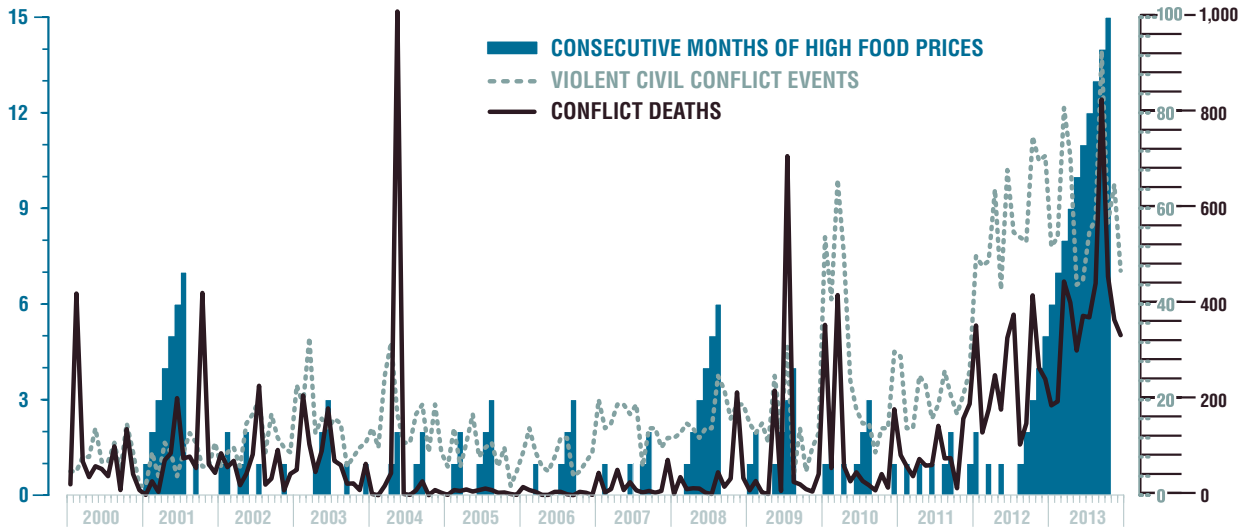
Even as global hunger and poverty continue to decline, the global community cannot ignore people trapped in places such as Syria and northeast Nigeria. The need for humanitarian assistance has soared. The world has been shocked by a series of humanitarian crises and more refugees than at any time since World War II. As the SDGs were being negotiated, there was a constant chorus of nongovernmental organizations shouting from the sidelines, "Leave no one behind."[30] If the SDGs are to live up to their promise of ending hunger and extreme poverty by 2030, there can be no dodging the most difficult challenges.

Figure 3.3 **Food Price Hikes and Intensity of Civil Conflict in Nigeria, 2000-2013**



Source: Clemens Breisinger, Olivier Ecker, and Jean Francois Trinh Tan (2015), "Conflict and Food Insecurity: How Do We Break the Links?" in *2014-2015 Global Food Policy Report*, International Food Policy Research Institute.

Malnutrition's Multiple Burdens

The MDGs used two indicators to measure progress against hunger. In the section above, we discussed the one most frequently reported—the share of people who are undernourished. The second indicator is the share of children under 5 who are underweight. Similar to the first, the goal was to reduce by half the proportion of children who were underweight between 1990 and 2015. In 1990, 25 percent of children under age five were underweight. In 2015, the estimated share is 14 percent—once again more than the target, which is 12.5 percent.[31]

In Senegal, a community-based program teaches pre-teen and adolescent girls about nutrition and good hygiene.

The MDG hunger goal was correct to include a focus on young children, who are especially vulnerable to the effects of hunger and malnutrition. Malnutrition is associated with more than 45 percent of all deaths in children younger than 5.[32] Being underweight is one indication of malnutrition in children, but this alone does not convey the full extent of the dangers of malnutrition to children's health and development. Underweight means the child does not weigh what a child her age should. It's the result of what nutritionists call undernourishment, or consuming too few calories from macronutrients, chiefly protein, carbohydrates, and fats.

What is missing from the MDG goal is a focus on *stunting*, a critical problem that affects one in every four children in the developing world.[33] We can identify stunted children by their appearance—they are far too short for their age. At first glance, this may not seem as serious a problem as being underweight. After all, severely underweight children caught in famines or conflicts are the subject of some of the most disturbing news images ever. But being too short is only the most visible sign of stunting, the proverbial tip of the iceberg.

In the years since 2000, when the MDGs were adopted, we have learned more about the effects of stunting on very young children in particular. The 1,000 days between pregnancy and age 2 are the most critical time of all in human development, when good nutrition make an enormous difference in children's physical and mental development.[34] Children who are stunted before they turn 2 have sustained permanent damage, regardless of whether they reach their normal weight for age later in childhood. They will always be more vulnerable to communicable diseases, they do not do as well in school, they have more trouble earning a living, and they are at greater risk of developing early-onset chronic diseases and disabilities.

The cause of stunting is a poor diet—a child does not receive the right kinds of foods to get essential vitamins and minerals (micronutrients), sufficient macronutrients, or both.

Specific micronutrient deficiencies, or combinations of them, are associated with serious health problems. Vitamin A and zinc deficiencies, for example, weaken children's immune systems and make them more susceptible to infections. Deficits in iodine and iron limit intellectual potential. Despite significant progress in adding iodine to salt, nearly 18 million babies are born with brain damage each year due to iodine deficiency.[35]

"Although [stunting] is not quite as predictive of mortality as underweight, it is much more predictive of economic outcomes (cognitive scores, education, and wages)," write Susan Horton and John Hoddinott for the Copenhagen Consensus Center.[36] Hoddinott separately has studied the effects of stunting on more than 1,000 people in Guatemala as they grew from children to adults. As children they participated in a controlled trial in which one group received an enhanced nutrition supplement. Children in the control group, who were not given the enhanced supplement and were stunted in early childhood, had significantly lower earnings in adulthood than the others.[37]

Latin America is a high-achieving region when it comes to reducing the share of children who are underweight. But if stunting is instead the measure, the region's performance looks far weaker. By 2008, every country in the region was on track to meet the MDG target of cutting in half the rate of underweight, but only five of the 13 countries would have been on track to cut stunting in half.[38]


Kenneth Pornillos/World Bank

Strengthening health systems should start with the capacity development of health workers to provide quality maternal, newborn and child health services.

The SDGs improve on the MDGs by including a goal to ensure food security and improved nutrition for all with a target to end all forms of malnutrition. In developing countries, a poor person's diet consists primarily of the local staple crop. Even those who can afford higher quality foods rich in vitamins and minerals must generally cut back on them during periods of rising food prices.[39] Depending on the country, the most common staples are rice, maize, wheat, and sometimes cassava and sorghum.[40] These provide the calories people need to avoid starvation, give them the energy to earn their livelihood, and enable them to be contributing members of their communities.

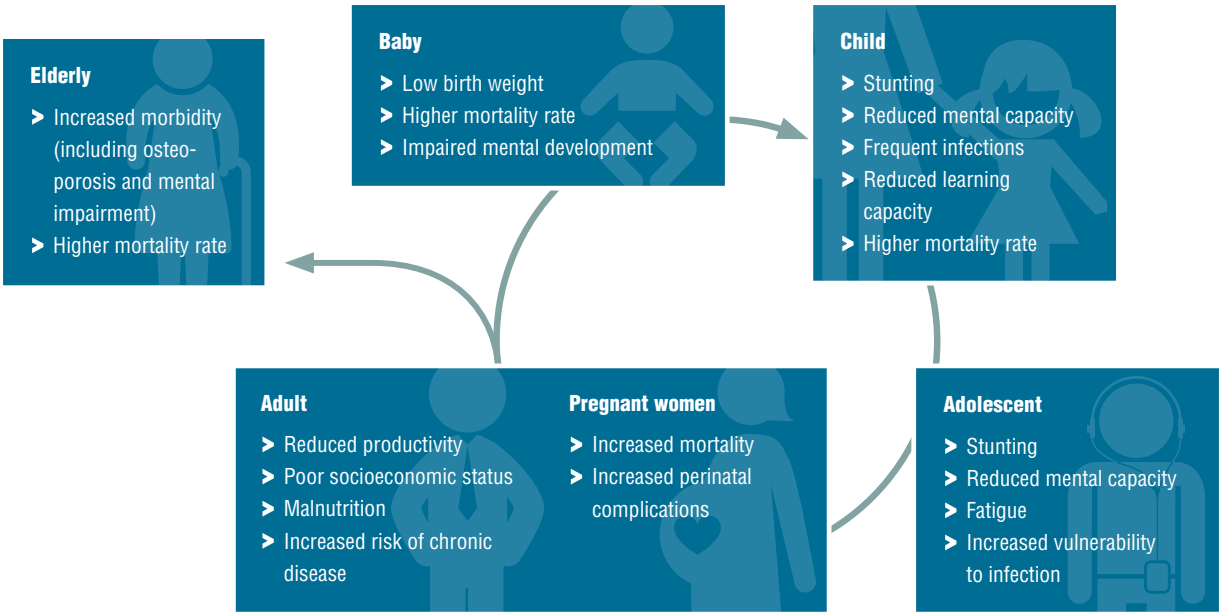
But by themselves, staple crops cannot usually prevent micronutrient deficiencies, sometimes called hidden hunger. Hidden hunger is the most common form of malnutrition; its

