



**2018**

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# Global Nutrition Report

**Shining a light to  
spur action on nutrition**

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# ENDORSEMENTS

**Danny Sriskandarajah, Secretary General, CIVICUS: World Alliance For Citizen Participation and SUN Movement Lead Group member**

This report underlines two priorities that I see as key: breaking down silos and investing in new data. We are not going to make progress on nutrition or indeed wider sustainable development goals unless we address these two issues. I hope that those of us involved in the SUN Movement, especially the civil society networks, will use this valuable data and analysis in the report.

**Dominic MacSorley, Chief Executive Officer, Concern Worldwide**

Malnutrition is one of the biggest threats to human and economic progress, but it is both preventable and treatable. While the recent rise in global hunger is extremely worrying, evidence of its concentration in fragile and conflict-affected states motivates us to work harder in these contexts. Understanding the problem better equips us to identify more solutions and to improve our learning.

Concern values the *Global Nutrition Report* as a unique resource that synthesises data from a vast range of sources and at multiple levels to guide us towards evidence-based action, and enables greater accountability for efforts undertaken by donors, governments and ourselves as civil society. The report shows us that even though progress against malnutrition has been slow, it is very much possible.

**Dr Gunhild Stordalen, Founder and Executive Chair, EAT and SUN Movement Lead Group member**

The *2018 Global Nutrition Report* reminds us why taking action against malnutrition is of immense urgency. The report offers a sobering overview of the global situation, but more importantly, it offers the necessary measures needed to speed up progress. Providing healthy and sustainable food is key to ending global hunger and transforming the global food systems is necessary to do so.

**José Graziano da Silva, Director-General, Food and Agriculture Organization (FAO)**

The world is witnessing a significant rise in overweight, obesity and other forms of malnutrition. The *2018 Global Nutrition Report* shows that poor diets are driving the current nutrition situation. Under the umbrella of the Sustainable Development Goals and the UN Decade of Action on Nutrition 2016–2025, there is an urgent call to reform our food systems from just feeding people to nourishing people. This requires action on all fronts. FAO is keen to work effectively with all stakeholders to ensure everyone has access to adequate, diverse, healthy and safe diets.

**Lawrence Haddad, Executive Director, Global Alliance for Improved Nutrition (GAIN)**

Ending malnutrition is a choice. The *2018 Global Nutrition Report* supports all of us – whether in government, business, civil society or international organisations – to make bold and informed decisions. Even more importantly the report makes it uncomfortable to persist with indifference, complacency and inaction when it comes to ending malnutrition. The fostering of dissatisfaction with the status quo and the generation of a flow of solutions for the future are the fuels of change. The *2018 Global Nutrition Report* provides both of these in abundance. Read it, share it – and act on it.

**Dr Beatriz Marcet Champagne, Director, InterAmerican Heart Foundation and Healthy Latin America Coalition (CLAS)**

The region of Latin America has been at the forefront in efforts to enact policies to reduce obesity in childhood and adolescence. With support from the Pan American Health Organization, academics and civil society, governments have made strides forward to reduce obesogenic environments. The effective sugar-sweetened beverage tax in Mexico; the strong front-of-package labeling in processed foods in Chile, Peru and Uruguay; the Nutrition Guidelines in Brazil that encouraged other countries to follow suit; the restrictions to advertising and promotion of processed foods in Chile and Brazil.

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In spite of these hard-won advances, the magnitude of the problem, as shown in the *2018 Global Nutrition Report*, requires a persistent and consistent effort in all countries to apply specific, cost-effective measures, in the face of powerful headwinds from the unhealthy products industry. With about 360 million people overweight and 140 million obese in Latin America, with 3.9 million obese children facing diabetes, heart disease and other non-communicable diseases, it is not the moment to be timid.

**Shinichi Kitaoka, President, Japan International Cooperation Agency**

Malnutrition is far more diverse and complex than originally believed; the challenges faced by each country demonstrate this complexity. For example, many African and South Asian countries continue to suffer from multiple forms of malnutrition, including undernutrition, significant micronutrient deficiencies and rising levels of obesity. While Japan is overcoming undernutrition and striving to increase longevity by addressing the key issues, it also faces new challenges in ensuring its citizens lead healthier lives. This year's edition of the *Global Nutrition Report* gives an in-depth analysis into malnutrition in all its forms and calls for action from a multitude of stakeholders.

In light of the complicated nature of malnutrition, Japan calls for a comprehensive and multi-sectoral approach to improving nutrition in developing countries, focusing specifically on agriculture and food systems. Japan will work with countries that are committed to confronting the challenges of overcoming malnutrition. I have no doubt that the report will benefit all stakeholders who intend to proactively address all forms of malnutrition.

**Henrietta H Fore, Executive Director, UNICEF**

The *2018 Global Nutrition Report* offers forward-looking steps to strengthen the ability of global and national food systems to deliver nutritious, safe, affordable and sustainable diets for children. This paradigm shift – food systems that contribute to prevent malnutrition in all its forms – will be critical for children's growth and development, the growth of national economies, and the development of nations.

**Paul Polman, Chief Executive Officer, Unilever**

The *2018 Global Nutrition Report* provides a stark reminder that progress in tackling malnutrition remains unacceptably slow. Companies must take the learnings from the report and redouble efforts to support food system transformation. Applying business expertise to nutrition challenges – in areas such as data collection, product reformulation and behaviour change communications – can contribute to positive outcomes. Here, organisations such as the Scaling Up Nutrition (SUN) Business Network and Food Reform for Sustainability and Health (FReSH) provide a useful entry point for corporate engagement in delivering the 2030 nutrition targets.

**David Beasley, Executive Director, World Food Programme**

The information in the *Global Nutrition Report* goes far beyond facts and figures. What is really behind these tables and graphs are stories of potential: the potential of more babies seeing their first birthday, of children achieving their potential in school, and of adults able to live healthy and productive lives – all on the foundation of good nutrition. The information collected, analysed and shared in the *Global Nutrition Report* is never an end in itself, but a means that allows us to save lives, change lives and ensure that nobody is left behind.

*Endorsements do not indicate financial support for the Global Nutrition Report from the institution represented.*

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Finally, we thank you, the readers of the Global Nutrition Report, for your enthusiasm and constructive feedback from the *2014 Global Nutrition Report* to today. We aim to ensure the report stays relevant using data, analysis and evidence-based success stories that respond to the needs of your work, from decision-making to implementation, across the development landscape.

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2017. Yangambi, Democratic Republic of the Congo.  
Girls carrying vegetables.  
© Axel Fassio/Center for International Forestry Research

# Executive summary

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# SHINING A LIGHT TO SPUR ACTION ON NUTRITION

Malnutrition is a universal issue holding back development with unacceptable human consequences. Yet the opportunity to end malnutrition has never been greater. The UN Decade of Action on Nutrition 2016–2025 and the Sustainable Development Goals (SDGs) provide global and national impetus to address malnutrition and expedite progress.

The burden of malnutrition across the world remains unacceptably high, and progress unacceptably slow. Malnutrition is responsible for more ill health than any other cause. Children under five years of age face multiple burdens: 150.8 million are stunted, 50.5 million are wasted and 38.3 million are overweight. Meanwhile 20 million babies are born of low birth weight each year. Overweight and obesity among adults are at record levels with 38.9% of adults overweight or obese, stretching from Africa to North America, and increasing among adolescents. Women have a higher burden than men when it comes to certain forms of malnutrition: one third of all women of reproductive age have anaemia and women have a higher prevalence of obesity than men. Millions of women are still underweight.

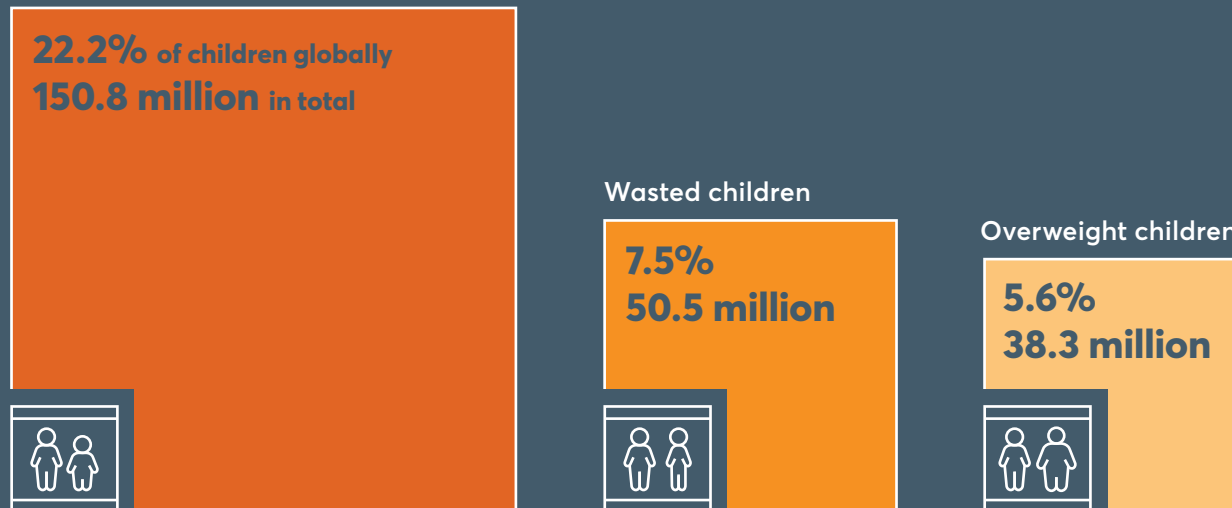
Yet significant steps are being made to address malnutrition. Globally, stunting among children has declined and there has been a slight decrease in underweight women. Many countries are set to achieve at least one of the targets set by the global community to track progress on nutritional status to 2025. The level of knowledge on what it takes to deliver results has never been greater. The global community and national stakeholders have never been better placed to deliver results, with more governance, policies, actions, plans and targets. Advances in data are enabling us to progress our understanding of the nature of the burden of malnutrition in all its forms and its causes – and therefore guide and inspire action and improve our ability to track progress.

It is vital we urgently seize this window of opportunity to get on track towards the SDG target of ending malnutrition in all its forms by 2030. The *2018 Global Nutrition Report* provides a *data update* to shine a light on steps needed to do so. For if we are to end malnutrition in all its forms, we must understand the nature of the problem we are dealing with. The report collates existing data, presents new innovations in data and conducts novel data analysis, focusing on five areas: the burden of malnutrition, emerging areas in need of focus, diets as a common cause of malnutrition in all its forms, financing of nutrition action, and global commitments. Throughout the report, examples of actions being taken to address malnutrition are highlighted and explored.

Through this analysis, the *2018 Global Nutrition Report* casts a light on where there has been progress and identifies where major problems still lie – and thus where actions are needed to consolidate progress and fill major gaps.

# The current burden of malnutrition is unacceptably high

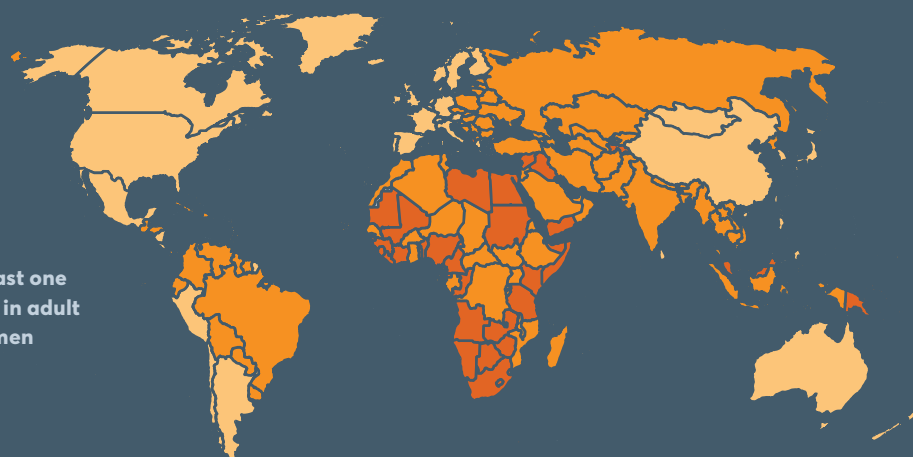
Stunted children (aged 0–59 months)



## Every country in the world is affected by malnutrition

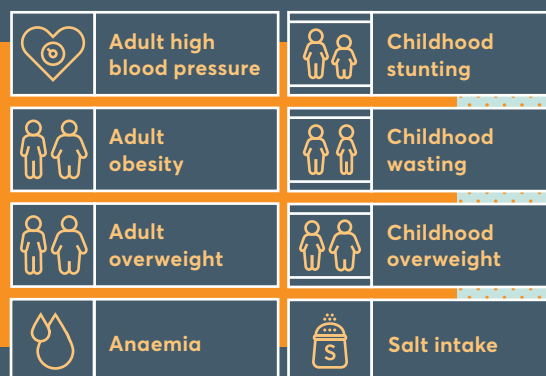
Countries with a burden of at least one of: childhood stunting, anaemia in adult women, overweight in adult women

- At least a single burden
- At least a double burden
- A triple burden



## And progress to date is simply not good enough

Eight key nutrition indicators are off course at the global level ...



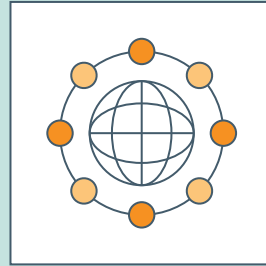
... but we have an unprecedented opportunity to get back on track



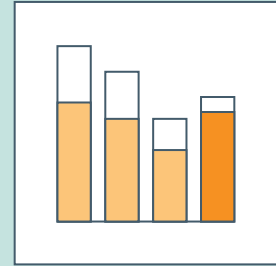
# We have never been better equipped to end malnutrition



*We now know more than ever about what policies work*



*There is strong political will in many countries, which we have a duty to translate to action*



*We have new and better data, some of which is a game changer for tackling malnutrition*

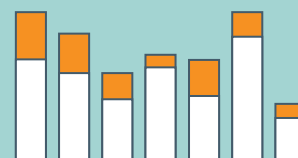
## We must act **now** or risk reversal of the gains we have made

### Five critical steps

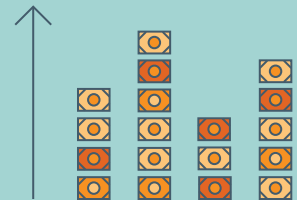
**1: Break down silos and develop comprehensive programmes**



**2: Prioritise and invest in the data needed and capacity to use it**



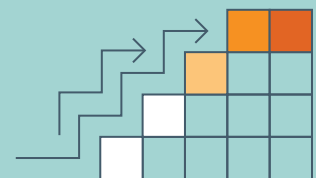
**3: Scale up and diversify financing for nutrition**



**4: Focus on healthy diets to drive better nutrition everywhere**



**5: Improve the targets and commitments that are driving actors**



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# KEY FINDINGS

## There has been some progress in reducing malnutrition, but it has been too slow and not spread across all forms of malnutrition

- **Stunting in children under five years of age is declining at a global level but numbers in Africa are increasing, and there are significant disparities in progress at the subnational level.** Stunting declined from 32.6% of all the world's children under 5 years of age in 2000 to 22.2% in 2017. In numbers this is a decline from 198.4 million to 150.8 million. Stunting among children in Asia has declined from 38.1% to 23.2% since 2000 and in Latin America and the Caribbean from 16.9% to 9.6%. Stunting among children in Africa has decreased in percentage terms from 38.3% to 30.3% over the same period, yet due to population growth, the actual number of stunted children has risen. The use of geospatial data shows that trends in stunting vary significantly within countries, with some areas experiencing increases and other areas declines.
- **At global level, progress in addressing underweight and anaemia among women has been extremely slow while overweight and obesity among adults is getting worse, with higher rates of obesity among women than men.** Underweight among women has declined slightly since 2000 though not significantly – 9.7% of women (aged 20–49) and 5.7% of adolescent girls (aged 15–19) are still underweight. Anaemia has risen slightly to 32.8%. Globally, overweight (body mass index (BMI)  $\geq 25$ ) and obesity (BMI  $\geq 30$ ) have been increasing year on year since 2000. Women have a higher prevalence of obesity than men, at 15.1% compared with 11.1%.
- **Several countries are on course to meet at least one of the globally adopted nutrition targets set for 2025, but most are off-track and none are making progress on the full suite of targets.** Our 2018 assessment of progress against nine targets, which includes new data points from 32 countries, reveals that 94 of the 194 countries included are on track for at least one nutrition target, with 44 of these on track to meet one target and 35 on track to meet two. Of the countries on target, 24 are on track for the stunting target, 37 for wasting and 18 for stunting *and* wasting. This leaves most of the countries with data off-track. No country is on track to achieve the adult obesity target, nor to reach the anaemia target. Just five countries are on track to meet four targets – the maximum number of targets any country is on track for.
- **Different forms of malnutrition continue to compound one another – with new analysis further confirming this reality.** New analysis of the multiple burdens of malnutrition within nations is providing novel insights into the degree to which countries and people experience more than one form of malnutrition. Of the 141 countries with consistent data on three forms of malnutrition – childhood stunting, anaemia in women of reproductive age and overweight among women – 88% (124 countries) experience a high level of at least two types of malnutrition, with 29% (41 countries) experiencing high levels of all three. Most of these 41 countries (30) are in Africa. Coexisting burdens bear down on millions of children, with 15.95 million children affected by wasting *and* stunting, which increases the risk of child mortality, and 8.23 million children affected by stunting *and* overweight.

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- **Crises around the world are increasingly protracted and significantly hamper tackling all forms of malnutrition.** In situations of crises arising from conflict, fragility, violence and environmental change there is an urgent need to treat and prevent multiple burdens of malnutrition while also building nutrition resilience to what are often protracted crises. An estimated 86% of international humanitarian assistance goes to countries affected by long and medium-term crisis, yet it is mostly in the form of short-term programming. Recognition of the high burden of multiple forms of malnutrition in these protracted crises is growing and the humanitarian community is beginning to change its approaches to consider longer-term and context-specific action. Yet building lasting nutrition resilience will require the humanitarian and development communities to work together more closely to tackle the full extent of malnutrition in these most vulnerable and challenging contexts.