consequences can appear at any age. See Figure 3.4. It is estimated that about one in three people in the world suffer from micronutrient deficiencies, the vast majority in low- and middle-income countries.[41] Because children's brains and bodies are developing so quickly, even short periods of micronutrient deficiencies can cause serious damage. Hidden hunger weakens adults as well: Iron deficiency contributes to maternal mortality, thiamine deficiency to nerve and muscle damage, and calcium deficiency to disability in older people because they're more likely to break bones.

The Scaling up Nutrition (SUN) movement is composed of several dozen countries with high levels of malnutrition who are working together to bring proven, cost-effective interventions to scale in their countries. This will hasten the end of the devastation caused by malnutrition, particularly among pregnant women and young children. Food fortification is a cost-effective strategy that can quickly be brought to scale to reduce micronutrient deficits. In 2003, 54 countries were iodine-deficient, but by 2011, this had been reduced to 32 countries as more people got access to iodized salt.[42] The cost-benefit ratio of iodizing salt is estimated to be as much as $81 in health benefits for every $1 spent on the processing.[43] Fortification has also been used to add B vitamins, iron, and zinc to flour and to add vitamin A to cooking oil and sugar.[44] Because they consume higher quantities of commercially processed foods, urban populations are more likely than their rural counterparts to benefit from fortification.

The fastest-growing form of malnutrition in developing countries is obesity, another emphasis in the SDGs that was absent from the MDGs. There are now more than twice as many people in the world who are obese as there are people who are hungry. The majority

Figure 3.4 **Consequences of Micronutrient Deficiencies Throughout the Life Cycle**



Source: Welthungerhilfe, International Food Policy Research Institute, and Concern Worldwide (2014), "Chapter 3: Addressing the Challenge of Hidden Hunger," in *2014 Global Hunger Index.*

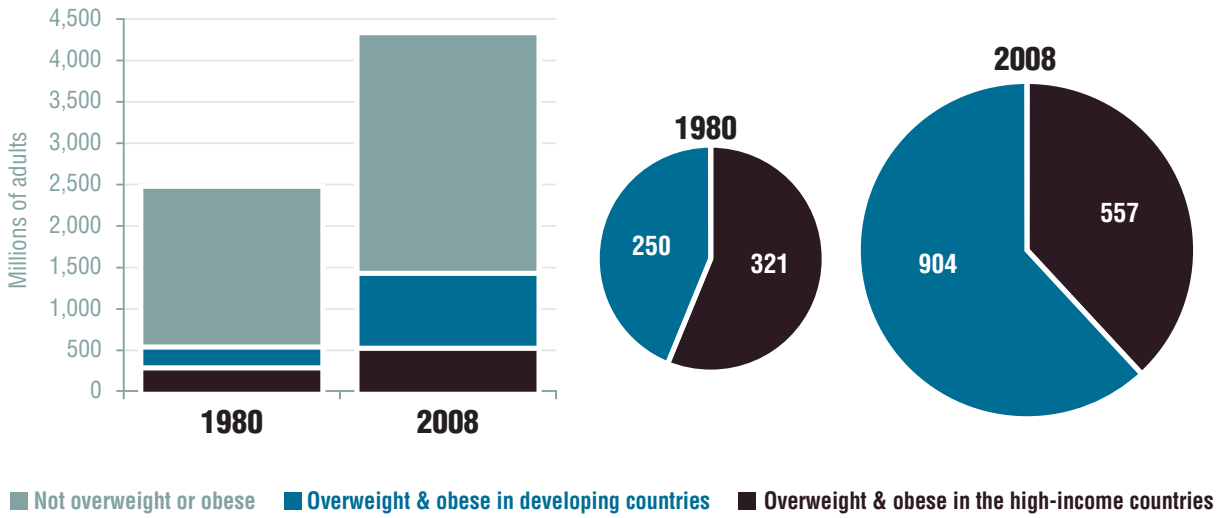
live in developing countries.[45] See Figure 3.5. Rising obesity rates in developing countries could be considered a side effect of progress against poverty: obesity has risen in every part of the developing world where a large share of the population has escaped poverty. For example, in China, a country of 1.2 billion people, the Ministry of Health estimates that one in four people are currently obese.[46] A national survey in 2013 found that 114 million adults (12 percent of the population) have diabetes, with an additional 493 million believed to be pre-diabetic.[47]

"The greatest gift we could give the next generation is to improve the nutrition and growth of girls and young women."

One of the first lifestyle changes people make when they are no longer poor is in what they eat. As household incomes increase, families reduce their consumption of starchy staples and replace them with oils, fats, sugars, and animal products.[48] This "dietary transition" is accompanied by what is sometimes referred to as an epidemiological transition: the prevalence of noncommunicable diseases, such as heart disease and stroke, catches up with, and then surpasses, the prevalence of communicable diseases.[49] Sub-Saharan Africa is the only remaining region where communicable diseases claim more lives each year than noncommunicable diseases.[50] Eighty percent of all deaths from noncommunicable diseases occur in low- and middle-income countries.[51] The consequences of the "epidemiological transition" for families, communities, and economies are especially grave because in low- and middle-income countries, most death and disability from such diseases occur in working-age people (under 60).[52]

In the early 1990s, physician and epidemiologist David Barker advanced an idea about the relationship between hunger and obesity that was at first considered controversial, but is

Figure 3.5 **Explosion in the Number of Overweight and Obese Adults From 1980 to 2008**



Source: Sharada Keats and Steve Wiggins (January 2014), Future Diets: Implications for agriculture and food prices, Overseas Development Institute.

now widely accepted by the medical establishment.[53] The eponymous "Barker hypothesis," also known as the "fetal programming hypothesis," says that children of mothers who are undernourished during pregnancy and grow up in a postnatal environment of food scarcity are "programmed" to become obese in adulthood. If they make a dietary transition to oils, sugars, and animal products in adulthood, most will still not be able to afford the kinds of foods that promote good health. In South Africa, where four in 10 adults are obese, a family whose income is among the bottom third of national incomes would need to spend 30 percent more to achieve a "healthy diet."[54] But these families barely earn enough to meet minimum food needs.

To Barker, what should be done is neither complicated nor expensive. A child's health at birth is most often a reflection of his or her mother's health and nutritional status. It is fruitless to try to improve the health of a child while neglecting the mother; moreover, pregnancy is too late to truly break the cycle of intergenerational malnutrition. Thus, Barker said, "The greatest gift we could give the next generation is to improve the nutrition and growth of girls and young women."[55]

Investing in Global Health Systems

Each year hunger and malnutrition contribute to the deaths of tens of thousands of women in childbirth.[56] In addition to the tragedy of so many young women dying of preventable causes, maternal mortality lowers the odds of infant survival as well. In one study of 90 babies who survived labor and delivery when their mothers did not, less than one-third lived to celebrate their first birthday. This is primarily because babies without mothers are deprived of breastmilk, an infant's main source of nutrition. In addition to providing numerous well-documented health benefits, breastfeeding is also the most affordable feeding option.[57]


Nena Terrell/USAID Ethiopia

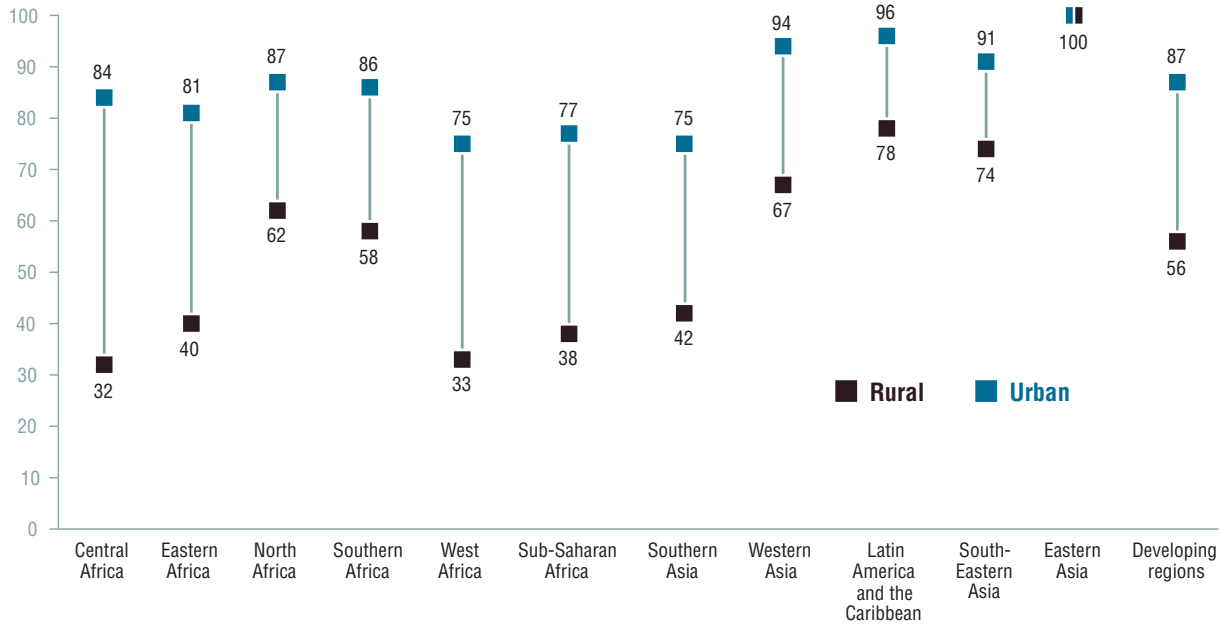
A mother and child at an outpatient clinic in the Southern Region of Ethiopia.

Ninety-nine percent of all maternal deaths occur in developing countries, making maternal mortality the most inequitably distributed health indicator in the world.[58] The rural maternal mortality rate is 2.5 times that of the urban rate.[59] Figure 3.6 shows the differences in access to skilled health personnel in rural and urban areas of developing regions. A higher total maternal mortality rate in a country also usually signals a wider disparity between rural and urban areas.

"Women are not dying because of untreatable disease," explained Mahmoud Fathalla, former head of the International Federation of

Figure 3.6 **Inequalities in Access to Maternal Health Care Persist Across Most Regions**

Proportion of Deliveries Attended by Skilled Health Personnel in Rural and Urban Areas, 2010–2014 (percentage)



Source: United Nations (2015), *The Millennium Development Goals Report.*

Obstetricians and Gynecologists, who did not mince words when getting to the root of the problem. "They are dying because societies have yet to make the decision that their lives are worth saving."[60]

Most nations did not come close to achieving MDG 5, the maternal mortality goal, which called for a 75 percent reduction by 2015. Between 1990 and 2013, the global maternal mortality rate declined by 45 percent, from 380 to 210 deaths per 100,000 live births.[61] Missing from these statistics are the millions of women who survive childbirth but suffer permanent injuries. For every woman who dies of pregnancy-related causes, 20 to 30 others survive with lifelong health problems.[62] One such condition, obstetric fistula, has inspired volunteer physicians from developed countries to travel to communities where it is common and perform the fairly simple corrective surgery needed. Fistula is caused by prolonged obstructed labor.

Poverty is not an excuse for not saving mothers' lives. Some of the world's poorest countries have shown what can be achieved with limited fiscal resources but a healthy dose of political will. Between 1990 and 2013, Cambodia reduced maternal mortality by 86 percent, Timor-Leste by 78 percent, and Rwanda by 76 percent.[63] All three countries accomplished this while also having to rebuild health systems that had been shattered by civil war.

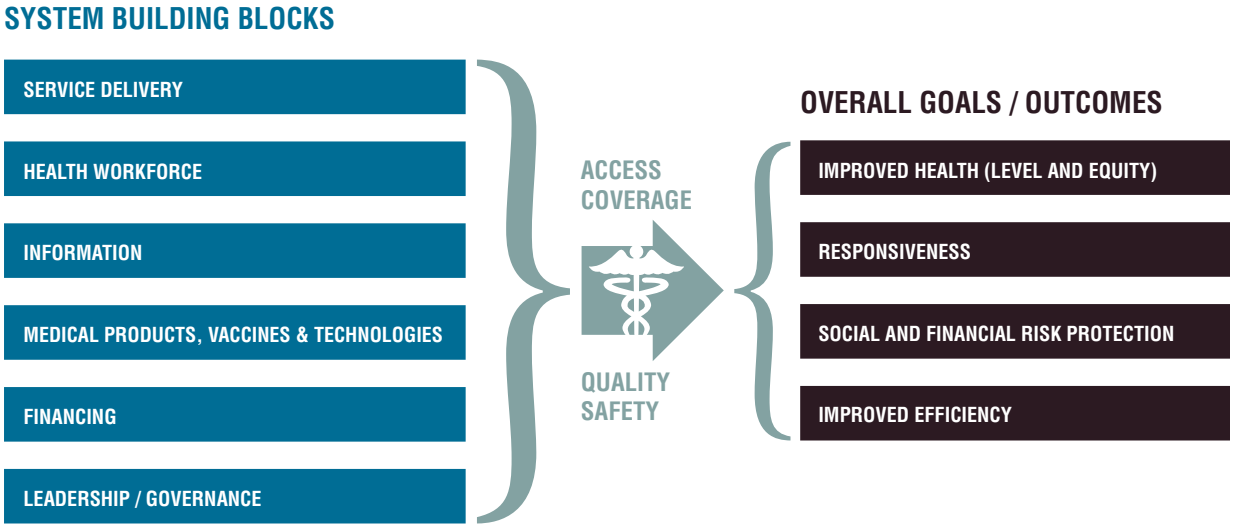
As hunger and malnutrition rates continue to decline, the ripple effects will very likely include progress against maternal and child mortality. But it will take more than enough calories and good nutrition to end preventable maternal and child deaths. USAID has recognized this in its recent Multi-Sectoral Nutrition Strategy—which integrates nutrition into both its agriculture and health programs. National governments and their development partners

must strengthen health systems, so that mothers everywhere, especially those in neglected rural communities, have access to antenatal and postnatal services and the nutritional status of young children is monitored as part of their health check-ups.

Strengthening health systems may not sound as exciting or thrilling as eradicating diseases—and yet, it would be hard to imagine lasting progress against maternal and child mortality without a health system able to deliver quality services to everyone. Service delivery is one of the main building blocks of a strong health system, according to the World Health Organization (WHO) framework shown in Figure 3.7.

Between 1990 and 2014, donors spent $458 billion in aid on health-related programming in developing countries. The U.S. government led the way, providing nearly one-third of it. Over the last decade, U.S. government spending on health has been focused on HIV/AIDS.[64] In 2014 alone, the U.S. government contributed $6.9 billion, which was nearly two-thirds of all global development assistance for HIV/AIDS.[65] By the end of 2014, the President's Emergency Plan for AIDS Relief (PEPFAR), established under President George W. Bush, had

Figure 3.7 **The Health Systems Framework**



THE SIX BUILDING BLOCKS OF A HEALTH SYSTEM: AIMS AND DESIRABLE ATTRIBUTES

- Good **health services** are those which **deliver** effective, safe, quality personal and non-personal health interventions to those who need them, when and where needed, with minimum waste of resources.
- A well-performing **health workforce** is one which works in ways that are responsive, fair, and efficient to achieve the best health outcomes possible, given available resources and circumstances. I.e. There are sufficient numbers and mix of staff, fairly distributed; they are competent, responsive, and productive.
- A well-functioning **health information system** is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance, and health status.
- A well-functioning health system ensures equitable access to essential **medical products, vaccines, and technologies** of assured quality, safety, efficacy, and cost-effectiveness, and their scientifically sound and cost-effective use.
- A good **health financing** system raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them.
- **Leadership and governance** involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, the provision of appropriate regulations and incentives, attention to system-design, and accountability.