## Increasing commitment to addressing malnutrition but a long way to go to finance the agenda

- **There has been an increase in the number and breadth of national nutrition policies and nutrition targets, with the outstanding challenge being the financing and action to deliver them.** More countries are committing to nutrition by establishing national nutrition policies and action plans: 164 now have such plans, 61% of which are multisectoral. Countries also have more nutrition targets – and a greater breadth of targets to cover different forms of malnutrition: 189 countries have at least one nutrition target and 81% of countries have three or more nutrition targets. The share of countries with overweight targets has increased to 84%. There are fewer targets on micronutrient deficiencies: 41% of countries with high rates of anaemia have no anaemia target. A key outstanding challenge is ensuring that the plans to deliver on these targets are costed, funded and implemented.
- **Donors have met the funding commitment made at the Nutrition for Growth (N4G) Summit in 2013, but globally there is still a significant financing gap.** In 2018, 10 N4G donors had disbursed a total of US\$21.8 billion, thus exceeding their target of US\$19.6 billion two years before it was due to be achieved. At the Global Nutrition Summit 2017 in Milan, three of the largest original donors combined with four new ones pledged an additional US\$640 million to nutrition. All financial commitments were SMART (specific, measurable, achievable, reliable and timely). Looking across all official development assistance (ODA), a modest step has been taken in spending on obesity and diet-related NCDs, with spending increasing to US\$32.5 million in 2016. Yet donor assistance falls far short of what is needed, with 'nutrition-specific' spending being particularly low.
- **Early indications suggest that governments in low and middle-income countries are committing more domestic expenditure to nutrition.** Data from 25 countries highlights that the increase in spending on nutrition is driven by increases of 24.4% in nutrition-sensitive and 8.9% in nutrition-specific allocations. Countries are spending most of their financing on nutrition-sensitive investments. More governments are taking steps to monitor the levels of spending and some are assessing the degree of subnational spending. Yet there is significant variation between countries, indicating significantly more progress is needed to increase domestic spending and measure it.

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## Attention urgently needed to improve diets to end malnutrition in all its forms

- **More and better data is enabling us to more fully understand what people are eating and why it matters – but shows that diets in all countries and wealth groups pose a significant threat to achieving nutrition targets.** There has been a surge in efforts to collect, collate and analyse data on diets, so improving our understanding of what the world eats. But the data shows that the world is eating badly. The latest data on infants' diets shows the proportion of babies who are exclusively breastfed (up to 6 months of age) has increased but only to 41% (from 37% in 2012), and sales of infant formula are growing rapidly. Fewer than one in five children (16%) aged 6 to 23 months eat a minimally acceptable diet while only half (51%) of children aged 6 to 23 months get the recommended minimum number of meals. While there are differences between countries, rural and urban settings and wealth groups, poor feeding practices of infants and young children are a problem everywhere. Regardless of wealth, school-age children, adolescents and adults are eating too many refined grains and sugary foods and drinks, and not enough foods that promote health such as fruits, vegetables, legumes and whole grains. About a third (30.3%) of school-aged children do not eat any fruit daily, yet 43.7% consume soda every day. New analysis of over 23,000 packaged food products shows 69% are of relatively poor nutrient quality, with the proportion higher in low and middle-income than high-income countries.
- **Healthy diet policies and programmes are proving effective in countries, cities and communities but overall there is inadequate delivery of a holistic package of actions.** The World Health Organization Global database on the Implementation of Nutrition Action (GINA) includes more than 1,000 national policies in 191 countries in support of healthy diets. For example, many countries have adopted sugar-sweetened beverage taxes in recent years, and these are proving effective, as are product reformulation policies. Large-scale food fortification is another area where there has been progress – but also exemplifies that there remain many barriers to change. A growing number of community and city-level initiatives are being implemented to improve diets and nutrition. New evidence is showing that intensive multi-level action can improve infant diets and reduce childhood obesity. Lessons could be scaled up from city to national level and shared through newly emerging international city networks. To date, however, few countries have implemented the comprehensive package of actions needed to significantly improve diets at the population level.
- **The world is paying more attention to the importance of improving nutrition among adolescents, but their diets warrant greater focus.** Adolescent girls remain particularly vulnerable to malnutrition during this stage of the lifecycle due to higher iron needs, early marriages which can lead to early pregnancies, and increased susceptibility to obesity. Nutrient needs increase in adolescence to meet the demands of pubertal growth and brain maturation. A growing body of international evidence shows that addressing nutrition problems and adopting healthy dietary habits during adolescence can be important for potential 'catch up' growth, improved cognition and reduced risk of non-communicable diseases (NCDs) later in life. New calls to actions and research, programmes and policies show promise in advancing our understanding of how to intervene in adolescence, especially through improved diets. Many of these programmes are bringing in the voices of young people who experience the problems as a means of identifying more effective solutions.

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## Data is ever improving but with some basic gaps remaining and further investment needed to help drive more effective action

- **Data is ever improving – equipping us with vital information for tackling malnutrition across the board, but there is a severe data gap on micronutrient deficiencies.** Analysis of geospatial data is transforming our understanding of how the burdens of malnutrition and rates of progress vary between and within countries. This type of data is providing new insights into the substantial subnational variations of malnutrition within countries right down to district level. An increasing number of databases and initiatives are collecting, collating, analysing and disaggregating diet data, which provides a growing body of evidence that needs to be acted on. Data is also shining a light on the importance of tackling malnutrition during adolescence. New ways of tracking financing show promise in helping us better understand how the funding for nutrition action is being spent. Yet some basic gaps remain. Many countries do not yet collect the necessary data to fully understand the nature of the burden of malnutrition, diet or indicators of progress. There is also a significant gap around micronutrients. We do not know the full profile of micronutrient deficiencies across populations, globally. Individual deficiencies rarely occur in isolation. There is limited knowledge on the overlaps with other forms of malnutrition, and the consequences for health and disease.

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# FIVE CRITICAL STEPS NEEDED TO SPEED UP PROGRESS

Now steps have been made in addressing and understanding malnutrition in all its forms, the uncomfortable question is not so much why are things so bad, but why are things not better when we know so much more than before? The findings of the *2018 Global Nutrition Report* indicate that meeting the 2030 target of ending malnutrition in all its forms will require five critical steps in the way we think and act. These are not new ideas but common sense based on the evidence presented, and worth repeating year after year as the data continues to show just how important they are if we are to truly make things better.

## 1: Break down silos between malnutrition in all its forms

The data shows that different forms of malnutrition coexist but are being tackled at different rates, vary between populations, and overlap with each other in various ways. Therefore they require integrated approaches and cohesive work to address them. Different communities – the humanitarian, obesity, NCD and micronutrient communities for example – must work together to ensure the different burdens are tackled efficiently and effectively. Tackling one form of malnutrition should be an opportunity for tackling another: governments, the humanitarian community and the nutrition community should assess if existing actions targeted at one form of malnutrition could be extended or redesigned to address other relevant forms. For example, intervening in undernutrition in early life to address obesity and NCDs in later life. Pooling often-scarce resources, varied expertise and innovative, and diverse tools and approaches could be transformative in ensuring nutrition actions work 'double duty' for different forms of malnutrition.

## 2: Prioritise and invest in the data needed and capacity to use it

Designing actions that result in impact is impossible without adequate knowledge of who is affected by malnutrition and why. The progress made in recent years in gathering, collating and analysing data presented in the *2018 Global Nutrition Report* shows how investing in data can help inform the nutrition response. Governments, international organisations, research organisations and academic institutions must continue this ongoing data revolution in nutrition. Geospatial data on who is affected by what form of malnutrition, where and why offers promise to support all decision-makers in designing actions for impact. Data on nutritionally vulnerable populations – such as people in poverty, women, adolescent girls, young children and people who are marginalised and geographically isolated – is vital. The efforts made to improve the collection and analysis of diet data must continue, and the shocking gap in micronutrient data filled as a matter of urgency. But data collection and analysis is not enough: all stakeholders need the capacity to use it to make evidence-based decisions. The data community must make the data easy to interpret by policymakers, businesses and NGOs who are making decisions about what to invest in, and where to intervene.

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### **3: Scale up financing for nutrition – diversify and innovate to build on past progress**

Every year the Global Nutrition Report calls for more financing for nutrition: ultimately, without adequate and appropriate funds invested towards all forms of malnutrition, we cannot make progress. The data in this year's report shows patchy progress. Building on this progress, domestic investments must continue to grow and international aid donors must keep investing through ODA. The use of the new policy markers and the improved DAC Creditor Reporting System (CRS) code should be taken up so funding streams are transparent and traceable. Funding needs to be focused on ensuring nutrition plans are delivered in practice. Yet different and innovative forms of financing will also be needed to make progress. Those who control resource flows – governments, multilateral organisations, philanthropic foundations and wealthy investors – need to find innovative ways to finance nutrition action and provide the institutional and human capacity necessary to do so.

### **4: Galvanise action on healthy diets – engage across countries to address this universal problem**

The data presented in the 2018 *Global Nutrition Report* shows that poor quality diets among infants, young children, adolescents and adults is unacceptable. Suboptimal diets are a major risk factor of malnutrition, disease, disability and death globally. And they are a problem everywhere: no country or population group is immune. Governments and business need to implement a holistic package of actions to ensure food systems and food environments are delivering healthy diets that are affordable, accessible and desirable for all. The lead taken by communities, cities and city networks must be scaled up. Lessons must be learned from successes everywhere and barriers broken down.

### **5: Make and deliver better commitments to end malnutrition in all its forms – an ambitious, transformative approach will be required to meet global nutrition targets**

Only SMART commitments designed for impact that signatories consistently report on and deliver will be fit for purpose to end malnutrition in all its forms. The N4G 2020 summit in Tokyo, Japan offers an opportunity to respond to the challenges and opportunities presented by the data in this year's report and for the global community – donors, national governments and business – to renew commitments, hold ourselves accountable, and expedite the critical steps needed to end malnutrition in all its forms.





01

2011. Philippines.  
Rice farmers harvest rice seedlings ready for planting.  
© ILO/Joaquin Bobot Go

# Introduction

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## Why malnutrition matters

Malnutrition is a universal problem that has many forms. It affects most of the world's population at some point in their lifecycle, from infancy to old age. No country is untouched. It affects all geographies, all age groups, rich people and poor people, and all sexes. It is a truly universal problem.

Malnutrition manifests itself in many ways, all of them distinctive (Box 1.1), but all of them overlapping in countries, communities, households and people. While anyone can experience malnutrition, people who are particularly vulnerable include young children, adolescent girls, pregnant and lactating women, older people, people who are ill or immuno-compromised, indigenous people and people in poverty. Groups migrating or displaced due to conflicts, droughts, floods and other natural disasters, famines or land tenure issues are also at acute risk and vulnerable to malnutrition.

Collectively, malnutrition is responsible for more ill health than any other cause – good health is not possible without good nutrition. All forms of malnutrition are associated with various forms of ill health and higher levels of mortality. Undernutrition explains around 45% of deaths among children under five, mainly in low and middle-income countries.<sup>1</sup> The health consequences of overweight and obesity contribute to an estimated 4 million deaths (7.1% of all deaths) and 120 million healthy years of life lost (disability-adjusted life years or DALYs)<sup>2</sup> across the global population (4.9% of all DALYs among adults).<sup>3</sup>

Malnutrition is also a social and economic problem, holding back development across the world with unacceptable human consequences. Malnutrition costs billions of dollars a year and imposes high human capital costs – direct and indirect – on individuals, families and nations. Estimates suggest that malnutrition in all its forms could cost society up to US\$3.5 trillion per year, with overweight and obesity alone costing US\$500 billion per year.<sup>4</sup> The consequences of malnutrition are increases in childhood death and future adult disability, including diet-related non-communicable diseases (NCDs), as well as enormous economic and human capital costs.<sup>5</sup>

Conversely, as detailed in the *2017 Global Nutrition Report*, improving nutrition can have a powerful and positive multiplier effect across multiple aspects of development, including poverty, environmental sustainability, and peace and stability. As the late Kofi Annan, former UN Secretary-General, wrote in 2018, "Nutrition is one of the best drivers of development: it sparks a virtuous cycle of socioeconomic improvements, such as increasing access to education and employment." Without significant progress to end malnutrition in all its forms, countries will simply not be able to attain the Sustainable Development Goals (SDGs) set out to transform our world by 2030.

Malnutrition has many different causes working at different levels. Access to water, sanitation and hygiene, income, education and quality health services are all important. A common cause across all forms of malnutrition is a suboptimal diet (including inadequate breastfeeding for babies). Poor diets are the second-leading risk factor for deaths and DALYs globally, accounting for 18.8% of all deaths, of which 50% are due to cardiovascular disease.<sup>6</sup> While improving diets alone is not necessarily enough to address malnutrition, it is a necessary component of reducing disability and death from malnutrition across all ages and income brackets.

### BOX 1.1

#### The many forms of malnutrition

**Undernutrition** – lack of proper nutrition, caused by not having enough food, not eating enough food containing substances necessary for growth and health, and other direct and indirect causes.

**Stunting in children under five** – a form of growth failure which develops over a long period of time in children under five years of age when growing with limited access to food, health and care. Stunting is also known as ‘chronic undernutrition’, although this is only one of its causes. In children, it can be measured using the height-for-age nutritional index. Stunting is often associated with cognitive impairments such as delayed motor development, impaired brain function and poor school performance, as it often causes these negative impacts.

**Wasting in children under five** – children who are thin for their height because of acute food shortages or disease. Also known as ‘acute malnutrition’, wasting is characterised by a rapid deterioration in nutritional status over a short period of time in children under five years of age. Wasted children are at higher risk of dying. In children, it can be measured using the weight-for-height nutritional index or mid-upper arm circumference (MUAC). There are different levels of severity of acute malnutrition: moderate acute malnutrition (MAM) and severe acute malnutrition (SAM).

**Micronutrient deficiencies** – suboptimal nutritional status caused by a lack of intake, absorption or use of one or more vitamins or minerals. Excessive intake of some micronutrients may also result in adverse effects. The international community has focused on several micronutrients that remain issues globally including iron, zinc, vitamin A, folate and iodine, as they are the most difficult to satisfy without diverse diets. One general indicator of micronutrient deficiencies is anaemia, as this syndrome is caused by the deficiency of many of them, and its effects are exacerbated by several diseases.

**Moderate and severe thinness or underweight in adults** – a body mass index (BMI) less than 18.5 indicates underweight in adult populations while a BMI less than 17.0 indicates moderate and severe thinness. It has been linked to clear-cut increases in illness in adults studied in three continents and is therefore a further reasonable value to choose as a cut-off point for moderate risk. A BMI less than 16.0 is known to be associated with a markedly increased risk for ill health, poor physical performance, lethargy and even death; this cut-off point is therefore a valid extreme limit.

**Overweight and obesity in adults** – the abnormal or excessive fat accumulation that may impair health. BMI is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. Overweight and obesity are major causes of many NCDs, including non-insulin-dependent diabetes mellitus, coronary heart disease and stroke. They also increase the risks for several types of cancer, gallbladder disease, musculoskeletal disorders and respiratory symptoms.

■ **Source:** UNICEF for undernutrition, World Health Organization (WHO) for overweight, WHO for thinness and child overweight, WHO for anaemia.<sup>7</sup>

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## Commitments and targets to track progress to end malnutrition

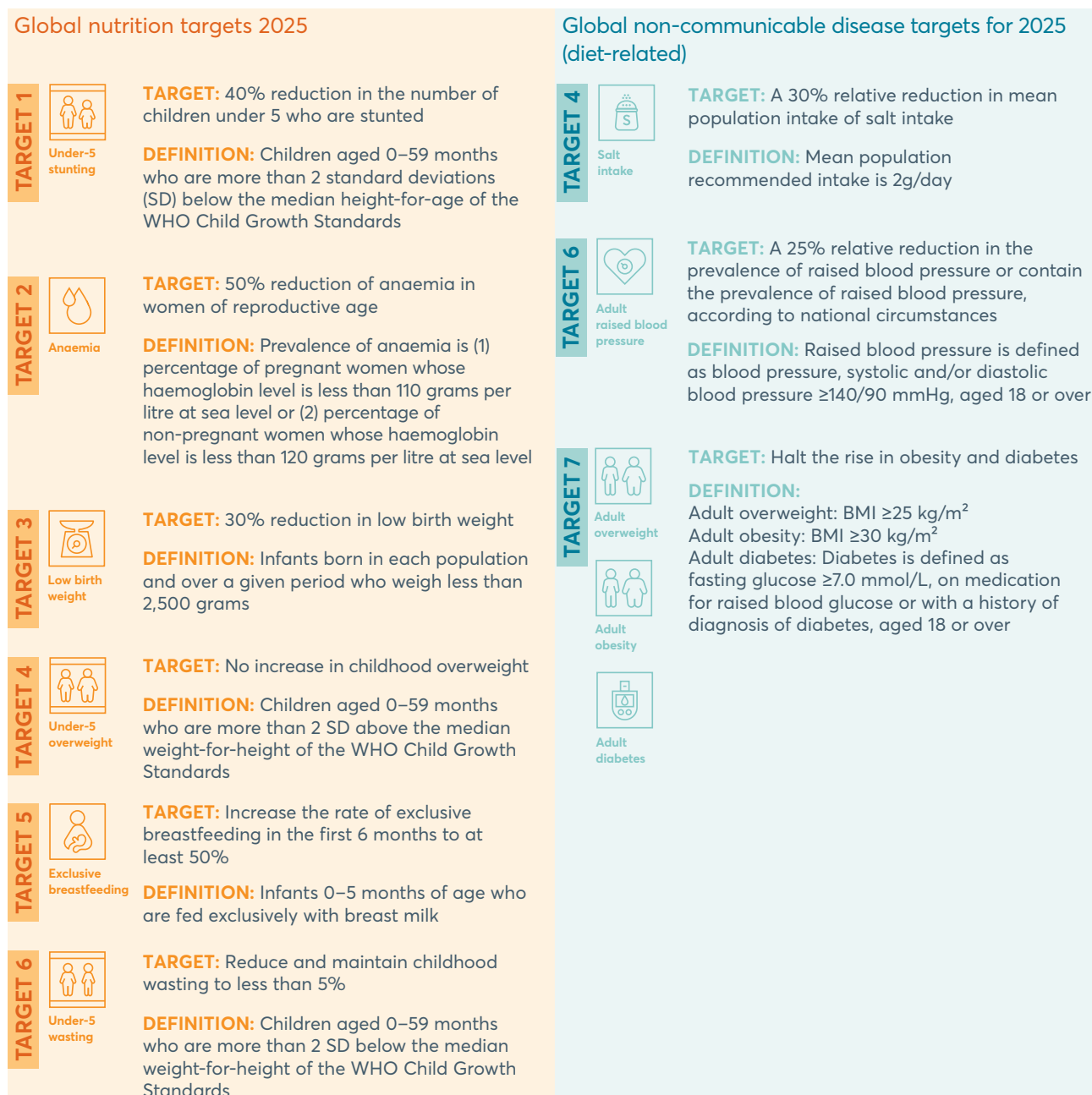
Recognising the seriousness of malnutrition for global health, in 2012 and 2013, the member states of the World Health Organization (WHO) adopted a series of targets to significantly reduce the burden of many of these forms of malnutrition by 2025 (Figure 1.1). Adopted through two separate resolutions at its annual meeting, the World Health Assembly, the targets recognised the need to reduce many of the different forms of malnutrition. In 2012, the 'Comprehensive implementation plan on maternal, infant and young child nutrition' included targets on stunting and wasting among children under five years of age, anaemia among women of reproductive age and low birth weight among newborns. It also committed to no increase in childhood overweight and to increase the rate of exclusive breastfeeding of babies under six months old.