Source: World Health Organization (2007), *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes.*

made life-saving antiretroviral treatment available to 7.7 million men, women, and children in dozens of developing countries.[66]

Most global health-related development assistance is dedicated to disease-specific programs, perhaps not surprisingly since the MDGs include a goal of reversing the spread of HIV/AIDS, malaria, and tuberculosis (TB). In 2014, total assistance for health systems development was $2.2 billion, only 7 percent of the overall $35.9 billion in health-related development assistance.[67] The health assistance provided for nutrition included even less—$1.1 billion.[68]


Kendra Helmer/USAID

A scene inside the Cholera Treatment Center in Verrettes in the Artibonite department of Haiti.

Health professionals who advocate for a greater focus on developing health systems have warned of the risks of overemphasizing disease-specific programming. By failing to integrate programs on specific diseases into the partner country's health system, donors end up weakening the health system. This is both because health ministries are tempted to shift their priorities away from system development in favor of going where the donor money is, and because NGOs that implement disease-specific programs offer competitive salaries that lure talented workers away from government jobs—where they are most needed to build a strong health system.[69]

"We have tried the disease specific approach toward health aid and if we take an honest look at the results we will see we have created islands of excellence amid a sea of dysfunction," writes Eileen Natuzzi of the Copenhagen Consensus Center, citing the 2014 Ebola outbreak in West Africa as a graphic example.[70] The United States spent over half a billion dollars on HIV/AIDS programming in Liberia, Sierra Leone, and Guinea combined.[71] Meanwhile, health systems in these countries languished. When Ebola began to spiral out of control, the health systems' capacity to perform basic functions such as disease surveillance and response was quickly overwhelmed.

Before 2014, the worst recorded Ebola outbreak had been in Uganda in 2000, when more than 425 people were infected and half of them died. With support from the U.S. Centers for Disease Control and Prevention (CDC), Uganda's Ministry of Health developed a monitoring system that allowed it to stop four subsequent Ebola outbreaks in their tracks. During the West Africa outbreak, staff members of the Uganda Virus Research Institute were able to offer assistance to the beleaguered health ministries of Liberia, Sierra Leone, and Guinea. In 2015 the U.S. government announced it would help establish an Africa-wide institution modeled after the CDC in the United States. Such an institution could help countries defend themselves against future disease outbreaks, but it doesn't reduce the need

to strengthen the health system capacity of individual countries. Not every health problem is a pandemic.

In 2014, the United States Agency for International Development (USAID) commissioned the Institute of Medicine (IOM) to prepare a report with recommendations on how to maximize U.S. government investments in global health in the SDG era. The report suggested "changes to the U.S. government's foreign aid strategy that would build capacity in partner countries and make a clear statement about the United States' commitment to sustainable development."[72]

Maria Fleischmann/World Bank

A young patient has his vital signs checked at the San Juan de Dios Hospital in Guatemala.

The IOM committee that prepared the report urged USAID to be aware of the shifting patterns of illness: "The purpose of prolonging lives threatened by HIV was not to lose them 10 years later to diabetes, also a gruesome and expensive disease."[73] Noncommunicable diseases threaten to overwhelm health systems in low-income countries as completely as HIV/AIDS did in the worst-affected nations. In 2013, in the 49 countries where U.S. health assistance was $5 million or more, the rate of premature death from noncommunicable diseases was 3.5 times the rate from HIV/AIDS, and 1.6 times the rate of premature deaths from malaria, TB, and HIV/AIDS combined.[74] In 2014, less than 2 percent of global development assistance for health-related programming went to noncommunicable diseases.[75]

Improving health systems in ways that equip them to respond to the rise in noncommunicable diseases can also spur progress against maternal and child mortality. Countries facing growing epidemics of noncommunicable diseases are often the same ones as those struggling with high rates of maternal mortality. Maternal mortality rates are said to be a bellwether for assessing the performance of a health system.[76] Liberia, Sierra Leone, and Guinea, whose fragile health systems were overwhelmed by the Ebola outbreak, have the highest maternal mortality rates in sub-Saharan Africa with the exception of Somalia.[77]

There is a direct correlation between higher maternal/child mortality rates in rural areas and the lack of skilled health workers in these areas. Governments have sought to address the shortage of health workers by training people who already live in the communities that need the services. Women's contributions as informal health care workers are an underappreciated resource in many parts of the developing world. With a modicum of training and support, these women could help relieve the shortage of health workers by providing at least basic primary care.

The Mexican government, for example, works with local NGOs to train traditional birth attendants. These are mothers, sisters, and grandmothers who are already providing this service in communities where there are no formal health workers.[78] In Rwanda, the Ministry

of Health trained 45,000 multi-purpose community health workers, one man and two women in each village, with one of the women put in charge of maternal and newborn care.[79] The workers receive a stipend based on their performance. For example, if there are 100 children in the community who need to be vaccinated and 80 receive the vaccine, the health workers are paid 80 percent of the stipend.[80] In India, to encourage institutional deliveries, the government provides payments to community health workers and pregnant women.[81]

A well-functioning health information system is another building block of a strong health system. A country's capacity to collect and analyze data affects its ability to conduct accurate disease surveillance. The MDGs have been praised for focusing the world's attention on better data collection. As we embark on the SDGs, though, there are still many gaps in the data points that affect development, even the basics. Arguably, this estimate from WHO says it all: around the world, two-thirds of all deaths and almost half of all births are not registered.[82] Gaps in data have far-reaching implications. For example, only 67 countries out of 183, most of them high-income, computed their 2013 maternal mortality rates from civil registration data.[83]

Preventable maternal deaths are not the result solely of too little data or too few skilled birth attendants. One key piece of information captured on an official birth certificate is, of course, the person's birthdate and thus her age. How is this related to efforts to end preventable maternal/child deaths? The demographic group most likely to die in childbirth is girls under 15, followed by girls ages 15 to 19. If a girl's birth is registered with the authorities, it is harder for family or community pressure to force her into marriage and pregnancy while she is still too young.

Still, one in three girls in the developing world are married before age 18, and one in nine before the age of 15.[84] *The leading cause of death for such child brides is pregnancy*. A girl or woman's death in childbirth is generally the end of a life marked by blatant and subtle gender inequalities in her society. Women and girls will finally stop dying in childbirth once their lives are valued so that tragedies such as child marriage no longer take place; once women are able to prosecute men who sexually abuse them, including their husbands, and know that justice will be served; and once women are able to gain control of their own reproductive health.

Mother-to-child HIV transmission has fallen sharply in countries where donor support has made it possible to increase access to antiretroviral drugs.

World Bank

Box 3.1

U.S. LEADERSHIP: ENDING PREVENTABLE CHILD AND MATERNAL DEATHS IN A GENERATION

by Beth Ann Saracco, World Vision

In 2012, the international community came together for the *Child Survival Call to Action: A Promise Renewed*, pledging to end preventable child deaths by 2035, along with advancing new interventions proven to promote child and maternal survival. For its part, the U.S. government has named ending preventable maternal, newborn, and child deaths within a generation (by 2035) a national priority.

In 2014, the U.S. government launched *Acting on the Call: Ending Preventable Child and Maternal Deaths*, an ambitious but achievable plan to save the lives of 15 million children and 600,000 women in 24 countries by 2020. The U.S. Agency for International Development (USAID) announced $600 million in awards with more than 26 partners including Coca-Cola, the Bill & Melinda Gates Foundation, the American Academy of Pediatrics, and Johnson & Johnson.


Simone D. McCourtie/World Bank

Bread for the World's 2016 Offering of Letters is focused on ending preventable maternal, newborn, and child deaths.

The U.S. government is also partnering with the governments of the 24 countries prioritized by *Acting on the Call*. Currently, 13 countries, all in Africa, have developed national strategies that include country-wide targets and scorecards to measure and track progress. In the last two years alone, the countries have collectively achieved an 8 percent reduction in under-5 mortality, saving 500,000 lives.

In 2015, the Reach Every Mother and Child Act, bipartisan legislation that would authorize a U.S. government strategy to better coordinate efforts to end preventable maternal, newborn, and child deaths by 2035, was introduced in the Senate. Additionally, the legislation seeks to accelerate progress toward self-sustainability in partner countries, mentioning supporting country-led development and emphasizing the importance of public-private financing mechanisms as ways to do this. Bread for the World's 2016 Offering of Letters will mobilize Bread for the World members and churches across the country to urge their representatives in Congress to end preventable maternal, newborn, and child mortality.