One year later, the World Health Assembly adopted the Global Monitoring Framework for the Prevention and Control of NCDs, which sets 'voluntary' targets to monitor progress in achieving targets on the four NCDs that cause the greatest amount of deaths, three of which have diet-related causes (cardiovascular disease, diabetes and some cancers) and their risk factors. Four of these targets are relevant for nutrition, to: reduce salt intake, and (related to that) reduce raised blood pressure; reduce overall mortality from cardiovascular disease, cancer and diabetes, and halt the rise in diabetes and obesity.

Recognising the importance of nutrition for development, in 2015, UN member states adopted an ambitious target: to "end malnutrition in all its forms" by 2030 as part of the SDGs (target 2.2). The SDGs also included a target to reduce mortality from NCDs by one third (target 3.4). Together these significantly overlap with the 2025 targets<sup>9</sup> with a broader emphasis: ending malnutrition in *all* its forms at *all* parts of the lifecycle.<sup>9</sup> This emphasis was taken forward by the UN Decade of Action on Nutrition 2016–2025, adopted in 2015 by the UN to accelerate implementation of action towards SDG target 2.2 and help realise the commitments made at the Second International Conference on Nutrition in 2014.



**FIGURE 1.1**  
2025 targets for nutrition



Source: For more information, see: [www.who.int/nutrition/global-target-2025/en](http://www.who.int/nutrition/global-target-2025/en) and [www.who.int/beat-ncds/take-action/targets/en](http://www.who.int/beat-ncds/take-action/targets/en)

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## The Global Nutrition Report – tracking progress of commitments and actions

Since 2014, the Global Nutrition Report has existed to keep track of progress against these targets, along with the financing, commitments and actions designed to reach them. Drawing on internationally collected data, the basic picture to have emerged from the report in the past five years (2014–2018) is clear: the burden of malnutrition remains high, and not enough progress has been made to reduce malnutrition. Through tracking the financing, commitments and actions designed to end malnutrition in all its forms in the past five years, the Global Nutrition Report has, along with many others, shown that there is inadequate implementation of policies, programmes and interventions – even those with proven efficacy or effectiveness – and lack of actions across other sectors so vital to ending malnutrition. Likewise, it has found that only a tiny proportion of spending by national governments in their own countries, and by international development organisations, goes on improving nutrition. Through tracking commitments made to improving nutrition, such as at the Nutrition for Growth Summit in 2013, it has found them to be inadequately SMART (specific, measurable, achievable, relevant and timely) so making it difficult to tell what difference they have really made.

Yet despite this discouraging picture, we also know that there is progress: many are committed, global attention to nutrition is high, data collection and synthesis is getting better all the time, and much has been learned about how to address the problem more effectively. We are at a crossroads: the state of malnutrition is dire, but opportunities to end it have never been greater. In this UN Decade of Action on Nutrition 2016–2025 and the SDG era, there has been significant progress in our understanding of the problem – through the data available and its analysis – and what is needed to address it. The uncomfortable question is not so much: why are things so bad? But why are things not better when we know so much more than before?

### The 2018 Global Nutrition Report

The purpose of the Global Nutrition Report is to collate and communicate high-quality, comprehensive and credible data on nutrition as a means of tracking progress, guiding and inspiring action, and committing and financing the end of malnutrition in all its forms. To quote again the late, former UN Secretary-General Kofi Annan, “Data gaps undermine our ability to target resources, develop policies and track accountability. Without good data, we’re flying blind. If you can’t see it, you can’t solve it.”<sup>10</sup>

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In 2018 we bring together new sources of data to continue to strive for a more comprehensive picture of malnutrition and to track change. The *2018 Global Nutrition Report* is a data update. It shines a light on where there has been progress – and where major problems still lie. It highlights new innovations in data and the status of financing. It places actions that have been taken under the spotlight. Throughout it highlights data that can help us better understand the nature of the burden of malnutrition. For if we are to end malnutrition in all its forms, we must understand the nature of the problem we are dealing with.

This year we dig deeper into what the *2014 Global Nutrition Report* termed the 'new normal' – that countries, communities and people experience a range of different forms of malnutrition and that addressing all of them is critical if we are to hold ourselves accountable for reaching all nutrition targets. We understand better just what countries and individual people are faced with: overlapping and coexisting burdens of the different forms of malnutrition. With a new interactive Global Nutrition Report website, we show more disaggregated nutrition data by sex, geography and socioeconomic divisions, and a stronger focus on nutritionally vulnerable populations such as adolescent girls, women and young children. We also dig deeper into the data of a crucial common cause of malnutrition in all its forms: diet composition.

While the data on malnutrition is clear, its burden high and progress unacceptably slow, the opportunity to end malnutrition has never been greater. There are signs of progress with reductions in stunting, a slight decrease in underweight women and many countries on track to achieve at least one global nutrition target. Solutions have never been more available, and the global community has never been better placed to end it. In recent years there have been numerous steps forward to enable us to better understand the nature of the burden of malnutrition in all its forms as well as its causes – and thus guide and inspire action and improve our ability to track progress. We have more knowledge, better data and successful models to base collective action, allowing us to more fully identify where we still need to act. We thus have an unprecedented window of opportunity to meet these goals and the means to end malnutrition.

The report takes the reader through the data journey, by presenting the data on the burden of malnutrition, identifying three critical areas in urgent need of further research and attention, digging deep through data on what people eat and why it matters, and looking at financing and success against commitments made. The report ends by presenting five critical steps that must be taken now to get the world on track.





02

2008. Mexico.

A man prepares a torta ahogada, a sandwich typical of the Mexican state of Jalisco, in his family-run truck.

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# The burden of malnutrition

# KEY POINTS

- 1** Progress to tackle all forms of malnutrition remains unacceptably slow. There has been some progress in reducing childhood stunting – which is gradually declining – but still 150.8 million children are stunted. In addition, 50.5 and 38.3 million children are wasted and overweight respectively, and 2.01 billion adults are overweight and obese.
- 2** The latest assessment shows that just under 50% of countries are on course to meet at least one of nine global nutrition targets. However, no country is on target to meet all of the nine targets that are being tracked, and just five countries are on track to meet four. No country is on course to meet the adult obesity target. This leaves most of the countries with data off-track.
- 3** Countries are struggling with multiple forms of malnutrition. Of the 141 countries analysed, 88% (124 countries) experience more than one form of malnutrition, with 29% (41 countries) having high levels of all three forms.
- 4** Children can also experience multiple forms of malnutrition: 3.62% of children under five (15.95 million children) are both stunted and wasted, while 1.87% of under-fives globally (8.23 million children) experience both stunting and overweight.
- 5** Geospatial and disaggregated data is helping us understand who is malnourished and where and how to target action at subnational levels.

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## Introduction

This chapter presents an update on the status of malnutrition in all its forms across the globe – looking at who is affected, where and by what type of malnutrition. Advances in data collection, analysis and use of data in 2017 and 2018 enable us to shed light on the nature of malnutrition as never before. New developments and improvements in data collection and analysis, as well as improvements in subnational disaggregated data, are starting to guide all stakeholders on where action should be taken and what that action should look like. This evidence is helping develop a clear picture of who is nutritionally vulnerable and why.

This chapter presents an overview while more detailed (updated) data at regional and country levels and data on global malnutrition disaggregated by rural and urban locations, wealth and gender, can be found on the Global Nutrition Report website.<sup>1</sup>

## Exploring global and regional trends in malnutrition in all its forms

### Global trends

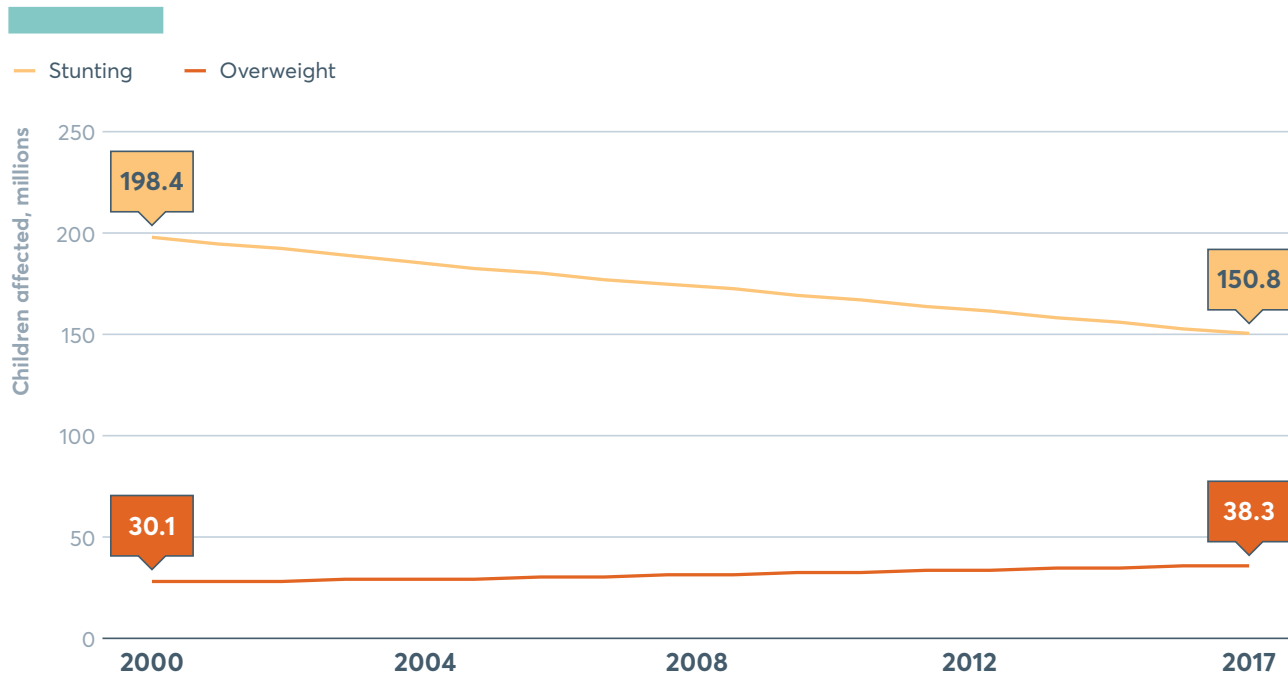
As in previous years, the *2018 Global Nutrition Report* finds again that the problem of malnutrition remains severe: the world is not on track to achieve the targets it has set itself. Malnutrition in all its forms remains unacceptably high across all regions of the world.

Despite reductions in stunting, 150.8 million children (22.2%) under five years of age are stunted,<sup>2</sup> 50.5 million children under five are wasted<sup>3</sup> and 20 million newborn babies are estimated to be of low birth weight,<sup>4</sup> while 38.3 million children under five years of age are overweight.<sup>5</sup> Figure 2.1 shows that while there have been reductions in the number of children affected by stunting since 2000, overweight among children under five years of age has increased over time.

Within this gloomy picture, there has been progress made in reducing stunting in children under five years of age – the core focus of political commitment to nutrition for some years. Rates have been slowly but steadily declining with global prevalence falling from 32.6% in 2000 to 22.2% in 2017.<sup>6</sup> For example, since 2000, stunting in Nepal declined from 57.1% to 36.0% and in Lesotho from 52.7% to 33.4%. Regionally, Asia has declined from 38.1% to 23.2%; Latin America and the Caribbean from 16.9% to 9.6%; and Africa from 38.3% to 30.3%. Despite the decrease in stunting prevalence in Africa, the number of stunted children has steadily increased from 50.6 million in 2000 to 58.7 million in 2017. Regionally, South Asia is home to 38.9% of the world's stunted children, having the highest burden of the regions.

**FIGURE 2.1**

Number of children affected by stunting and overweight, 2000–2017



Source: UNICEF/World Health Organization (WHO)/World Bank Group: Joint child malnutrition estimates.

Wasting and stunting are associated with increased mortality, especially when both are present in the same child.<sup>7</sup> Added to this, it is becoming increasingly clear that children who are wasted are more likely to become stunted and children who are stunted are more likely to become wasted.<sup>8</sup> Children who are moderately or severely wasted have a higher risk of mortality.<sup>9,10</sup> Wasting still affects 50.5 million children under five<sup>11</sup> with more than half of the world's wasted children, 26.9 million, living in South Asia.

Of the 38.3 million children who are overweight, 5.4 million and 4.8 million are in South and East Asia respectively – 26.6% of the total.

Anaemia<sup>12</sup> – a problem for adolescent girls and women – appears intractable.<sup>13</sup> Anaemia prevalence in girls and women aged 15 to 49 remains high at 32.8%, increasing from 31.6% in 2000. There are significant differences between pregnant and non-pregnant women. In pregnant women, global prevalence has decreased only slightly from 41.6% in 2000 to 40.1% in 2016. Among women who are not pregnant, it has risen slightly from 31.1% to 32.5% over the same time.<sup>14</sup>

Data on the prevalence of overweight among adults (age  $\geq 18$ ) shows an increase from 35.7% in 2010 to 38.9% in 2016.<sup>15</sup> Obesity prevalence in adults is also on the rise: from 11.2% in 2010 to 13.1% in 2016 (Figure 2.3). In sheer numbers, 2.01 billion adults are overweight (almost a third of adults worldwide) of whom 678 million are obese.<sup>16</sup>

Obesity is a modifiable risk factor of non-communicable diseases (NCDs). The burden of NCDs is significant: an alarming 422 million people have diabetes<sup>17</sup> and 1.1 billion people suffer from high blood pressure.<sup>18</sup> NCDs were responsible for 41 million of the world's 57 million deaths (71%) in 2016, of which diet was one of the four leading risk factors. Burden is greatest in low and middle-income countries, with 78% of all NCD deaths and 85% of premature deaths from NCDs.<sup>19</sup>

**FIGURE 2.2**

Global nutrition: targets, burden and prevalence

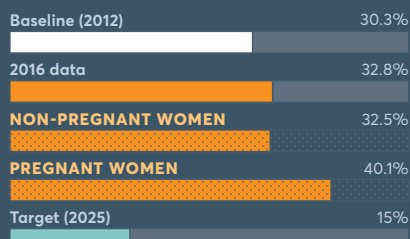
## Maternal, infant and young child nutrition targets

### Anaemia

OFF COURSE



50% reduction of anaemia in women of reproductive age.



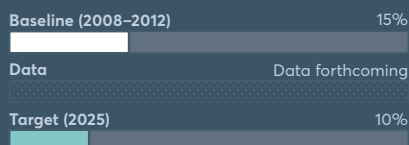
In 2016, anaemia affected 613.2 million women of reproductive age, 35.3 million of whom were pregnant. Baseline proportion for 2012 was revised to 30.3% in 2017. Current prevalence reflects increase since then.

### Low birth weight

DATA NOT AVAILABLE



30% reduction in low birth weight.



The latest estimate is that there are around 20 million children with low birth weight.

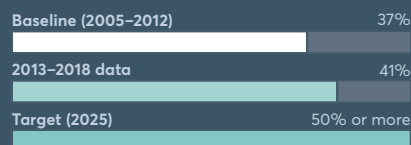
Notes: New estimates from UNICEF are forthcoming.

### Exclusive breastfeeding

SOME PROGRESS



Increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%.



In 2017, 41% of infants 0–5 months were exclusively breastfed. An increase of four percentage points over 5 years reflects very limited progress.

### Childhood stunting

OFF COURSE



40% reduction in the number of children under 5 who are stunted.



In 2017, 150.8 million children were stunted. Current average annual rate of reduction (AARR) (2.3%) below required AARR (3.9%). There will be about 30 million stunted children above the 100 million target of 2025 if current trends continue.

Note: The baseline status has been updated from 162 million children in the 2017 *Global Nutrition Report*<sup>20</sup> to 165 million this year.

### Childhood overweight

OFF COURSE



No increase in childhood overweight.



In 2017, 38.3 million children were overweight. The baseline proportion for 2012 was revised to 5.4% in the estimates for 2017, and the current prevalence is 5.6%.

### Childhood wasting

OFF COURSE



Reduce and maintain childhood wasting to less than 5%.



In 2017, 50.5 million children were wasted. Global prevalence was 7.5% in 2017, compared with 7.9% in 2012, demonstrating negligible progress towards the 5% target for 2025. A substantial increase in efforts will be required to break the global status of inertia in wasting and lower the rate in the direction of the 5% target by 2025.