Acting on the Call is an important sign of political commitment from the U.S. government, and a strategy like that described in the Reach Every Mother and Child Act would help ensure that U.S. efforts are as effective as possible. Combined with what has been achieved by partner governments (such as the 8 percent decrease in child mortality mentioned above and many other "success stories" in countries ranging from Bangladesh to Ghana) and the inclusion of these objectives in the SDGs, U.S. efforts should generate powerful momentum toward the day, just 20 years from now, when all preventable maternal/child deaths are actually prevented.

Before joining the government relations team at World Vision, Beth Ann Saracco was a senior international policy analyst in the government relations department at Bread for the World.

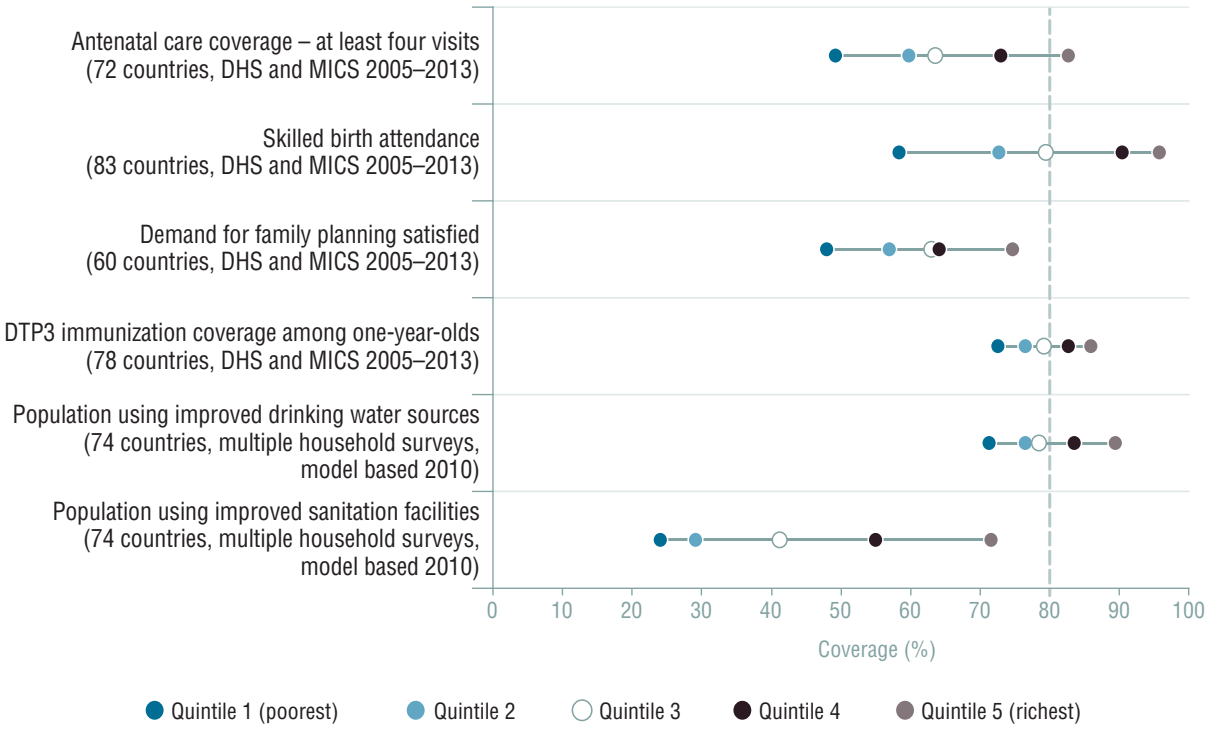
Universal Health Coverage

The 1948 Universal Declaration of Human Rights states that every person has a right to a standard of living adequate for health, including medical care, and the right to security in the event of sickness or disability.[85] Until the end of the 20th century, this statement seemed to be a vision that could be realized only in rich countries. But a great deal has changed in just the last 15 years: dozens of low- and middle-income countries have established national systems of universal health coverage.

Since 2010, WHO and the World Bank have provided technical assistance on universal health coverage to more than 100 low- and middle-income countries.[86] These include the heavyweights we might expect to be part of this group, such as China, India, and Brazil, where years of rapid economic growth have made it possible to finance big, ambitious social initiatives. But there are scores of countries who appear to be punching well above their weight class. Ethiopia, Kenya, Mali, and Rwanda, among others, are determined to provide universal health coverage.

As of now, universal coverage is more a direction than a destination. As economies grow and governments are able to finance expansion, they will go about filling in gaps in coverage and

Figure 3.8 **Median Coverage of Selected Interventions by Wealth Quintile, in Low- and Middle-Income Countries**



Source: World Bank and World Health Organization (2015), *Tracking Universal Health Coverage: First Global Monitoring Report*

improving the quality of health care services. It took Germany—which has the world's oldest universal health care system—127 years to insure everyone.[87] It was slow going in part because for decades Germany had no other countries to compare experiences with. The Joint Learning Network for Universal Health Coverage, a group of 22 developing countries at this writing and growing quickly, has come together to share best practices and offer one another support.[88]

In 2015, WHO and the World Bank published the first global monitoring report on universal health coverage. While a report by itself doesn't do much to speed progress, the fact that these institutions plan to monitor developments annually signals that something real is under way. In another encouraging sign, the SDG on health includes the following description of what health care means: "Achieve universal health coverage, including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all."[89] Also included in the SDGs are the health indicators left over from the MDG era (these include maternal and child mortality, communicable diseases, water and sanitation, and, of course, hunger) with updated targets. As with the MDGs from 2000 through 2015, the SDGs are a way of holding government accountable, this time until 2030.


Graham Crouch/World Bank

In Afghanistan, the national government's universal health care scheme has prioritized maternal and child health.

Policymakers can target people most in need through a principle known as "progressive universalism." As defined by researchers Davidson Gwatkin and Alex Ergo in *The Lancet*, it ensures that "people who are poor gain at least as much as those who are better off at every step of the way toward universal coverage, rather than having to wait and catch up as that goal is eventually approached."[90] This is the fairest, most equitable approach. It is important that governments explicitly commit to equity in universal health coverage. It cannot be taken for granted since public spending in developing countries has historically favored the rich.[91] A 2013 study of India's publicly-funded health expenditures found that less than 10 percent are for the poorest fifth of the population, while the richest fifth receive nearly 40 percent.[92]

Save the Children argues that universal health coverage may ultimately prove to be the best way of ending preventable maternal, newborn, and child deaths.[93] Since women and children are the most affected by health care inequalities, they will gain most from coverage if it is a well-designed plan.[94] Women receive unequal health care throughout the life course. In addition to the relative lack of progress on health problems that affect only women, such as the soaring rates of pregnancy anemia that contributes to many deaths in childbirth, women receive poorer care than men for universal health issues. For example, middle-aged

and older women are diagnosed later and receive poorer care than men for cardiovascular disease and cancers.[95]

Essential services that save lives must be provided free, since a copayment that seems minimal to officials may still be too high for families living in poverty. In fact, out of pocket health care costs are one of the main reasons people sink into poverty and remain stuck there.[96] Every year, at least 150 million people face catastrophic spending for health care expenses, most in low- and middle-income countries.[97] In India alone, health care costs drove 60 million people into poverty in 2010. One reason is that more than 60 percent of all the expenditures on health care in India are out of pocket costs.[98]

Mexico's national insurance program, Seguro Popular (Popular Health Insurance), set as its first priority to reduce maternal mortality.[99] Established in 2003, by 2012 the number of people covered reached 52.6 million, the majority of them from the poorest half of the population. Mexico currently has one of the lowest maternal mortality rates in the Latin American region, and since the introduction of Seguro Popular, there has been a significant reduction in the gap between rural and urban areas. The maternal mortality rate in rural Mexico is currently 5.5 per 10,000 live births, versus 4.9 per 10,000 in urban areas.[100] The rural maternal mortality rate in the rest of Latin America is 16 per 10,000, while the urban rate is 8 per 10,000.[101]

In Nepal, a community health volunteer, dressed in blue, performs a routine check-up on mother and baby to make sure both are healthy.

The costs of universal coverage will vary by country, and the services will depend on what is feasible in each situation. The poorest countries may not be able to afford more than basic services. Afghanistan offers a health package that includes child immunization; micronutrient supplementation and nutrition screening; tuberculosis and malaria control; prenatal, obstetrical, and postpartum care, and family planning.[102] The first year this package was available free, there was a 400 percent increase in take-up for these services.[103] Middle-income countries such as Mexico can afford to offer more than this. Seguro Popular, for example, guarantees more than 300 services at this point, including treatment for all types of cancer in children, cervical and breast cancer, and HIV/AIDS.[104]

As government spending on health care increases, out of pocket costs tend to decrease, making health care more affordable to poor people.[105] In 2004, the Rwandan government enacted a national health insurance system that reduced out of pocket spending to 20 percent of the country's total expenditure on health, compared to an average of 56.2 percent for Africa as a whole.[106] Compare Rwanda's experience with that of Sierra Leone prior to the Ebola outbreak. Health care expenditures in Rwanda were $66 per capita, in Sierra Leone $96 per capita. But in Sierra

Leone, the government's share was only $16 per capita (less than 17 percent), while nearly all the rest came from the patients' own pockets.[107] In Rwanda, the insurance system produced almost the exact opposite result: government paid 80 percent and patients paid 20 percent. Whether we can prove causality or not, it is certainly worth noting that over the period 2000-2014, Rwanda had the world's highest average annual reduction rate in maternal and child mortality,[108] while Sierra Leone has the world's highest rates of both child[109] and maternal[110] mortality.

Countries are not embracing universal health coverage because they suddenly discovered that it's guaranteed under the Universal Declaration of Human Rights. Rather, spending on health contributes very directly to economic growth and decreased poverty. The returns on investment in health range from striking to staggering. A package similar to the one described above in Afghanistan would yield a return of 9 to 1 in the 74 countries that account for 95 percent of maternal and child deaths.[111] Many factors contribute to making this a great investment for financial, social, and moral reasons—lives saved, disability prevented, gains in productivity, increases in savings, rising GDP, and more.


Arne Hoel/World Bank

Access to clean drinking water leads to improvements in public health and serves as a catalyst for lifting people out of poverty.

The challenge to national governments and their development partners is to deliver quality services efficiently to an increasing number of people. Low-income countries will not be able to scale up without assistance from development partners. In middle-income countries, however, economic growth has created a broader tax base to finance the expansion of health services through domestic revenues. WHO's 2010 World Health Report focused on health system financing. Researchers estimated that between 20 percent and 40 percent of health spending in low- and middle-income countries is wasted through inefficiencies.[112] One way development partners can contribute is by helping developing countries strengthen their capacity so that they become more efficient.

Of course, spending depends on revenue. Developed countries have systems that make tax collection more efficient, which in turn boost government revenues and make it possible to expand services. One study of data from 89 low- and middle-income countries found that an additional $100 per capita in tax revenues substantially increased the proportion of skilled birth attendants.[113] In low-income countries, more efficient and accountable tax systems would also reduce reliance on aid; some nations are already far less dependent on foreign assistance than people in donor countries might expect. Financing universal health coverage will ultimately depend on a sustainable stream of revenue from domestic sources, now being called Domestic Resource Mobilization in international development parlance. See Box 3.2.

Achieving Sustainable Progress Against Hunger and Malnutrition

Ending global hunger by 2030 is within reach. But whether hunger is gone for good will depend on the effectiveness of a globally coordinated response to climate change. Climate change is the sustainable development challenge of the century, and without a response commensurate to the challenge, we will surely see the reversal of decades of progress against poverty, hunger and malnutrition, maternal and child mortality, and other development goals included in the MDGs and SDGs.

Climate change is caused by excessive amounts of the greenhouse gases that blanket the earth's atmosphere and trap heat. The effects are visible in the increased frequency and severity of storms, floods, heat waves, and droughts. California's persistent drought, the worst on record, has been linked to climate change.[114] Climate scientists project that unless there are reductions in greenhouse gas emissions, these impacts will only get worse.[115]


Dominic Sansoni/World Bank

In Sri Lanka, solar panels are used for lighting village homes.

The formation of greenhouse gases is natural—the problem is that human activity has increased their levels enough to raise the temperature of the entire planet. The burning of fossil fuels since the dawn of the industrial age more than 250 years ago has added substantially to the amount of carbon dioxide (CO2) in the atmosphere. CO2 is not the most noxious of the greenhouse gases, but it is the primary reason the climate is changing so rapidly.[116] Unfortunately, economic growth is still driven mainly by energy produced from fossil fuels. As national economies continue to develop, the amount of carbon dioxide pouring into the atmosphere surges.

Humanity is fortunate that technological advances have made it possible to fuel economic growth with renewable sources of energy that do not contribute to climate change.[117] The issue now is forging a global partnership to invest in renewable energy sources and commit to using them—and to do so on a large enough scale to prevent further damage to Earth's climate. We have reached a critical juncture in global politics. Sustainable development—reducing poverty, ending hunger and malnutrition, educating everyone, and more—depends on nations' ability to contain and manage climate change. The damage already done cannot be undone, but the most affected communities can be supported in adapting and in developing strategies to increase their resilience in the future. Delaying the necessary investments in renewable energy, however, will only increase their ultimate price tag. The technological barriers to addressing climate change have been overcome—the biggest barrier remaining is political.

Box 3.2

THE ROLE OF DOMESTIC RESOURCE MOBILIZATION IN ACHIEVING DEVELOPMENT GOALS

by Steve Damiano

The scope and ambition of the Sustainable Development Goals (SDGs) will require developing countries to mobilize more domestic resources for development. At the Financing for Development (FFD) Conference in Addis Ababa, Ethiopia, in July 2015, developing countries committed to raising more of their own resources for development (often called "domestic resource mobilization" or DRM), and developed countries pledged to support them in this effort.

During the conference, the United States, the Netherlands, the United Kingdom, and Germany developed the Addis Tax Initiative, under which donor countries commit to doubling the amount of foreign assistance they devote to helping the governments of developing countries reform their tax systems and raise more tax revenue.[118] Donors also agreed to provide significant capacity building assistance for tax administration to countries that demonstrate good financial governance and commit to achieving the SDGs. Recipient countries agreed to use new revenues for public services to help meet SDG targets.

El Salvador's tax reforms led to a $160 million increase in annual spending on social programs, which in turn helped to reduce poverty.

Ultimately, eliminating poverty and hunger takes both economic growth and the development of strong social safety nets. But low tax revenues mean that many developing country governments cannot afford to establish basic public services. It's a vicious circle, since the weakness of public services in turn limits economic growth and stifles any nascent social contract between the state and citizens. Tax mobilization, on the other hand, can lead to institutional development and better governance, creating an economic environment that attracts foreign direct investment and encourages local businesses to invest their profits domestically.

Donors tend to support partner countries' pursuit of DRM where there are good governance environments and governments are committed to reform. The support primarily comes through technical assistance (TA) missions. A typical tax reform effort begins with either the International Monetary Fund (IMF) or a donor agency assessing a country's overall tax system. The IMF has the greater expertise in such a "tax diagnosis," and, accordingly, it is active in more than 120 countries.[119] During short-term TA missions, the IMF uses a tax diagnostic tool to assess the strengths and weaknesses of a particular system. Who is paying taxes and who is not paying? Many developing countries have an extremely high degree of inequality, so low tax revenues may be a sign that elites in the country pay little in taxes.

The U.S. government contributes funds for the IMF and multilateral banks (which include the World Bank, the African Development Bank, and the Inter-American Development

Bank). All are involved with one form or another of tax policy assistance to developing countries. Within the U.S. government, the U.S. Treasury's Office of Technical Assistance (OTA) Revenue and Policy Administration team has primary responsibility for helping countries improve their tax administration. The OTA team meets with a government's tax bureau officials to evaluate the climate for tax reform.[120] Before entering into an agreement to provide technical assistance, the OTA team seeks to verify that anti-corruption safeguards are in place and that tax officials will receive needed support from senior leadership. OTA then either provides a permanent adviser to work with the country's tax bureau or periodically sends a team to give support.

USAID reports that the government of El Salvador used development assistance funds to implement tax reforms that, between 2005 and 2010, enabled the collection of an additional $1.5 billion in tax revenues.[121] The $5.8 million invested in El Salvador's tax reforms led to a $160 million increase in annual spending on social programs, which in turn helped to reduce poverty.[122]

John Hogg/World Bank

Domestic resource mobilization is crucial to financing large-scale infrastructure projects.