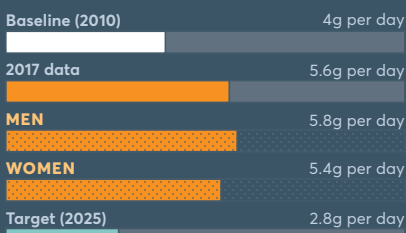
## Nutrition-related NCD targets

### Salt intake

OFF COURSE



30% relative reduction in mean population intake of salt (sodium chloride).



In 2017, the global mean salt intake was 5.6g per day, twice the global target.

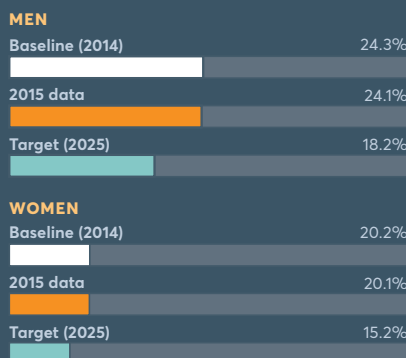
Notes: Projections not yet available. This data is for adults 25 years and older. If China was removed, the global average would be 4.0g.

### Raised blood pressure

OFF COURSE



A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstance.



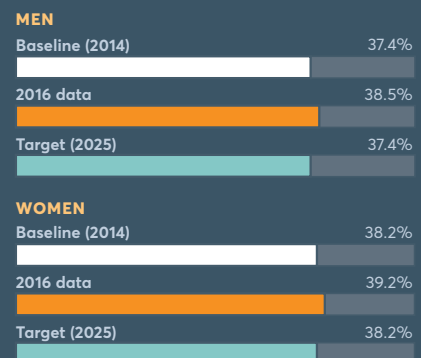
In 2015, 597.4 million men and 529.2 million women had raised blood pressure – 1.13 billion adults in total. Probability of meeting the global target is almost zero based on projections to 2025.

### Adult overweight

OFF COURSE



Halt the rise in prevalence.



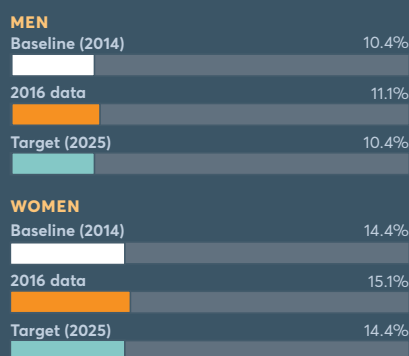
In 2016, 984.6 million men and 1.02 billion women were overweight – 2.01 billion adults in total.

### Adult obesity

OFF COURSE



Halt the rise in prevalence.



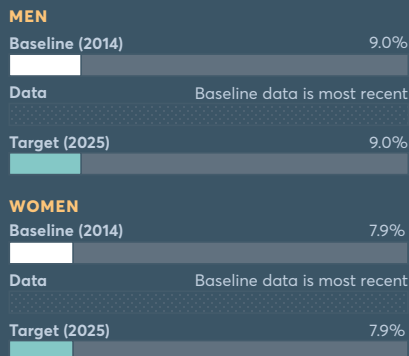
In 2016, 284.1 million men and 393.5 million women were obese – 677.6 million adults in total. Probability of meeting the global target is almost zero based on projections to 2025.

### Adult diabetes

OFF COURSE



Halt the rise in prevalence.



In 2014, 217.8 million men and 204.4 million women were diabetic – 422.1 million adults in total. Probability of meeting the global target is low (<1% for men, 1% for women) based on projections to 2025.

### Adult underweight

WOMEN



In 2016, 153.8 million women were affected.

### Adolescent underweight

GIRLS



In 2016, 16.2 million girls were affected.

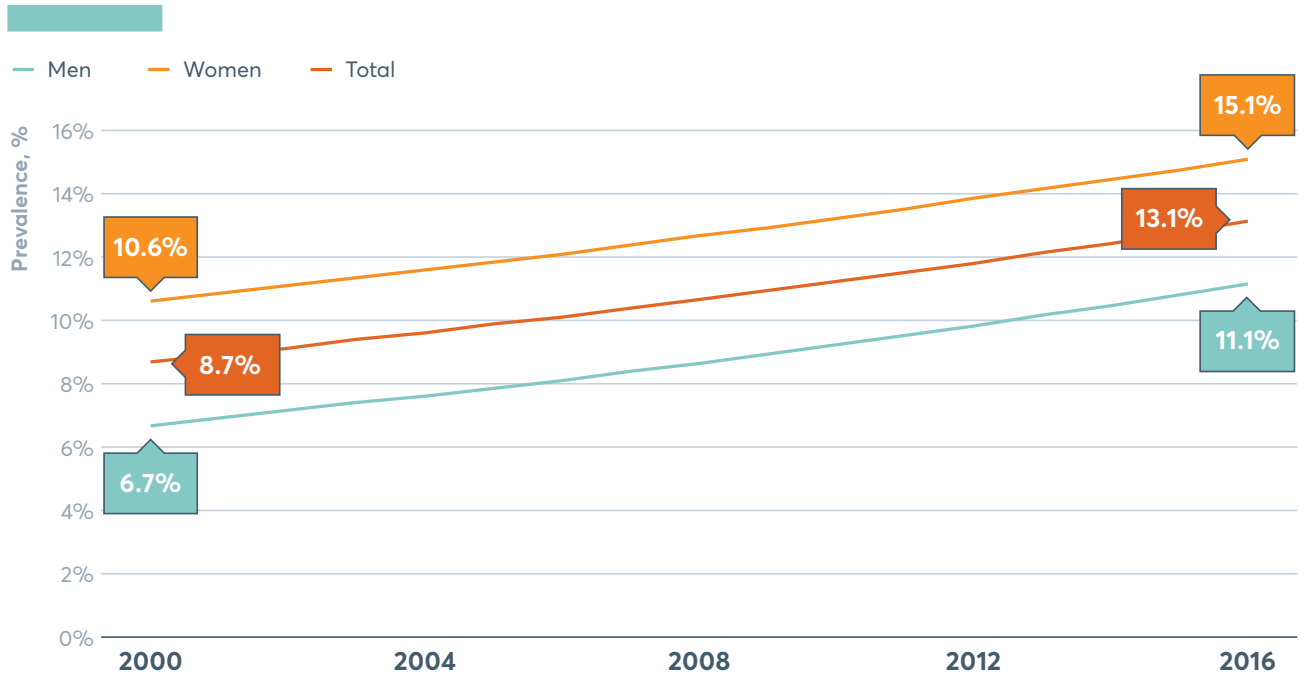
Notes: Women aged 20–49 whose BMI is less than 18.5 kg/m<sup>2</sup>. Adolescent girls aged 15–19 who are more than two standard deviations below the median weight-for-age of the WHO Child Growth Standards.

Source: UNICEF global databases Infant and Young Child Feeding, UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, NCD Risk Factor Collaboration, WHO Global Health Observatory and Global Burden of Disease, the Institute for Health Metrics and Evaluation.<sup>21</sup>



**FIGURE 2.3**

Global prevalence of obesity (BMI  $\geq 30$ ) among adults aged 18 years and over, 2000–2016



Source: NCD Risk Factor Collaboration.

Obesity, anaemia and underweight each have major implications for women’s health as well as the nutritional and health status and capacity of their children.<sup>22</sup> Figure 2.4 shows the increase of anaemia and overweight (including obesity) among women. While underweight is declining slightly, it is not significant (to 9.7% of women) and underweight among adolescent girls has increased from 5.5% in 2000 to 5.7% in 2016.<sup>23</sup> Globally, women have shown a higher prevalence of overweight and obesity compared with men every year since 2000.

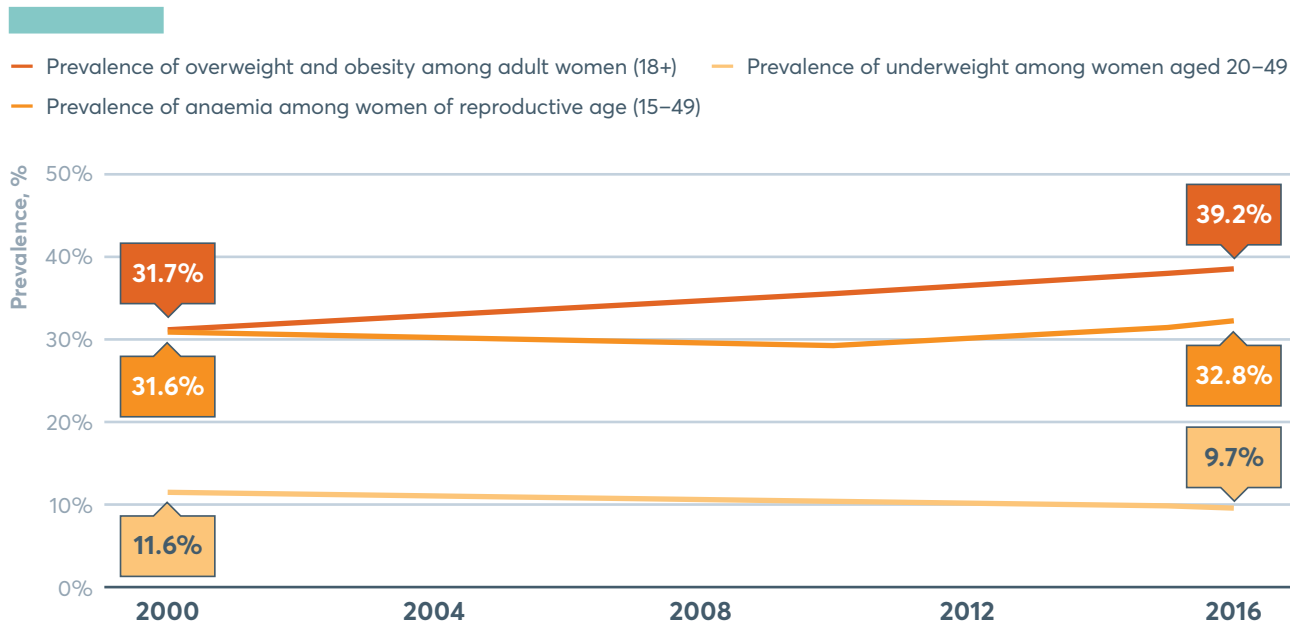
## Where malnutrition in all its forms exists

Looking deeper at disaggregated figures, stunting is most prevalent in low and lower-middle-income countries: 37.8 million children affected are in low-income countries where the daily average income is less than \$2.80 per person per day.<sup>24</sup> Another 101.1 million children are in lower-middle-income countries where incomes are less than \$11 per person per day. Both the number of people affected (37.0 million) and highest prevalence of wasting (11.5%) occur in lower-middle-income countries and are lowest (0.5 million and 0.7% respectively) in high-income countries.



**FIGURE 2.4**

Global prevalence of anaemia, overweight (including obesity) and underweight in women, 2000–2016



Source: NCD Risk Factor Collaboration, WHO Global Health Observatory.

Notes: Underweight in adults is defined as BMI <18.5; overweight in adults is BMI ≥25kg/m<sup>2</sup>; anaemia in pregnant women is a haemoglobin level <100g/L; anaemia in women who are not pregnant is defined as a level of 120g/L.

Among countries, there is a difference between those with the highest prevalence and those with the largest numbers of people affected by stunting. In three countries, Burundi, Eritrea and Timor-Leste, more than half of children under five are stunted. Another three countries are home to almost half (47.2%) of all stunted children: India, Nigeria and Pakistan. The three countries with the largest number of children who are stunted are India (46.6 million), Nigeria (13.9 million) and Pakistan (10.7 million). The three countries with the most children who are wasted are almost the same ones – India (25.5 million) and Nigeria (3.4 million) but also Indonesia (3.3 million).

The urban prevalence of stunting is on average 19.2% compared with 26.8% in rural areas.<sup>25</sup> Wasting still affects a greater proportion of rural children than urban, though the contrast is far less pronounced (urban is 5.8%, rural is 6.4%).<sup>26</sup> More boys than girls are stunted and wasted. Stunting is on average 25.6% among boys and 22.6% among girls,<sup>27</sup> while wasting is on average 6.8% among boys and 5.7% among girls.<sup>28</sup>

Prevalence of overweight among children is highest in upper-middle-income countries and lowest in low-income countries. In urban areas, overweight among children stands on average at 7.1% whereas in rural areas it is 6.2%. Overweight is slightly more common on average among boys (6.9%) than girls (6.1%).<sup>29</sup>

In four countries, more than a fifth of all children are overweight: Ukraine, Albania, Libya and Montenegro. A very different set of countries have more than a million children overweight: China, Indonesia, India, Egypt, US, Brazil and Pakistan.

As with obesity, overweight in adults is greater among women than among men (39.2% and 38.5% respectively in 2016). Conversely, diabetes is more common among men than women (9.0% and 7.9% respectively in 2014). Similarly, more men have raised blood pressure than do women (24.1% and 20.1% respectively in 2015).

China is an example of a country with differing levels of vulnerabilities to differing forms of malnutrition in its population. Spotlight 2.1 demonstrates China's journey to address malnutrition in all its forms and its efforts to take a multisectoral approach.

## SPOTLIGHT 2.1

### New nutrition policies for China

Kevin Chen and Zimei Wang

China's agricultural and economic success has enabled it to supply enough nutritious food for its large population as well as significantly reduce rates of stunting and wasting. However, China still has high levels of undernutrition, with poor regions and vulnerable groups such as children, women, older people and migrants disproportionately affected. The shortage of essential micronutrients also affects millions of Chinese people, and while undernutrition remains a problem, overweight and obesity resulting from excessive saturated fats, calories and/or sugar are increasing at alarming rates. Amid urbanisation, an ageing population and industrialisation, diet-related NCDs such as diabetes are on the rise.

In this context the government of China has developed two plans with the potential to transform malnutrition in China. Healthy China 2030 (2016) is the first national medium to long-term strategic plan in the health sector – more than 20 government departments were involved in its development using an explicit 'health-in-all-policies' approach. With the direct involvement of the President of China, the plan underlines the significant political will to enhance the health status of Chinese citizens. One of the five core strategies of the plan is prevention through healthier living, using premature death from NCDs as one of its indicators of progress.

A year later the government released a new National Nutrition Plan (2017–2030), with a range of malnutrition targets including stunting, obesity, anaemia, breastfeeding and folic acid deficiency among vulnerable people. Emphasis has been placed on nationwide actions and programmes targeting vulnerable populations with disproportionate burdens. The plan reinforces existing nutrition programs benefitting infants, children, primary and middle school students, and pregnant women. It also proposes new interventions for people who are older, ill or living in poor areas. Given the historically unbalanced focus on rural populations, especially infants and children, another goal is to reduce the difference in height between urban and rural students.

The plan includes nutrition monitoring, new dietary reference intakes, screening programmes, a campaign to promote healthy lifestyles, recommended limits for sugars, fats and salt in packaged foods, nutrition labelling in cafes and restaurants, standards on fortified foods, and education on healthy diets. It recommends a balanced diet combining cereals, meat, vegetables, fruit, milk and soy – very different from current starch-based diets with a very high consumption of meat. It builds on existing programmes such as Ying Yong Bao, a national programme delivering a multivitamin package to women and young children in poor regions which costs the government about 15 billion Chinese yuan (about US\$2.5 billion) a year.

In line with a multisectoral approach, there have also been changes in supply-side policy. China is shifting its focus from quantity to quality of food production and paying attention to the importance of linking agriculture and nutrition to provide more nutritious and diversified crops. The Food and Nutrition Development Outline 2014–2020 emphasises food quantity and quality equally, as well as innovation and the coordination of production and consumption. Meanwhile, agricultural policies are evolving – albeit slowly – to promote the evaluation of agricultural products' quality and nutrition, as well as research on the impact of food processing, storage and transportation of nutrients.

An emerging nutrition governance system deserves credit for the political and administrative commitment to food and nutrition security. Nutrition has traditionally been the mandate of the National Health Commission, with technical support from the Chinese Center for Disease Control and Prevention and the Chinese Nutrition Society. However, multisectoral coordination is beginning to show benefits – in 1993, the Ministry of Agriculture launched the State Food and Nutrition Consultant Committee, and then the Institute of Food and Nutrition Development as its administrative and research body. The committee was tasked with improving the national coordination and planning of agriculture, food and nutrition, drawing on experts from fields including agriculture, food,

nutrition, health, economy and trade. It is committed to coordinating national nutrition policies and interventions and accelerating improvements to address the underlying causes of malnutrition. It contributed to the development of the Food and Nutrition Development Outline and the implementation of several nutrition interventions nationwide. Further synergies came in 2017 when the National Health Commission, jointly supported by the Ministry of Agriculture and the General Administration of Sport, established the National Nutrition and Health Steering Committee and the National Working Group on Nutrition Promotion to push the National Nutrition Plan forward.

The increased prominence of nutrition in China's policy discourse shows what institutional coordination can achieve – but it also offers a cautionary tale on limitations. Given that it is an advisory body, with decision-making remaining in the Ministry of Agriculture and the National Health Commission, the State Food and Nutrition Consultant Committee lacks the authority to facilitate and monitor inter-sectoral policies and actions. Coordination failures continue to occur, and the responsibilities of the different parties are unclear. Weak vertical coherence among agriculture and nutrition authorities and institutions at the central and provincial levels is another challenge, while most provinces do not have institutions dedicated to nutrition research or policymaking. Improving nutrition does not affect the political career of local leaders, resulting in a disconnect between high-level policies and practices on the ground. China is at a turning point to further improve the authority, accountability and responsiveness of its nutrition governance.

## Country-level progress towards nutrition targets

The Global Nutrition Report tracks country progress against nine of the global nutrition targets<sup>30</sup> highlighted in Chapter 1 using the latest available data. However, we are aware of the inherent limitations of doing so: assessing and interpreting country-level progress is complex, as is analysing why any given target is on or off course. Government interventions and economic growth can influence progress. Individual countries may be on course to hit certain targets but not others. And the availability and quality of data differs across targets, owing to differing collection and modelling approaches. Data coverage for the obesity and diabetes targets is much greater than for the children under five years of age targets because it is modelled. See Appendix 1 for details of the methods and sources used to assess progress towards global nutrition targets.

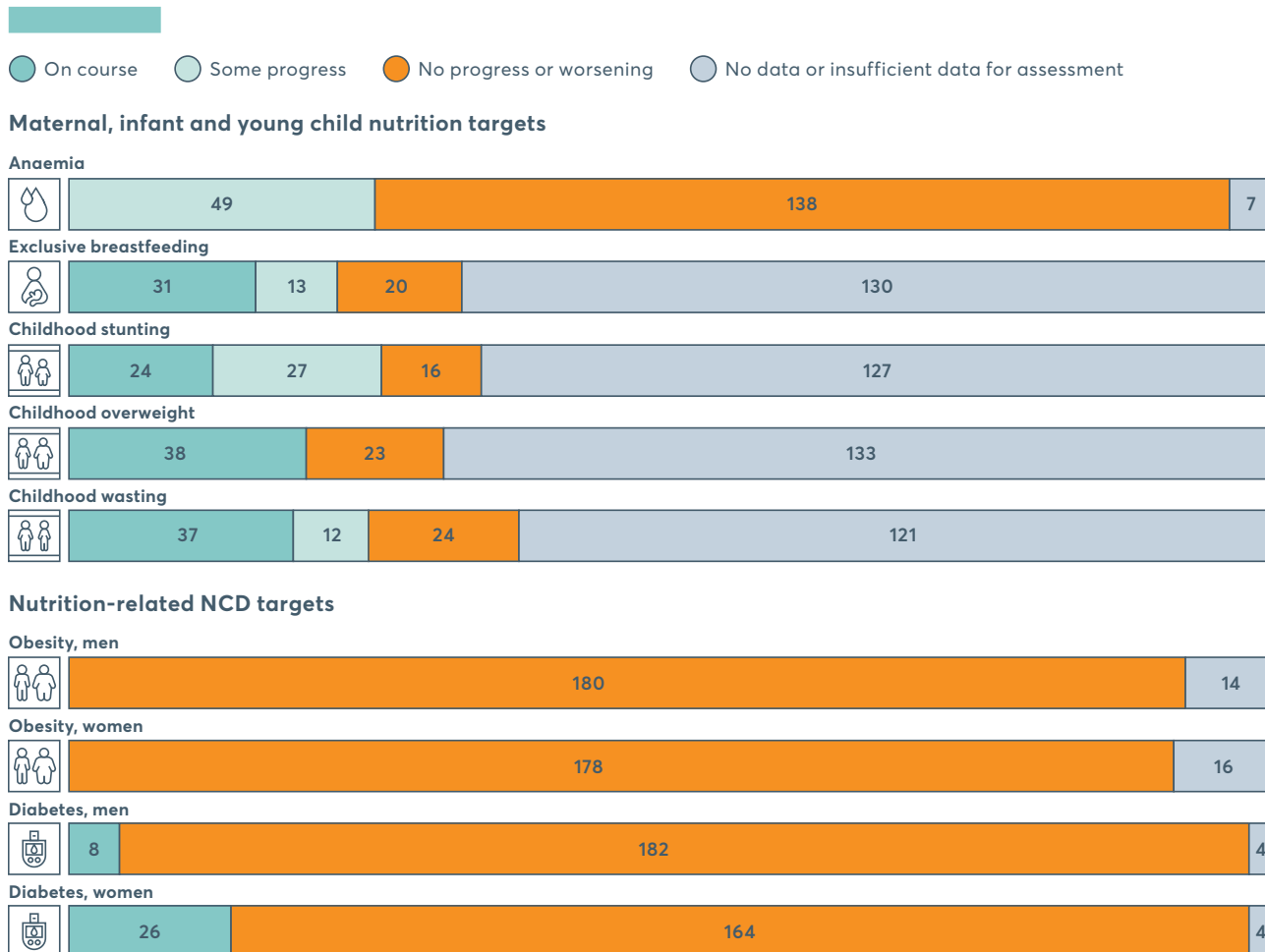
In 2018, 194 countries were included in the tracking analysis. New data in 2018 has provided over 80 additional data points across 32 countries, enabling a greater number of country targets to be assessed than ever before.

Of the 194 countries analysed, 38 were found to be on track for overweight, 37 for wasting, 31 for exclusive breastfeeding, 26 for diabetes among women, 24 for child stunting and 8 for diabetes among men. However, no country is on track to achieve the adult obesity target, for neither men nor women. This is despite the obesity target being to halt the rise of prevalence, not necessarily decrease the trend that we are seeing. Nor is any country on track to reach the anaemia target to decrease it by 50% among women of reproductive age – and indeed we are seeing the opposite trend (Figure 2.5).

Across the nine targets, 94 countries are on track to achieve at least one. Of these, 44 countries are on track to meet just one target, 35 countries are on track to meet two, 10 countries to meet three, and just 5 countries are on track to meet four targets – the maximum number of targets any country is on track for (see Appendix 2 for additional country detail).

**FIGURE 2.5**

Countries on course to meet global targets on nutrition



**Source:** UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, UNICEF global databases: Infant and Young Child Feeding, NCD Risk Factor Collaboration, WHO Global Health Observatory.

**Notes:** Assessment based on 194 countries. The methodologies for tracking differ between targets. Data on the adult indicators are based on modelled estimates. See Appendix 1 for details of the methods and sources used to assess progress towards global nutrition targets.

Analysis to assess the progress in meeting Sustainable Development Goal (SDG) 2 has recently been conducted by the Brookings Institution and is shown in Spotlight 2.2. This analysis shows the world is making some progress to end stunting, wasting and undernourishment (an indicator defined by the Food and Agriculture Organization (FAO)<sup>31</sup>) by 2030 when the SDGs end. However, it also shows that the pace is not fast enough to end these forms of malnutrition by 2030. Childhood overweight has the worst projections: if current trajectories continue, the number of children overweight will only increase.

A step forward, however, has been that countries are establishing national targets for nutrition, and a fuller range of national targets to cover more forms of malnutrition. Spotlight 2.3 highlights steps being taken to set national nutrition targets. Tanzania is an example of a country that has adopted a wide range of targets and a multisectoral plan to deliver them – but nevertheless faces the challenges of costing and financing in its ability to do so (Spotlight 2.4).

### Counting who will be left behind by 2030

Homi Kharas, John W. McArthur and Krista Rasmussen

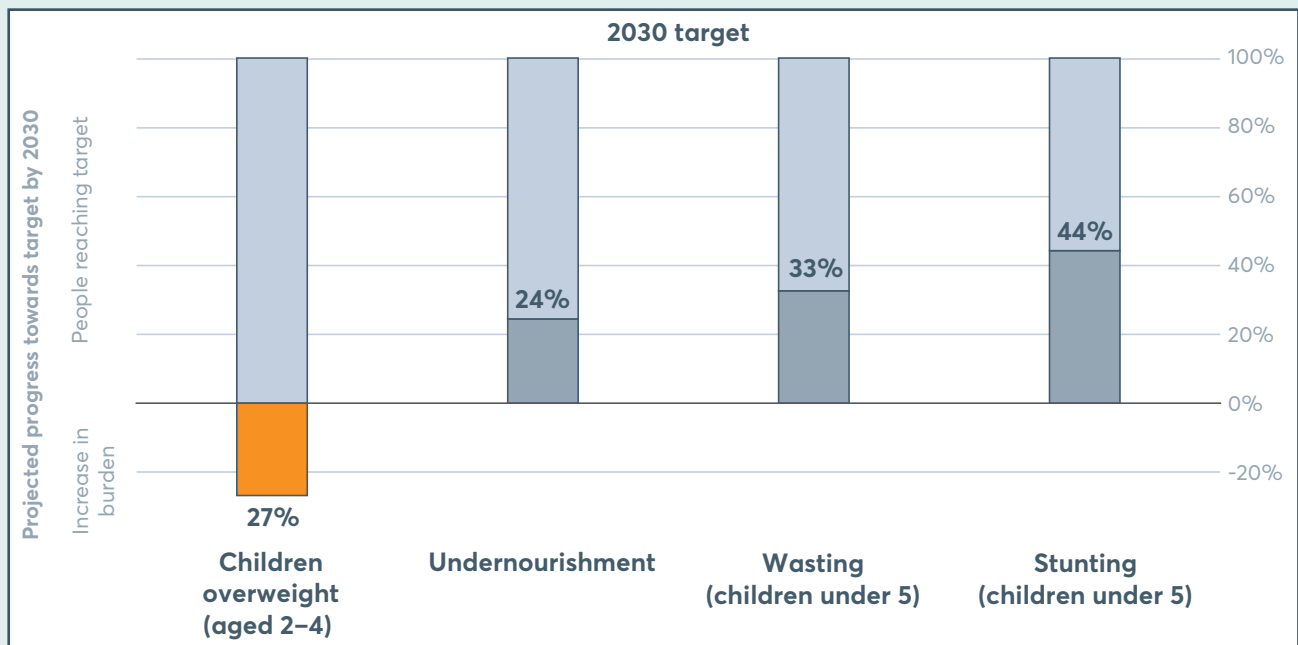
A core aim of the SDGs, agreed by all UN member states in 2015, is to accelerate progress on common economic, social and environmental priorities by 2030. The first step is to assess current trends and identify where the world needs to do better. The Brookings Institution recently published a study<sup>32</sup> examining the trajectories of more than two dozen people-focused SDG indicators, including four indicators linked to goal 2: child stunting, child wasting, child overweight and people undernourished (using the FAO statistic for hunger).

Consistent with the SDG ambition to leave no one behind, the study takes a literal interpretation of the targets aiming to end hunger and malnutrition. Extrapolating recent national rates of progress out to 2030, the findings show advances on multiple fronts. But we also found the world is off course and will be less than halfway to ending stunting, wasting and undernourishment by the deadline.

Figure 2.6 shows the share of the world’s initial SDG gap that will be closed by 2030 on current trajectories, measured by how many people achieve the target versus how many are left behind. On stunting, for example, the chart shows that the world will have alleviated only 44% of the burden. Overweight among children is actually growing in the vast majority of countries.

The human consequences of these shortfalls are considerable. If current trajectories continue, more than 660 million people (8% of the world) will still be undernourished in 2030. Meanwhile, more than 100 million children under five years of age (15%) will be stunted, more than 40 million (6%) will be wasted, and more than 90 million children aged two to four years (22%) will also be overweight. We need a significant breakthrough if we are to fulfil the SDG vision of leaving no one behind on hunger and malnutrition.

**FIGURE 2.6**  
Share of SDG global gap closed by 2030, on current trajectory



Source: Development Initiatives based on Kharas H., McArthur J.W. and Rasmussen K., 2018.<sup>33</sup>

## SPOTLIGHT 2.3

### Countries are stepping up on setting nutrition targets

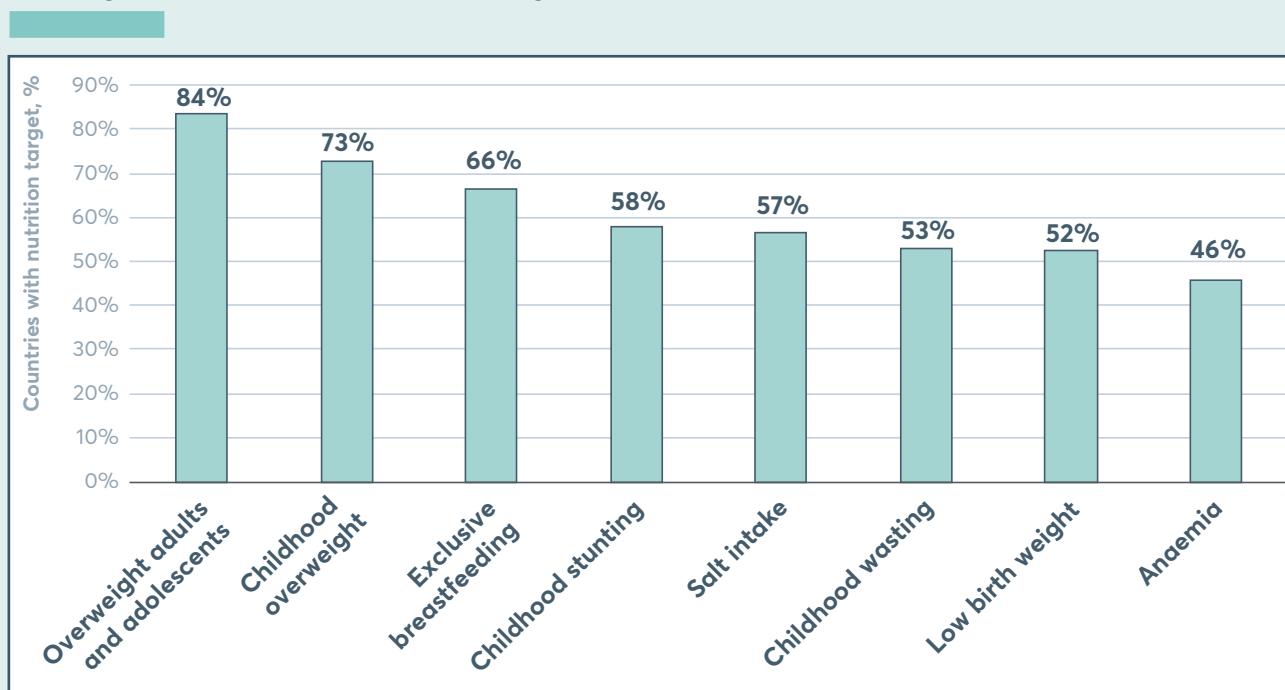
Kaia Engesveen, Krista Lang, Roger Shrimpton and Chizuru Nishida

Establishing national nutrition targets is critical for countries to hold themselves accountable, and to know what they want to achieve when developing national nutrition plans.<sup>34</sup>

The second edition of the Global Nutrition Policy Review (GNPR2), published in 2018 by the World Health Organization (WHO),<sup>35</sup> tracks the number of countries with nutrition policies and targets. Among those countries with relevant nutrition policies, there has been a marked increase over two years in adopting national targets. The 2016 *Global Nutrition Report* noted that of 122 national nutrition plans, only 49% had national targets and just 36% of NCD plans included targets for obesity. While some of the increase is highly likely to be down to the greater number of European countries reporting, and the larger number of obesity/NCD plans included, the GNPR2 reports a very different situation. As shown in Figure 2.7, almost all of the 191 countries (99% or 189) included in the Global database on the Implementation of Nutrition Action (GINA) have at least one nutrition target; 84% (160) have targets for adult and adolescent obesity; 73% (139) for child overweight; and 46% (87) for anaemia. Furthermore, more countries are including a fuller suite of targets – 81% (154) have three or more targets, 42% (81) have between six and eight targets, and 38% (73) between three and five. Only 19% (37) have two targets or fewer (Figure 2.7).

An important consideration is that countries need to have targets that are relevant to addressing the nutrition situation in their countries. An in-depth analysis by WHO in the GNPR2 shows that 93% of countries with stunting prevalence of 20% or higher had relevant targets. A smaller but still significant percentage of countries with a burden of overweight among children (prevalence over the global baseline of 6%) has a relevant target (76%). Four fifths (79%) of countries with exclusive breastfeeding of less than 50% have a relevant target and 76% of countries with wasting prevalence of 5% or higher have a wasting target. Anaemia was once again at the bottom with 63% of countries with anaemia in women of reproductive age at 20% or higher having an anaemia target.

**FIGURE 2.7**  
Percentage of countries with selected nutrition targets, 2018



**Source:** WHO Global database on the Implementation of Nutrition Action (GINA), 2nd Global Nutrition Policy Review.

**Notes:** Percentage is of 191 WHO member states who responded to the survey and for which there is adequate data (Bahamas, Monaco and United Arab Emirates have been excluded).



Another notable change has been the increasingly multisectoral nature of nutrition plans. Information in WHO GINA shows that 100 (61%) of the 164 countries with national nutrition plans developed in 2000 or later have multisectoral plans involving two or more government sectors. Of these, 46 had more than three sectors involved in their policies, 27 had three and 27 had two; the sectors most commonly included alongside health were agriculture and education. Interestingly, countries with a nutrition policy involving two or more sectors included an average of 5.6 targets, compared with just 4.7 targets in countries involving only one government sector.

Despite these advances, there remain major gaps in setting targets relevant to the country context and in the costing of plans to deliver the targets. Just 39% of the countries in the GNPR2 reported that their nutrition policies were accompanied by costed operational plans, and just 23% in the WHO African Region. Another gap is that even if they are costed, they may not be fully funded as exemplified by the case of Tanzania (Spotlight 2.4).

## SPOTLIGHT 2.4

### Developing and delivering an action plan on the double burden of malnutrition in Tanzania

Obey Assery

Tanzania is an example of a country which has adopted a wide range of nutrition targets – seven in all.<sup>36</sup> These targets form part of the National Multisectoral Nutrition Action Plan 2016–2021, an ambitious five-year action plan to reduce multiple burdens of malnutrition. Set up under the direct leadership of the Prime Minister's office, it explicitly takes a 'double burden' approach covering all forms of malnutrition associated with both deficiency and excess/imbalance. Its broad goal is to scale up high-impact interventions among the most vulnerable people – infants, children under five years of age, adolescent girls, pregnant and lactating women, and other women of reproductive age. It focuses on six areas: maternal, infant, young child and adolescent nutrition; micronutrient deficiencies; acute malnutrition and diet-related NCDs; interventions across sectors; nutrition governance; and nutrition information systems. The plan calls for actions across sectors including agriculture, health services, community mobilisation, public awareness platforms, social protection, education, food, and water and sanitation. The plan drew from, and sits alongside, the Strategic Action Plan for the Prevention and Control of Non-Communicable Diseases in Tanzania 2016–2020.