Beginning with the Paris Declaration in 2005, donors have officially acknowledged that every country must fully own its development and needs to strengthen its institutions in order to do so. Over the next 15 years poverty will become increasingly concentrated in fragile states, where governments have limited capacity to carry out basic governance functions.[123] The U.S. government and other donors need to strike a balance between awarding the funding available for DRM to countries where it is most likely to succeed, and funding DRM in countries that are making the least progress toward achieving the MDGs and SDGs. If they ignore the latter, the world as a whole will be unlikely to achieve the SDGs.

Steve Damiano was a Crook Fellow with Bread for the World Institute in summer 2015. He recently earned dual master's degrees from the University of Texas at Austin in Global Policy Studies and Middle Eastern Studies.

Climate may be the quintessential example of a public good. Shared by everyone, owned by no one, and therefore most vulnerable to the "tragedy of the commons." But no country has the ability to wall itself off from climate change. Carbon burned in Shanghai contributes to drought in California. All bear the consequences, although not all bear them equally. The least developed countries are and will be affected most severely of all, while high-income countries have resources to build the infrastructure to adapt. The Green Climate Fund, established under the United Nations Framework Convention on Climate Change, seeks to raise $100 billion a year in additional development assistance by 2020 to help vulnerable developing countries adapt.[124] The additional $100 billion would be available, with some to spare, if developed countries lived up to their agreement, most recently in the SDGs and the MDGs but previously as well, to provide official development assistance up to 0.7 percent of their gross national income. The Obama administration committed the United States to its share of the Green Climate Fund, but Congress has yet to approve any funding for it.


Thomas Sennett/World Bank

Farmers plant rice in Bangladesh, one of the countries most threatened by climate change.

Even under today's best-case climate change scenarios, it will be a challenge to produce enough to feed everyone. The world population is expected to reach 9 billion by 2050, meaning that agricultural productivity will need to increase by 60 percent to meet population growth.[125] The agricultural sector itself accounts for roughly a fifth of global greenhouse gas emissions.[126] Supply shortages could have a direct effect on food prices and ultimately on food security. Producing enough food to feed everyone will depend primarily on innovation, more sustainable farming practices, and less waste of food.[127]

Low-income people in poor countries depend mostly on staple foods as their main source of calories and nutrients. One of climate change's many complications is that the nutritional content of many staple foods has been proven to decrease as carbon dioxide (CO2) levels rise. One study on wheat, rice, barley, and potatoes found a 10 to 14 percent reduction in protein.[128] In wheat, and to a lesser extent in rice, higher CO2 conditions have been shown to reduce levels of zinc and iron,[129] essential micronutrients for maternal and child health.[130]

In a review of 48 countries affected by climate-related disasters such as floods, droughts, and tropical storms, FAO estimated that the agricultural sector absorbed 25 percent of all losses and damage.[131] Agriculture employs the great majority of the workforce in low-income countries, so these are potentially catastrophic losses for large numbers of people who are least able to cope with them. More than 90 percent of the world's 570 million farms are managed by an individual or a family and rely predominately on family labor. Most are smaller than 2 hectares (4 acres).[132] Ensuring food security entails public policies that recognize and respond to the challenges faced by family farms.

Feed the Future, the U.S. government's main global food security program, provides technical assistance to smallholder farmers in some of the most vulnerable countries.

One of Feed the Future's six main areas of focus is climate-smart development, along with gender integration, improved nutrition, inclusive growth in the agriculture sector, engagement with the private sector, and research and capacity building.[133] These important focus areas can be mutually reinforcing. For example, women and girls suffer the majority of the damage to human health that climate change causes. During periods of climate-related food scarcity, they are more likely than men and boys to have compromised nutritional needs.[134] Thus, climate-smart development can be even smarter if it takes into account how gender norms interact with food insecurity and malnutrition.

U.S. development assistance was climate-smart before there was such a term. USAID and the National Science Foundation, for example, funded the development of an early warning system that has drastically reduced the damage from tropical storms and flooding in Bangladesh. The Climate Forecast Applications Network (CFAN) accurately predicted three major floods at least 10 days in advance in 2007 and 2008, allowing farm households to harvest crops, shelter animals, store clean water, and secure food ahead of time.[135] Peter Webster, one of the scientists at Georgia Tech who helped develop CFAN, writes that extending the network to the rest of South and East Asia would cost approximately $1 million per year while averting "billions of dollars of damage and protecting thousands of lives."[136]

In 2009, *The Lancet* published a report that stated unequivocally, "Climate change is the biggest global health threat of the 21st century."[137] The report came out six months before the annual United Nations Climate Change Conference. But there is little to suggest that the report had any influence on the negotiations at the conference, since governments did not agree on terms for substantive reductions in greenhouse gas emissions.

Residents of one of the devastated communities in the Philippines prepare for clean-up efforts after Super Typhoon Haiyan.


LWR/Brad LaBriola

The health impacts of climate change are often not well communicated to the public—or to policymakers. As a result, the climate change conversation is informed more by information on CO2 levels than by the numbers of children who will die from malnutrition. "Health puts a human face on what can sometimes seem to be a distant threat," write the editors of *The Lancet*. "Public concerns about the health effects of climate change, such as undernutrition and food insecurity, have the potential to accelerate political action in ways that attention to carbon dioxide emissions alone do not."[138]


Dominic Chavez/World Bank

A mother and daughter, Ebola survivors from Freetown, Sierra Leone, lost ten family members to the disease.

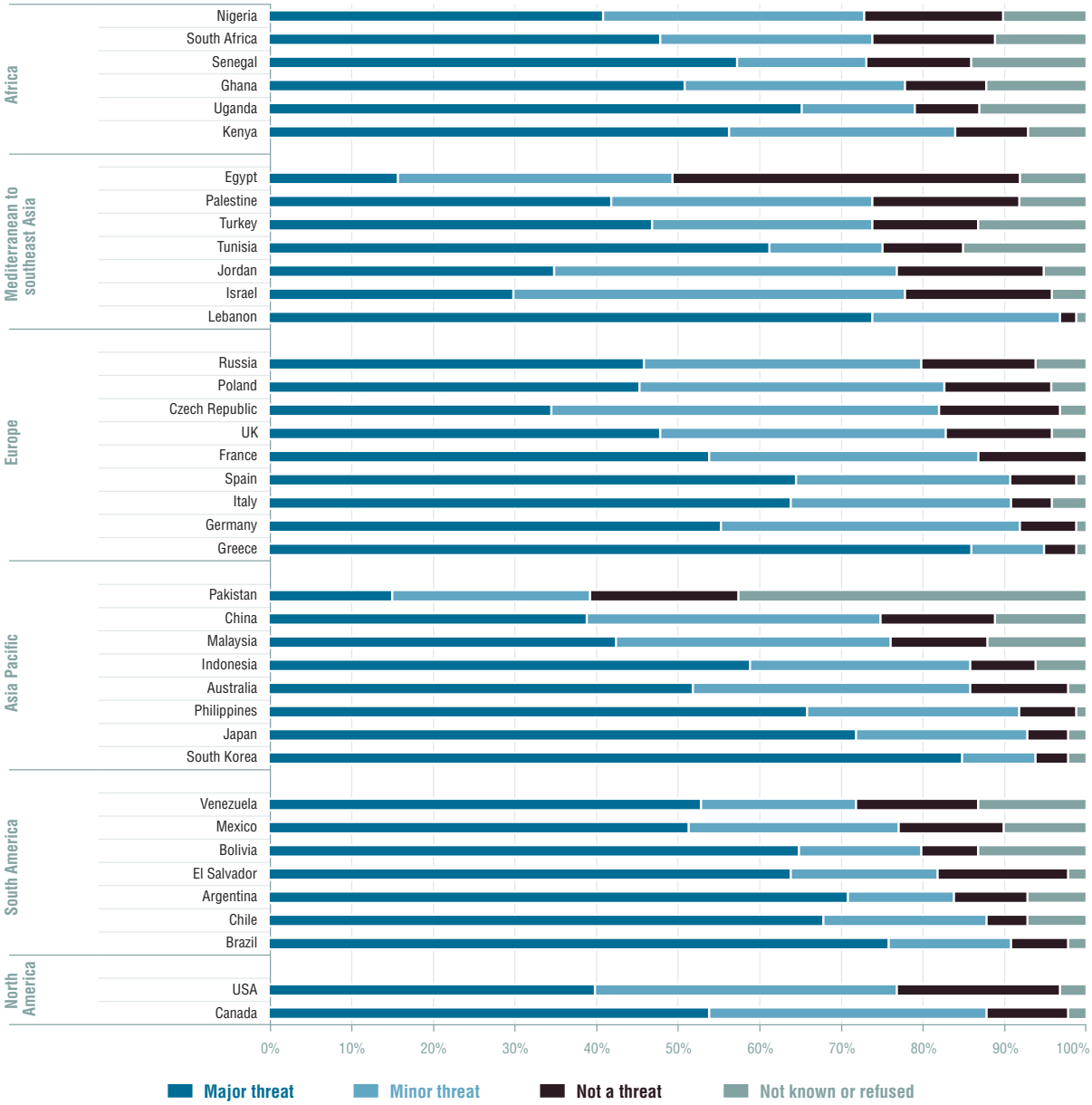
In 2015, *The Lancet* published a follow-up to its earlier report on climate change and global health, this time declaring, "Tackling climate change could be the greatest global health opportunity of the 21st century."[139] Framing climate change as an opportunity rather than a threat is more than a rhetorical hook. The 2015 *Lancet* report is a clarion call to colleagues in global health to speak more forcefully on the threat of climate change and to help educate policymakers and the public about the consequences of delayed action. "The best defense is the same one that will protect us from outbreaks of infectious disease, and the mounting burden of non-communicable diseases: strong, flexible, and resilient health systems," says WHO Director-General Margaret Chan.[140]