Yet funding remains a challenge. In the financial year 2016/2017 only a quarter of the programme costs were fully funded, although the government subsequently increased this to 40% in the hope that the remaining 60% would be provided by development partners. As of 2018 it is uncertain how much of this funding shortfall will be met, and further resources are urgently required to ensure the most vulnerable groups get the help they need. There are some encouraging signs – for example, additional government spending on children under five years of age doubled from Tanzanian shillings (TZS) 500 (US\$0.25 per child) in 2016/17 to 1,000 TZS (US\$0.5 per child) in 2017/18 – but this is still a long way off the World Bank recommendation of US\$10.0 per child per year.<sup>37</sup> Notably, those parts of the plan focusing on obesity and NCDs are not funded, nor are the actions on nutrition governance and nutrition information systems – putting them at risk of being scaled down or cut altogether. Resource mobilisation comes under the leadership of the Prime Minister's Office, and now the plan is costed but only part-funded, stakeholders must get together to plug the remaining financing gap in the same way they came together during its formulation.

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## Data on multiple and coexisting forms of malnutrition

### Multiple forms of malnutrition at a national level

In 2014, the Global Nutrition Report coined the term the 'new normal' to reflect the reality that most countries in the world experience a serious burden of one or more forms of malnutrition. Recognising the multiple forms of malnutrition and their impact is a new challenge. Many governments are already showing leadership by recognising these multiple burdens when setting nutrition targets (Spotlight 2.3). Understanding how these forms of malnutrition overlap and coexist is also essential to develop effective policies and allocate resources to tackle them.

Building on previous assessments, this year's report sheds light on the nature of these multiple forms of malnutrition by analysing which countries experience high levels of three types of malnutrition at the national level.

Figures 2.8 and 2.9 demonstrate that 124 of the 141 countries for which there is sufficient data experience more than one form of malnutrition based on three metrics and their thresholds:<sup>38</sup> childhood stunting, anaemia in women of reproductive age, and overweight in adult women (for a full list of countries see Appendix 3).

The data shows that all 141 countries experience at least one form of malnutrition with only 17 countries experiencing just one form (Figures 2.8 and 2.9). Of these, 41 countries (29%) have high levels of all three forms and 83 countries (59%) have high levels of two forms of malnutrition.

Of the 41 countries with three forms of malnutrition, 13 are low-income countries and 19 are lower-middle-income countries. Africa is by far the hardest hit by the overlapping forms of malnutrition. Of the 41 countries that struggle with all three forms of malnutrition, 30 are in Africa.

### The challenge of coexistence of malnutrition in individuals

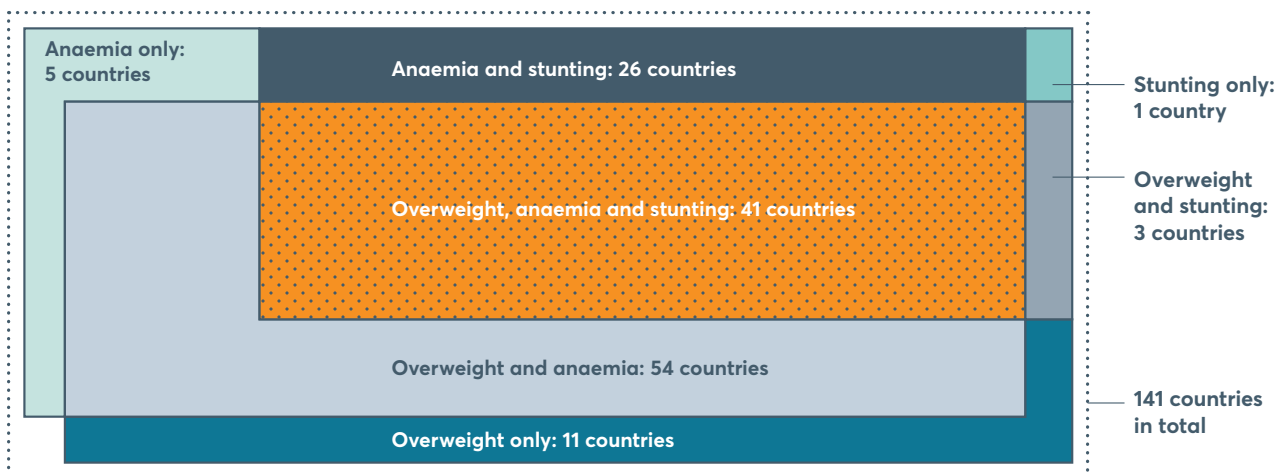
It has been well established for many years that undernutrition coexists with overweight and obesity at a country level. This 'double burden' is also found in communities and households, notably with stunted children living in households with overweight mothers. Several studies have been published to better understand these disparate outcomes between mothers and their children.<sup>39</sup> Newly emerging analysis also shows that conditions associated with stunting can coexist with overweight in the *same person*.<sup>40</sup> To make matters worse, conditions of deficiency such as low birth weight and undernutrition in early life can be associated with increased risk of NCDs later in life.<sup>41</sup>

New data analysis conducted by the Global Nutrition Report this year confirms that this double burden can exist in the same people at the *same time*, providing new evidence on the extent to which young children experience multiple forms of malnutrition. A UNICEF dataset<sup>42</sup> of nutrition data on children under five years of age from 106 countries shows that 1.87% of under-fives globally (8.23 million children) experience both stunting and overweight. Europe and Africa have the highest prevalence rates of coexistence: 2.7% and 2.3% respectively compared with 0.8% in the Americas. Much more work is needed to assess the degree to which overweight children, adolescents and adults may also be experiencing micronutrient deficiencies.

Another aspect of this discussion is the coexistence of overweight/obesity and household food insecurity.<sup>43</sup> In the US, women who are food insecure, particularly women with children, are more likely to be affected by obesity and consume poor quality diets.<sup>44</sup> In other settings, the relationships between obesity and food insecurity do not show the patterns seen in the US.<sup>45</sup> These relationships will undoubtedly vary from place to place and more work is needed to understand their dynamics, as explored in the *2018 State of Food Insecurity and Nutrition* report.<sup>46</sup>

**FIGURE 2.8**

Numbers of countries with overlapping forms of childhood stunting, anaemia and overweight in adult women, 2017 and 2018

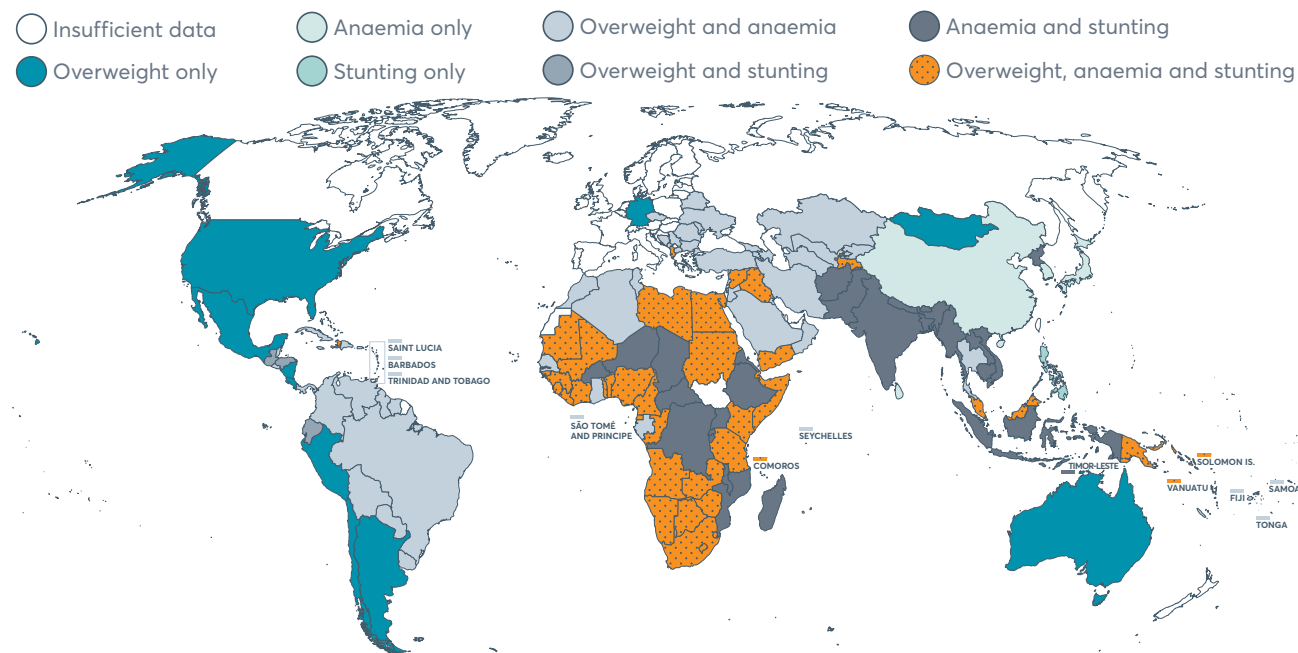


Source: UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, NCD Risk Factor Collaboration, WHO Global Health Observatory.

Notes: Thresholds for a country having the form or not: stunting in children aged under 5 years  $\geq 20\%$ ; anaemia in women of reproductive age  $\geq 20\%$ ; overweight (body mass index  $\geq 25$ ) in adult women aged  $\geq 18$  years  $\geq 35\%$ . Based on data for 141 countries.

**FIGURE 2.9**

Map of countries with overlapping forms of childhood stunting, anaemia and overweight in adult women, 2017 and 2018



Source: UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, NCD Risk Factor Collaboration, WHO Global Health Observatory.

Notes: Stunting in children aged under 5 years  $\geq 20\%$ ; anaemia in women of reproductive age  $\geq 20\%$ ; overweight (body mass index  $\geq 25$ ) in adult women aged  $\geq 18$  years  $\geq 35\%$ . Based on data for 141 countries.

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Building on recent efforts to highlight the relationship between stunting and wasting as shown in Spotlight 2.5 in a smaller set of countries, the Global Nutrition Report also analysed nutrition data on children under five years of age<sup>47</sup> to determine the extent to which children can experience wasting and stunting at the same time. Analysis shows that 3.62% of under-fives globally are both stunted and wasted – 15.95 million children. Asia and Africa have the highest prevalence rates: 5.0% and 2.9% respectively compared with 0.2% in Europe. While the physiological mechanisms leading to this are not well understood, important evidence indicates that these children are at an elevated risk of dying that compares with that of severe wasting.<sup>48</sup>

Until recently, the global prevalence of children who are wasted and stunted at the same time has not been known, even though data to calculate it is readily available. This gap is important not only because these children are at high risk of death and therefore in need of nutrition support, but also because reporting on nutrition deficits separately underestimates the burden of these forms of undernutrition on the global child population as a whole.<sup>49</sup>

## Going beyond the national level – new insights from geospatial and subnational data

Geospatial data is transforming development. For nutrition, it is providing new information on how the burdens of malnutrition and rates of change vary within countries. Spatial analysis studies have identified both where there are hotspots of malnutrition and inequities in child stunting.<sup>50</sup> Two new studies in 2018 provide an even more comprehensive assessment of the situation across Africa and in India.

Spotlight 2.6 describes a geospatial analysis of undernutrition in 51 African countries conducted by researchers at the Institute for Health Metrics and Evaluation. By drilling down to the subnational level, the analysis reveals a striking heterogeneity in levels and trends of undernutrition. Even where countries appear to be on track to achieve global targets, the picture is different at the subnational level. Future work by the research team will provide insights into other key nutritional indicators such as childhood overweight, exclusive breastfeeding in the first six months of life and anaemia in women of reproductive age and will expand the existing analysis to all low and middle-income countries. The researchers are also investigating overlapping burdens of child growth failure and overweight in the same population at this very detailed level.

## Coexistence of stunting and wasting in countries

Carmel Dolan and Tanya Khara

A group of experts have highlighted the relationship between wasting and stunting: the Wasting-Stunting Technical Interest Group,<sup>51</sup> coordinated by the Emergency Nutrition Network. In 2017, they undertook an innovative analysis to generate the first multiple country prevalence and burden estimates of coexisting forms of both wasting and stunting in children aged 6 months to five years.<sup>52</sup> Using Demographic Health Surveys and Multiple Indicator Cluster Surveys data from the last 10 years, the analysis yielded 84 country prevalence estimates, pooled prevalence and burden estimates and explored age, sex, regional and contextual differences. They found countries classified as fragile and conflict-affected have a significantly higher prevalence (3.6%) than those defined as stable (2.2%).<sup>53</sup>

The life-limiting and mortality risk associated with the coexistence of wasting and stunting should make this a priority issue for urgent action. Added to this, the transitory nature of child wasting (children can experience several episodes of wasting in their early years) means that relying on cross-sectional data underestimates<sup>54</sup> the true burden of children having these two deficits at the same time.

Two points arise from this analysis. First, the Global Nutrition Report receives its yearly data on stunting, wasting and overweight among children under the age of five from population-level surveys and the annual global joint child malnutrition estimates. These could quite easily and systematically report on the prevalence of children wasted and stunted at the same time and, as with the severe acute malnutrition caseload, also compute the likely numbers of children in need of attention. The data highlighted earlier has already signalled that the joint estimates has a gap to fill.

Second, given the high mortality risk associated with being wasted and stunted at the same time, the extent to which these children are being detected and adequately supported through existing nutrition services and interventions to lift them out of this high-risk group needs further investigation. There is interesting emerging evidence that weight-for-age in addition to mid-upper arm circumference (MUAC) is the most reliable way of detecting children who are at most risk<sup>55</sup> and the potential therefore to capitalise on community and health clinic entry points where child growth is routinely monitored.

Our analysis clearly points towards the need to break away from the silos of wasting versus stunting, treatment versus prevention and severe versus moderate wasting that have typified the international nutrition architecture over the last decade. It is in combination that wasting and stunting confer the highest mortality risk to potentially a larger proportion of the child population than that affected by severe wasting. So it makes sense for treatment or prevention approaches to deal with wasting and stunting together where they coexist. This analysis calls for us to do better at bridging these divides.

### Using geospatial data to track nutrition progress in Africa

Aaron Osgood-Zimmerman, Anoushka I. Millea, Rebecca W. Stubbs, Chloe Shields, Brandon V. Pickering, Damaris K. Kinyoki, Nicholas J. Kassebaum and Simon I. Hay

We all use geospatial data – think of weather forecasts, satnavs and geotagged social media posts. But it can also help policymakers, programme designers and organisations working on the ground to alleviate child undernutrition. The latest data-driven geospatial estimates for Africa provide a revolutionary new resource – a detailed public health tool aimed at targeting interventions to those populations with the greatest need. Spatially resolved data gives us an indication of progress – or lack of it in certain localities.

In 2018 the journal *Nature* published the results<sup>56</sup> of a comprehensive geospatial analysis of child growth failure, which covers stunting, wasting and underweight, in 51 African countries from 2000 to 2015. Drawing from more than 200 geo-referenced household surveys representing more than 1.2 million children<sup>57</sup> to estimate child growth failure prevalence on a 5×5km grid, it drills down to unprecedented levels of detail. This provides highly relevant information on key nutrition indicators not only by country, but also by local administrative subdivisions such as provinces, districts and communities. This is significant because national estimates tend to mask disparities at the local level, where most health and nutrition-policy planning and implementation occur.

The results show a mixed picture, with some encouraging undernutrition improvements – particularly in western, northern and southern coastal countries – sitting alongside high levels of child growth failure, especially across the Sahel. But it is probably no coincidence that many countries with slower average gains, such as Central African Republic, Chad, Somalia and most others in the Sahel, received less international assistance for newborn and child health and have experienced periods of conflict. There is also a strong correspondence between areas with a high prevalence of wasting in 2015 and countries identified by the UN as being at imminent risk of famine. At this rate, most of Africa will fail to meet the SDG target of ending all forms of malnutrition by 2030.

Figures 2.10A–C show the changes in prevalence of moderate and severe stunting at 5×5km resolution in 2000, 2005, 2010 and 2015. Figure 2.10B shows the annualised decrease in stunting from 2000 to 2015, relative to rates needed from 2015 to 2025 to meet the WHO global nutrition target of a 40% reduction by 2025. Based on past performance, purple pixels have already met the target, blue pixels are exceeding the pace needed to meet the target, those at 100 (green) are on track, and yellow and orange pixels must speed up. Figure 2.10A shows the probability that the stunting target was achieved in each 5×5km pixel in 2015. The probability that dark blue pixels have met the target in 2015 is greater than 95% and for dark-red pixels is less than 5%. Maps reflect administrative boundaries, land cover, lakes, and population; pixels with fewer than 10 people per 1×1km and classified as 'barren or sparsely vegetated' are shaded in grey.

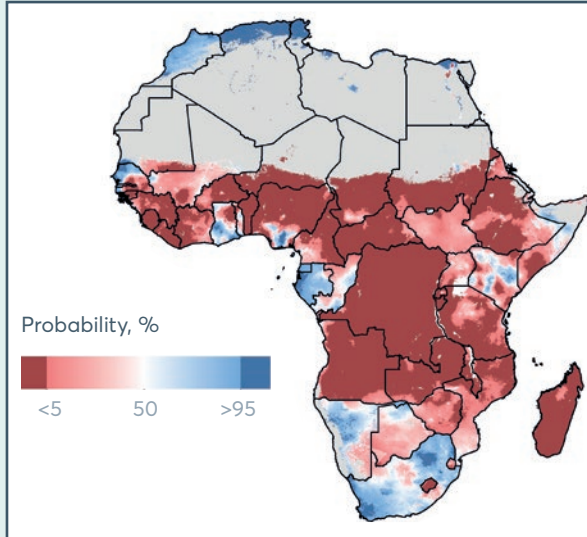
Stunting is the most prevalent form of child growth failure across all years and countries, but once again, the data shows wide disparities. Greatest improvements up until 2015 were in coastal central Africa, particularly some parts of Ghana, Gabon and Equatorial Guinea. Imo state in Nigeria showed stellar progress, nearly halving mean stunting prevalence in the 10 years from 2005 to 2015. Conversely, the Northern Province of Zambia, northern Nigeria and southern Niger showed the least gains.

Overall, the results suggest a gloomy outlook. No country in Africa is likely to achieve all the WHO global nutrition targets in all of its territory if current trends continue, emphasising the need to adopt evidence-based, precision public health programmes to track and improve progress. Routine and up-to-date measurement of child growth failure is needed to inform these programmes, and to do so we must continue to fill geographical information gaps and improve data collection.

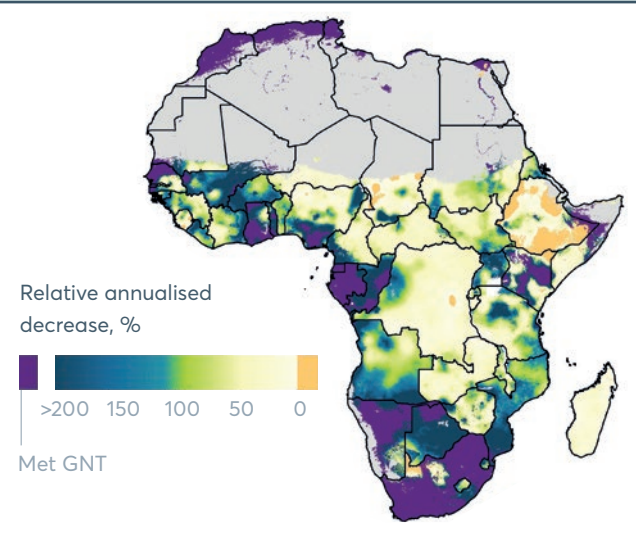


**FIGURE 2.10A**

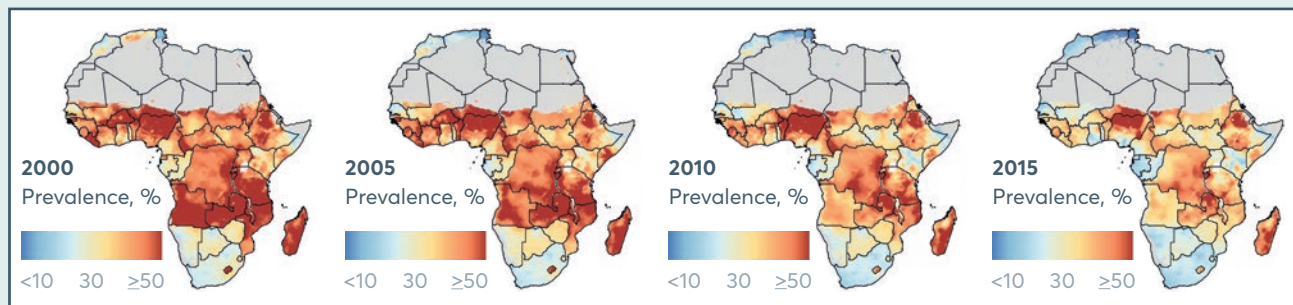
Probability that the WHO's moderate and severe stunting target has been achieved in 2015 (5×5-km per pixel level)

**FIGURE 2.10B**

Relative annualised decrease in moderate and severe stunting, 2000–2015

**FIGURE 2.10c**

Prevalence of moderate and severe stunting, 2000–2015



Source: Osgood-Zimmerman A., Millea A.I., Stubbs R.W. et al, 2018.<sup>58</sup>

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Geospatial data can also be used to analyse the root causes of malnutrition in all its forms, and one study did just that.<sup>59</sup> The International Food Policy Research Institute (IFPRI) used district-level aggregate data from the 2015–2016 National and Family Health Survey covering 601,509 households in 604 districts in India to understand the *causes* of the spatial variation. India holds almost a third (31%) of the world's burden for stunting, and because India is so diverse from state to state, it is important to understand how and why stunting prevalence differs. Researchers used mapping and descriptive analyses to understand spatial differences in distribution of stunting. The mapping showed that stunting varies greatly from district to district (12.4% to 65.1%), with 239 of 604 districts having stunting levels above 40% (Figure 2.11).

Using regression decomposition models, the study compared districts with low (less than 20%) versus high (more than 40%) burdens of stunting and explained over 70% of the difference between high and low-stunting districts. The study found that factors such as women's low BMI accounted for 19% of the difference between the low versus high-burden districts. Other influential gender-related factors included maternal education (accounted for 12%), age at marriage (7%) and antenatal care (6%). Children's diets (9%), assets (7%), open defecation (7%) and household size (5%) were also influential. This study is important in that it reinforced the multisectoral nature of stunting by highlighting that differences between districts were explained by many factors associated with gender, education, economic status, health, hygiene, and other demographic factors. India's national nutrition strategy – which is focused on addressing district-specific factors – draws on analyses such as these along with district-specific nutrition profiles to enable diagnostic work and policy action to reduce inequalities and childhood stunting.

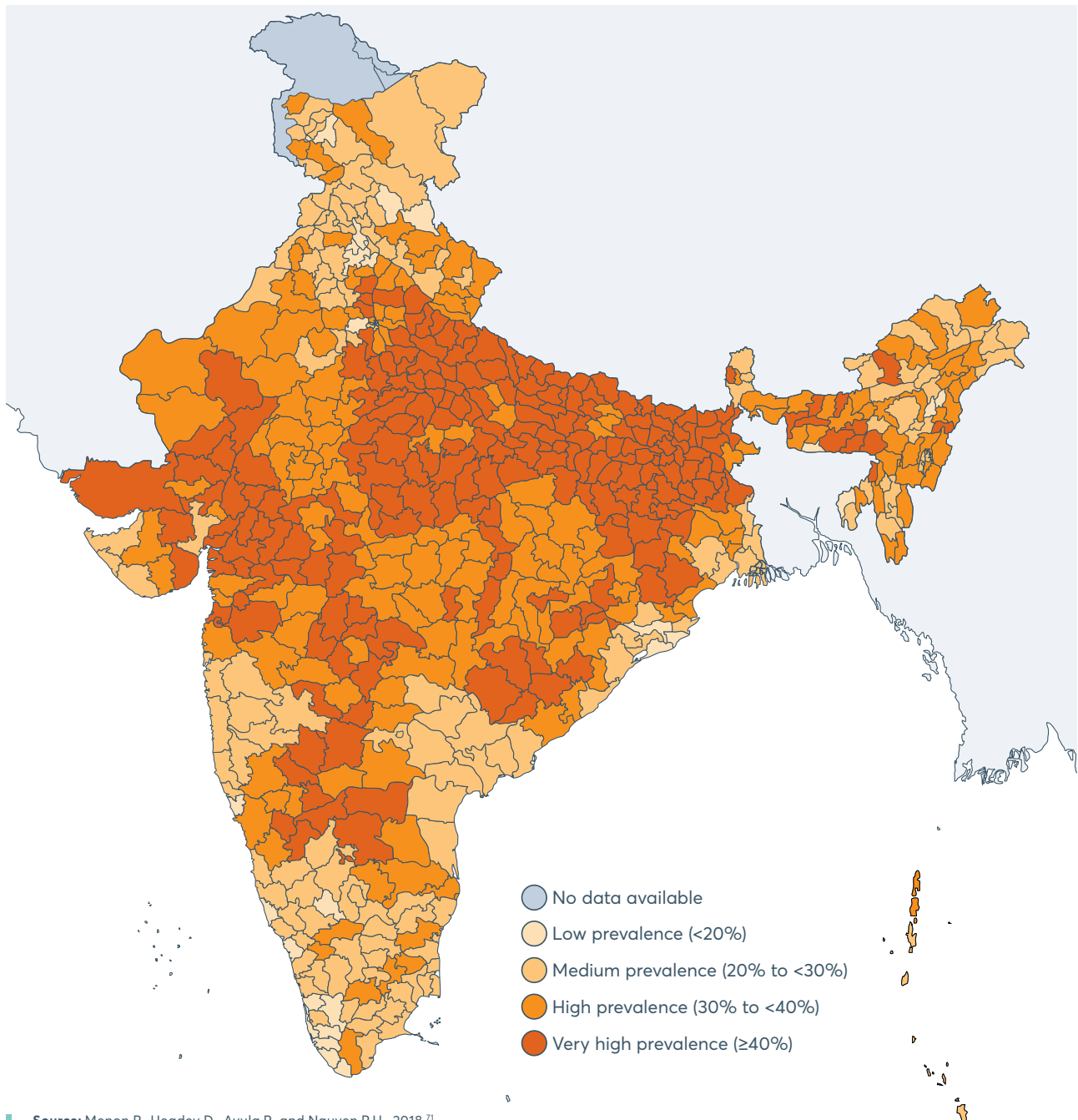
In a world where national-level data on obesity is discouraging, local-level data can be used to identify if and where there is progress. This local-level analysis in high-income countries is showing distinct differences in levels and rates of change in childhood obesity. For example, in the UK, the National Child Measurement Programme measures BMI among all children aged 4–5 years and aged 10–11 years, enabling local authorities to identify where obesity is high, and factors associated with it. The latest data analysis released in 2018 shows that excess weight, obesity, overweight and severe obesity are more common in the most deprived areas compared with the least deprived.<sup>60,61</sup> Amsterdam in the Netherlands tracks childhood obesity in different districts of the city. Based on this data, it has identified target neighbourhoods for reducing obesity among the most disadvantaged children in the city with its Healthy Weight programme. Spotlight 2.7 describes the success this programme is having in tackling obesity among children. In the US, local data shows that obesity is slightly declining in 35 localities. This has facilitated a process of identifying what factors are driving these improvements. Spotlight 2.8 highlights the key findings of the Childhood Obesity Declines Project.

These changes reflect a greater concentration of local-level action in cities around the world to tackle malnutrition in all its forms, including at the city level, as the example of Amsterdam illustrates. New multi-level city initiatives are being designed to tackle obesity, such as the *Pilas con las Vitaminas* programme in Quito, Ecuador,<sup>62</sup> and the Mayor of London's new Child Obesity Taskforce, which is developing an action plan to step up action on obesity in the city. Elsewhere, city networks are being set up to tackle these problems and enable shared learning. The Partnership for Healthy Cities, for example, was established in 2016 to bring together over 50 cities across the world to commit to implementing effective policies, including to promote healthy eating and prevent obesity.<sup>63</sup> Cities Changing Diabetes is another programme being rolled out in several cities across the globe; it assesses the causes of diabetes and then designs and implements interventions to reduce it – on the basis that two thirds of people with diabetes live in cities.<sup>64</sup> The C40 cities network on climate change also has a Food Systems Network which brings together cities taking action on food to improve both diets and environmental sustainability.<sup>65</sup>

Scores of cities around the world have also developed urban food policies designed to tackle different aspects of food-related problems that are not necessarily directly related to malnutrition, but could be levered to address it.<sup>66</sup> 179 cities have now joined the Milan Urban Policy Pact (2015)<sup>67</sup> and many have programmes designed to tackle food insecurity and malnutrition throughout low, middle and

high-income country settings, from Dakar to Toronto. For example, the urban agriculture programmes in cities from Antananarivo,<sup>68</sup> Madagascar, to Rosario, Argentina, are providing the land and support needed to start food growing in cities. Lessons learned from these policies and programmes indicate they show promise for urban food policy as a space for improving nutrition.<sup>69,70</sup>

**FIGURE 2.11**  
Maps of stunting prevalence in Indian districts, 2015–2016



Source: Menon P., Headey D., Avula R. and Nguyen P.H., 2018.<sup>71</sup>

### Tackling childhood obesity in the Amsterdam Healthy Weight Programme

Corinna Hawkes

In 2012, Amsterdam realised it faced an obesity crisis among young people, with rates substantially above the Netherlands' national average. Data showed clearly that particular areas of the city were affected, notably those with high levels of low-income children from migrant and minority ethnic backgrounds. The then Deputy Mayor responsible for public health, care and sports quickly saw the gravity of the problem and propelled childhood obesity to the top of the city's agenda. Through him championing the issue, in late 2012 the city council formally committed to Amsterdam's new approach to childhood obesity.

Spurred into action, the authorities devised the Amsterdam Healthy Weight Programme. The vision was clear: for all of Amsterdam's children to have a healthy weight by 2033.<sup>72</sup> The city set two interim targets – the '5,000 metre mission' for all 0–5 year olds to be a healthy weight by 2018 and the 'half marathon mission' for all 0–10 year olds to be a healthy weight by 2023.

From the very start, the programme leadership was placed in the Department of Social Development so that obesity would not be siloed as a purely health issue. It was also treated as a long-term problem with multiple causes at many different levels, requiring shared responsibility among multiple partners. Using the 'rainbow model' of health determinants, they devised a 'whole-system approach' to introduce solutions into the many domains of children's lives.

Actions are broken down by prevention, cure and facilitation. Prevention targets a child's first 1,000 days, pre-school and primary school, neighbourhoods, healthy urban design, food, teenagers, and children with special needs. Cure focuses on helping children who are already overweight or obese to regain a healthier weight. Facilitation covers learning and research, digital tools and communication for professionals. Numerous activities were implemented in the first phase of the programme from 2012 to 2017 including public drinking fountains, restrictions on food advertising in sports stadiums and pools, guidance for healthy snacks in schools, establishment of health ambassadors, treatment of children affected by severe obesity, healthy playgrounds, engagement with food businesses, and healthy eating consultations with parents.<sup>73</sup>

The programme benefitted from having local-level data on childhood obesity that enabled it to identify where the problems were greatest, which led to a focus on five target neighbourhoods. Priority neighbourhoods were assigned a community manager and programme based on their needs. Welfare organisations, civil society, minority ethnic organisations and local shops were brought together to promote healthy lifestyles. Efforts were made to work together to overcome challenges. For example, planners and public health officials had to work together but – at least to start with – had little idea how they impacted on each other's work. Over time, the planning and health departments began collaborating on small-scale activities and eventually on creating healthy public spaces. Physical activity was an important part of this – another example of different disciplines working together came by incorporating 'healthier urban design' into the programme.

There are no evaluations explicitly linking the changes made by the Amsterdam Healthy Weight Programme to changes in obesity. But overweight and obesity prevalence is levelling off, with a decrease in the percentage of children of all age groups between 2012 and 2015 from 21% to 18.5%. The decrease is steeper among groups of very low social economic status than among groups of very high social economic status.<sup>74</sup>

Lessons learned about what made the programme effective are transferrable to other cities. These include strong political leadership; building a programme on the understanding that obesity is a complex problem and that change will happen by learning by doing, and doing by learning; collaboration and commitment across departments; acceptance that change will not happen overnight; combining top-down government intervention with community-led change; targeting the most deprived neighbourhoods; and gathering data for robust monitoring and evaluation.<sup>75</sup>

With the sense of a shared responsibility for reducing obesity now elevated in Amsterdam, the city is continuing its programme of work for 2018 to 2021.<sup>76</sup>

## What is driving declines in child obesity in four localities in the US?

Laura Kettel Khan

Childhood obesity is a major problem in the US. Data captured by the National Health and Nutrition Examination Survey (NHANES) shows rates have more than tripled since the 1970s and nearly one in every five school students is now obese.<sup>77</sup> Yet NHANES data from 2003 to 2014 suggests that the rate for children overall may have stabilised at the national level, and there have been some encouraging signs in the past five years with more than 35 US jurisdictions (at the local or state levels) reporting small declines in obesity measures among some segments of their population, including young children from low-income families.<sup>78</sup>

Armed with this data, the National Collaborative on Childhood Obesity Research set up the Child Obesity Declines Project in 2013 to study and document what was driving these declines. The project examines the what, how, when and where of community-based obesity prevention strategies in four selected communities which have experienced very small but statistically significant declines: Anchorage, AK; Granville County, NC; New York, NY; and Philadelphia, PA. Researchers wanted to find out why data showed obesity declining in these communities, and more importantly, to discover what local success stories could potentially be replicated elsewhere.

Using a unique systematic screening and assessment methodology, researchers identified a variety of interventions in these settings, including schools and early childhood education, national, state, local and institutional policies, and wider health and community strategies. For example, banning sugary drinks in Philadelphia schools; serving fresh fruit and vegetables at lunchtime in New York; increasing physical education lessons by 50% in Anchorage; and holding an hour's compulsory physical activity in childcare centres in Granville County. Some of the strategies directly targeted children in schools and childcare centres, while others were aimed at helping low-income children and their families towards healthier behaviour in their neighbourhoods and communities. Strategies were organised according to a socioecologic model – a framework for understanding the various impacts of personal and environmental factors that determine behaviour. Each action was classified according to whether it influenced obesity at the individual, interpersonal, organisational, community or policy level.<sup>79</sup>

While no causal conclusions can be made about the data, there are some pointed patterns of success in these communities across a range of environments. All had similar patterns of strategies that fall in all four quadrants of the socioecologic model, indicating the promise of multi-layered, more intensive strategies; all had strategies that directly targeted younger children in those places such as schools and early childhood education settings where they spend a significant part of their day; and all had 'enabling' strategies that did not directly target children but which increased the opportunity for healthy behaviours by low-income children.





03

2014. Niger.

Mothers screen their own children to pick up on early signs of malnutrition.

© EC/ECHO/Anouk Delafortrie

## Three issues in critical need of attention



# KEY POINTS

- 1** Micronutrient deficiencies are estimated to impact a significant number of people around the world, but there remains far too little information on micronutrient status and deficiencies. More essential information and surveillance need to be gathered to make substantial progress on global targets.
- 2** Fragility, conflict and violence put a heavy toll on populations' health, livelihoods, food security and nutrition. Multiple forms of overlapping malnutrition require responses that overcome traditional silos and target all forms of malnutrition. Humanitarian and development communities need to build common platforms and establish frameworks and joined-up financing mechanisms to effectively address nutritional needs, for immediate and longer-term impact.
- 3** More data has revealed the importance of investing in adolescent nutrition, particularly for girls and young women. The amount of attention being paid to adolescents as a nutritionally vulnerable group with unique nutritional needs in the life cycle is growing, but they are still frequently overlooked. Innovative new research, programmes and policies show potential in advancing understanding of how to develop good and lasting dietary habits during adolescence, including by involving the voices of young people affected by malnutrition.

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## Introduction

In this chapter, we highlight three areas that have emerged in recent years as critical for the burden of malnutrition: the need to improve the prevalence data on micronutrient deficiencies, to take a new approach to addressing malnutrition in all its forms during crises, and to build on the emerging focus on malnutrition among adolescents. The chapter provides insights into the state of play and identifies some elements of progress that could be built on into the future.