In many countries, the public is still divided over climate change and what needs to be done. In China and United States, the top CO2 emitters, only 40 percent of the population views climate change as a threat.[141] See Figure 3.9. But public pressure is required to move national governments to take bolder action on the problem. In December 2015, just weeks after the release of this Hunger Report, the latest UN conference on climate change convened in Paris, with pressure mounting for governments to act boldly. Until our protests are too loud for government leaders to ignore, we should not expect major breakthroughs in these or other international climate change negotiations. There are simply too many other priorities to preoccupy leaders when they return home, and there are simply too many other ways to spend political capital that offer a quicker return on investment.

In 2015, Pope Francis, the head of the Catholic Church, inserted himself into the global debate on climate change with the release of his second encyclical, *Laudato Si'*, on the environment. Addressed to everyone on Earth, not just the 1.2 billion Catholics, it is the first encyclical on the environment by any pope. In it, Francis bluntly equates destruction of the environment, including climate change, with injustices suffered by poor people: "We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis, which is both social and environmental. Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature."[142]

Hunger and poverty have not been a priority for the U.S. president and Congress for decades. As damage from climate change has mounted, the majority in Congress has refused to take action. Climate change has not been a compelling issue for most U.S. voters. Pope Francis just might help us achieve a shift in national priorities, so that our nation's elected leaders help to put the United States and the world on track toward the virtual end of hunger. Vigorous action to address climate change is an important aspect of what is needed to end hunger.

Figure 3.9 **Perceptions of the Threat of Climate Change, 2013**



Source: Nick Watts et al. (June 2015), *Health and climate change: policy response to protect public health*, The *Lancet* Commission on Health and Climate Change.

THE NUTRITION VISION OF THE *2030 AGENDA* FOR SUSTAINABLE DEVELOPMENT

by Jomo Kwame Sundaram, Food and Agriculture Organization of the United Nations

In late September 2015, more than 150 heads of state and government, accompanied by thousands of senior officials, world-renowned experts, leaders of civil society and the private sector gathered at the United Nations in New York for the largest summit in history. The summit outcome, which bears the title *Transforming our World: the 2030 Agenda for Sustainable Development*, is remarkable in many respects. It is the product of a consultative process led and owned by the member states themselves, unfolding across the globe in waves over the past three years, and actively engaging citizens as well as governments, small and large organizations, experts and non-experts from all walks of life.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The *2030 Agenda* builds on the scope and ambition of the Millennium Development Goals (MDGs). Drawing from the experience of the MDGs, member states have been unanimous in their conviction that sustainable development does not result from selecting among isolated problems and designing highly focused technical solutions. The leading insight behind the new Sustainable Development Goals is that sustainable development arises from recognizing that real world development is seldom confronted by a single problem for which there is a single solution, but rather proceeds by dealing with sets of interlinked problems for which creative, context-specific and people-centric solutions are required.

How this is all meant to work can be seen through the approach that is taken to malnutrition in the *2030 Agenda*. Those who look for specific mentions of nutrition or malnutrition will almost certainly be disappointed. But they make a fundamental mistake in understanding how the new agenda conceives of the development process and how much of the new agenda is related to ending malnutrition.

How does *Agenda 2030* pose the problem of malnutrition? First, and most explicitly, in Sustainable Development Goal 2: "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" and in its multidimensional Target 2.3: "By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons." Target 3.4 implicitly refers to obesity-related malnutrition and its impacts: "By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being."

And yet this is only the beginning. Much more can be added through specific targets, inter alia, on poverty eradication, women's empowerment, improved sanitation, maternal health, access to water, and reductions of food loss and waste. As the UN Secretary-General has pointed out in his report to member states, there are at least 6 goals and 18 targets in the *2030 Agenda* that are materially related to nutrition.

Malnutrition will not be ended without addressing the variety of social, economic, environmental, and cultural factors that contribute to it. An updated UNICEF conceptual framework, depicted in Figure 3.10, makes a critical distinction between "basic," "underlying," and "immediate" causes of malnutrition and premature death.

- At the **basic** level, poverty, inequality, discrimination against women, and the excluded voices of children, the elderly, and other social groups in decision-making processes are fundamental impediments to lasting solutions.
- At the **intermediate** level, the emphasis is on the institutional structures and systems—especially systems for health and food, water, and sanitation, as well as deteriorating environmental conditions—that result from the basic causes, but also institutionalize the underlying poverty and inequalities.
- Finally, at the **immediate** level are the proximate causes—chiefly the lack of access to adequate nutrition or dietary intake and unavailability of appropriate health care: mutually reinforcing causes of poor nutritional status for individuals, households, and disadvantaged and vulnerable social groups.

Who will pull all of this together, and how will they do it? The *2030 Agenda* does not specify. That responsibility is left to the member states and their many partners. But behind the agenda stands a new global structure for monitoring and evaluation, shared learning and capacity building, voluntary reporting and mutual accountability among partners. Embedded in this structure are all the institutions of the UN system that now not only have to meet new expectations, but are challenged to play a new role as enablers and facilitators of broad societal engagement to support government-led and owned political action to end malnutrition in all its forms.

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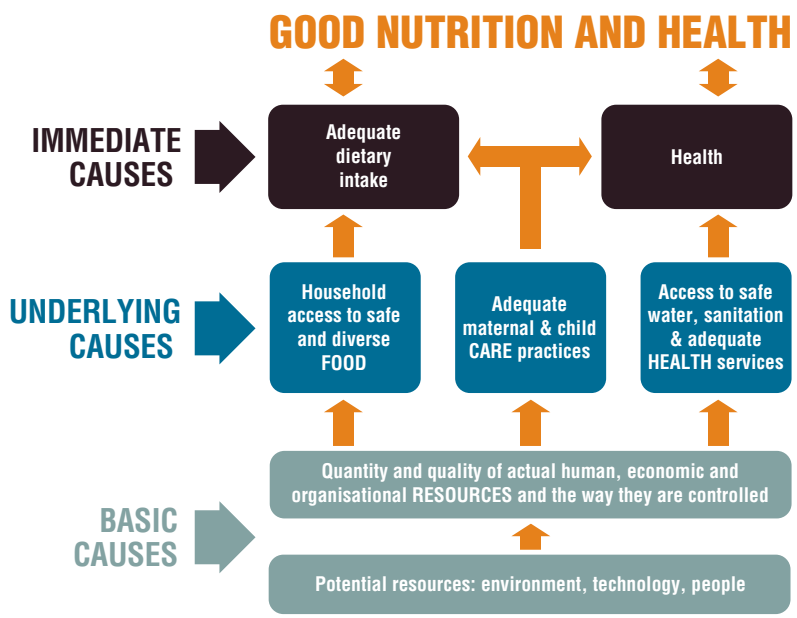
Figure 3.10 **Basic, Underlying and Immediate Causes of Malnutrition**



Source: UNICEF