## More and better data needed about the burden of micronutrient malnutrition<sup>1</sup>

### Significant data gaps in micronutrient deficiencies

Despite the advances described in Chapter 2, there are still vast gaps in the data available to help us better understand the nature and extent of malnutrition in all its forms. Many countries do not yet collect the necessary data to fully understand the nature of the burden of malnutrition, diet or indicators of progress. We need more comprehensive subnational data to better understand where burdens are located, and what the direct and underlying causes of malnutrition are in these localised areas to better target programming and interventions. Lack of data affects our understanding of several contributors to malnutrition.

A major outstanding laggard is the little notable progress in the collection, analysis and use of micronutrient deficiency data. While old estimates suggest that at least one third of the global population suffers from leading forms of micronutrient deficiency,<sup>2</sup> there are considerable gaps in knowing how many people and who really experiences the different forms of micronutrient deficiency in the world today.

These include iron deficiency anaemia and deficiencies of iodine, zinc and vitamin A.

The following is often cited by the nutrition community: “Over 2 billion people worldwide suffer from a chronic deficiency of micronutrients, a condition known as hidden hunger”.<sup>3</sup> Yet, how reliable is this number and how can we qualify the data we have now? What is the state of micronutrient deficiencies in nutritionally vulnerable populations such as children under five years of age, women and adolescent girls? These questions are essential to increase accountability, improve programme decisions, and monitor and evaluate progress towards the goal of eliminating major micronutrient deficiencies. The need for a data-driven revolution as emphasised in the *2016 Global Nutrition Report* is still undeniably valid today, and the need for data on micronutrient deficiencies to monitor the situation has never been more pressing.

There have been laudable improvements in the collection of micronutrient data, including the World Health Organization (WHO)'s Vitamin and Mineral Nutrition Information System (VMNIS). This is the only surveillance system that monitors the global prevalence of vitamin and mineral status in populations.<sup>4</sup> It provides useful information on micronutrient deficiencies in more than 150 countries and stems from member states' Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and other nationally representative surveys. The database now includes 40 indicators of the status of 17 micronutrients or micronutrient-related conditions, covering both deficiency and excess.<sup>5</sup> Still, it mostly only covers data on vitamin A, iodine and anaemia and a reasonable amount of data on the prevalence of other micronutrient deficiencies is yet to be added for many countries.

Despite commendable efforts in filling data gaps such as the recent Ghana Micronutrient Survey,<sup>6</sup> getting accurate data remains a challenge. Incomplete, poor quality and misrepresentative data are common issues, and countries often lack sufficient resources to update prevalence figures and track coverage trends.<sup>7</sup>

DHS surveys do not collect a complete range of micronutrient status and data collection varies between country surveys. What is collected across most countries, by household, is on anaemia, consumption of vitamin A and iron-rich foods, micronutrient supplementation (vitamin A and iron/folic acid) and presence of iodised salt.<sup>8</sup>

Another concern is that assessment of many micronutrients lacks standardised protocols, which can easily result in data misrepresentation. Proxies used to assess hidden hunger are often inadequate. This is particularly evident in identifying iron status in populations. Prevalence of iron deficiency is regularly derived from anaemia in blood haemoglobin concentration,<sup>9</sup> however a recent estimate shows only 25% and 37% of all anaemia is associated with iron deficiency in pre-school children and non-pregnant women of reproductive age, respectively.<sup>10</sup> Such assumptions distort our understanding of the contribution of iron deficiency to anaemia and incorrectly assume that everyone with anaemia is iron deficient (because anaemia tests measure haemoglobin levels), failing to account for the various causes of anaemia (e.g. infections, malaria, helminths, haemoglobinopathies and other micronutrient

deficiencies). This challenges our ability to choose the correct interventions and identify appropriate indicators to assess impact.<sup>11</sup> Likewise, for zinc deficiency, prevalence rates are estimated from predictions of national risks of inadequate zinc intake based on national food supplies, which indicate the risk of insufficient zinc intake, rather than a biological outcome of zinc deficiency.<sup>12</sup> Serum zinc concentration is also not a perfect indicator for zinc deficiency: it can be reliably applied in populations but not in individuals.

## Importance of reliable micronutrient data

Precise data is critical for informing and monitoring the impact of policy and programmatic goals to reduce micronutrient deficiencies. Planning interventions aimed at reducing micronutrient deficiency need to develop effective assessment and surveillance methods to identify populations at risk and monitor progress over time.<sup>13</sup> For example, many countries collect data on anaemia status, consumption of vitamin A and iron-rich foods, micronutrient supplementation (vitamin A and

**TABLE 3.1**  
Coverage of micronutrient supplementation programmes and salt iodisation

COVERAGE/PRACTICE INDICATOR	NUMBER OF COUNTRIES WITH DATA	MINIMUM %	MAXIMUM %	MEAN %	MEDIAN % FOR COUNTRIES WITH DATA
Children 0–59 months with diarrhoea who received zinc treatment	46	0.1	50.2	8.6	2.8
Children 6–59 months who received two doses of vitamin A supplements	58	4.5	86.4	57.0	60.9
Children 6–59 months given iron supplements in past 7 days	56	1.3	45.4	14.6	11.6
Women with a birth in last 5 years who received iron and folic acid during their most recent pregnancy	62	22.6	96.6	74.6	81.0
Household consumption of any iodised salt	52	18.0	99.8	82.7	90.9

Source: Kothari, M., and Huestis, A., based on 2016 *Global Nutrition Report* and UNICEF global databases, 2018.

Notes: Data is compiled using STATcompiler and taken from country Demographic and Health Surveys for 2005–2017.

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iron/folic acid), and presence of iodised salt in households. This enables basic tracking of coverage of key programmes. Table 3.1 shows the percentage of women or children in need of micronutrient supplements who have access to them as well as household consumption of iodised salt (Spotlight 3.2).

There is a need to invest in collecting regular, nationally representative, high-quality micronutrient data.<sup>14</sup> Indicators not impacted by disease state and that account for environmental and use factors are needed, as are innovations in biomarkers for status and function. New approaches applying 'omics' – genomics, metabolomics and proteomics<sup>15</sup> – technology hold promise, also for point-of-care use. All DHS surveys should assess intake and status of multiple micronutrients, and the frequency of national nutrition surveys

should be increased and include data on young children and women of reproductive age including adolescent girls. Disaggregated data for income segments and critical age groups is also needed for effective policymaking. While we wait for better data, Spotlight 3.1 highlights a new Global Nutrient database that gives estimates of national available nutrients. While it does not solve the many gaps in micronutrient data, it is a step towards better informing us on what nutrients are available in the food supply.

Steps taken in policies and programmes also have the potential to address micronutrient deficiencies, including through improving dietary diversity (Chapter 4).<sup>16</sup> Spotlight 3.2 highlights another approach – large-scale fortification – that has made progress but still faces significant barriers to effective implementation.

## A global nutrient database

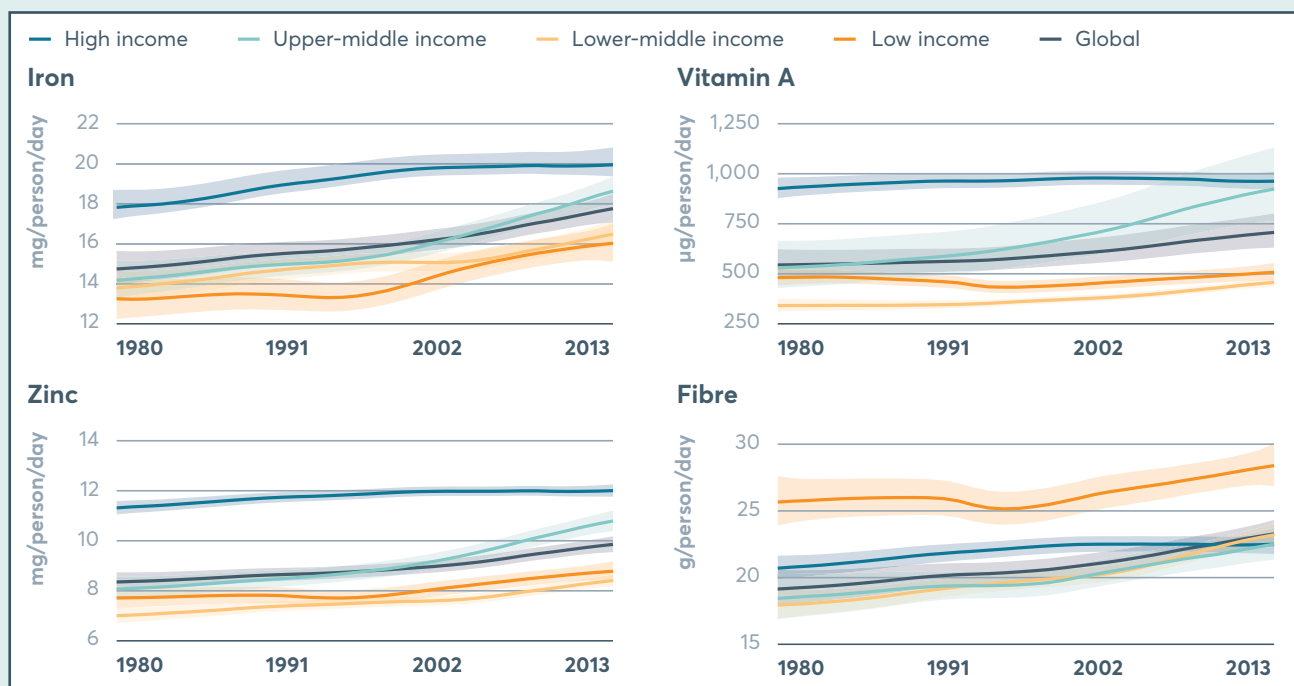
Ashkan Afshin and Josef Schmidhuber<sup>17</sup>

To address the data gap on micronutrients, the Food and Agriculture Organization (FAO) in collaboration with the Institute for Health Metrics and Evaluation has established the Global Nutrient Database. This provides estimates of national availability of 156 nutrients between 1980 and 2013. To create this database, data on availability of nearly 400 food and agricultural commodities from FAO's Supply and Utilization Accounts were matched to the food items in the US Department of Agriculture's Food and Nutrient Database. Then, after adjusting for inedible portion of foods, the national availability of each nutrient was calculated as the sum of the contributions of individual food items to the availability of each nutrient.

The estimates of this database show that, in parallel with the increase in energy availability worldwide, the availability of most micronutrients has increased in most countries. Figure 3.1 shows the key nutrients' availability including fibre, iron, zinc and vitamin A in grams per person per day over the last few decades. This data shows that globally and across countries of different income classifications, these nutrients are now more available. However, the rate of increase varied across countries and a significant variation was observed across the level of socioeconomic development.

**FIGURE 3.1**

Availability of fibre, iron, zinc and vitamin A at global level and by income classification, 1980–2013



Source: The Global Nutrient Database, 2018.

One of the advantages of this database is that its estimates have been validated by comparing them with consumption data from nationally representative nutrition surveys. It provides the opportunity to characterise nutritional deficiencies at the country level more accurately and identify the food sources of each nutrient across countries, hence informing nutrition-sensitive interventions to address these deficiencies. While it should be cautioned that food or nutrient availability are not the same as actual food or nutrient consumption, this data offers a key source of information for identifying shortfalls or surplus in a country's energy and nutrient intake. Countries, international agencies, donors and researchers can use this information as a key advocacy tool for improved food and nutrition policymaking.

## SPOTLIGHT 3.2

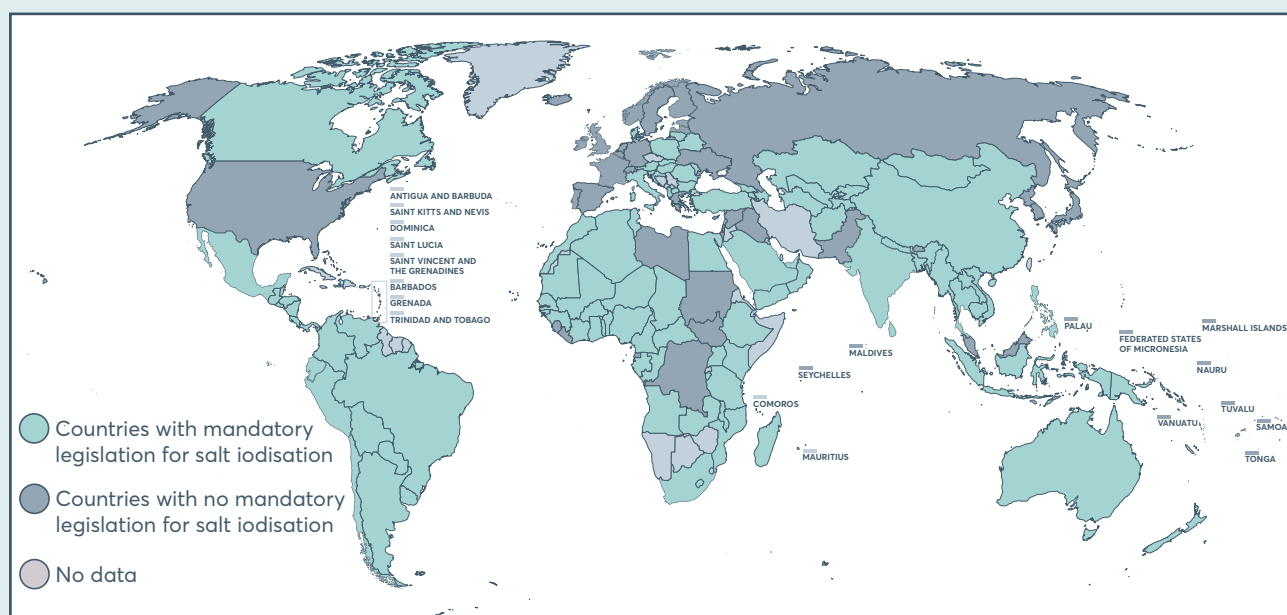
### Large-scale fortification as a means of addressing micronutrient deficiencies

Greg S. Garrett, Jonathan Gorstein, Roland Kupka and Homero Martinez

Large-scale food fortification aims to improve nutrient intake by adding essential vitamins and minerals to foods that need to undergo some form of processing to get to market.<sup>18</sup> It has been practised for almost a century, starting in the 1920s with the voluntary fortification of salt with iodine in Switzerland and the US. The UK and Canada were the first countries to legislate for mandatory fortification of wheat flour and salt in 1940 and 1949, respectively. There have been significant advances in this area in recent years: 86 countries now require at least one type of cereal grain to be fortified with iron and/or folic acid (13 introduced legislation between 2014 and 2017), 29 now have national programmes to fortify edible oils with vitamin A (12 mandated legislation in this timeframe).

A systematic review of 41 reports and 76 research papers concluded that in low and middle-income countries there is strong evidence of health impact where food fortification achieved both high coverage and compliance.<sup>19</sup> The most notable advance has been in the area of salt iodisation. Table 3.1 shows that mean household coverage of iodised salt is 83% in the 52 countries for which there is data. The number of countries with mandatory salt iodisation has steadily risen over time and is now 108 (Figure 3.2). Between 2014 and 2017, for example, six countries passed new salt iodisation legislation.<sup>20</sup> Based on available information on the use of iodised salt, the Iodine Global Network and UNICEF estimate that globally over 6 billion people now consume iodised salt.<sup>21</sup> This represents the most significant achievement to date of large-scale food fortification.<sup>22</sup> Only 19 countries are still classified with insufficient iodine intake, a dramatic shift from 110 countries in 1993.<sup>23</sup> (This calculation uses the WHO definition of adequate iodine intake as adults with a median urinary iodine concentration value  $\geq 100 \mu\text{g/L}$ .)

**FIGURE 3.2**  
Country legislation for salt iodisation



Source: Global Fortification Data Exchange 2018.



Salt iodisation is credited with preventing 750 million cases of goitre over the past 25 years.<sup>24</sup> Ethiopia is an example of national progress: in 2005, national coverage of iodised salt was 4.2%.<sup>25</sup> By the end of 2014, 95% of households had access to iodised salt (containing any amount of iodine), and 42.7% of households had access to adequately iodised salt.<sup>26</sup> This was a result of a dedicated, multi-level and multi-sector effort involving public–private partnerships that focused on improving supply chains, engaging the private sector, reinstating public commitments to enforce iodisation legislation and accessing technical assistance provided by international agencies.

A recent review of national large-scale food fortification programmes point towards a number of key lessons for success.<sup>27</sup>

- They take into account how many people are malnourished and where they live, as well as what food they eat. Success depends on which food is fortified and how much of it is industrially processed.
- They integrate fortification into broader national nutrition strategies.
- National governments commit the requisite capacity, resources and sustained commitment for effective quality control.
- They carry out periodic reviews to check assumptions about dietary patterns.
- They mandate fortification to address a significant public health need or risk.

Yet a number of barriers keep large-scale food fortification from achieving its full public health impact. First, many countries with a high burden of hidden hunger have not yet started a fortification programme. For example, 62 low and middle-income countries do not yet have mandatory wheat, maize or rice fortification programmes, yet these meet the general criteria<sup>28</sup> for establishing the intervention.<sup>29</sup> Similarly, an appropriate selection of food vehicles – those regularly consumed by a large proportion of the population, particularly the most vulnerable people – coupled with effective compliance mechanisms will result in substantial increases in the potential impact of fortification programmes.<sup>30</sup>

Second, the quality and compliance of fortified foods must be strengthened and integrated into routine food control systems. One review of external quality assurance activities of staple food fortification programmes from 25 countries found that the percentage of foods meeting national standards averaged between 45 and 50%.<sup>31</sup> Similarly, surveys conducted in nine locations in seven low and middle-income countries between 2014 and 2017 found that coverage rates are not strong.<sup>32</sup> On average only 35% of wheat flour consumed is fortifiable (industrially processed) in the nine locations and yet only 18.5% of available wheat flour was fortified. Nearly three quarters of people (72%) consume fortifiable edible oil but only 42% of all oil was fortified. For maize flour, 48% of people consume fortifiable maize but only 29% was actually fortified.<sup>33</sup>

This low coverage coupled with poor compliance to national standards is arguably the most critical issue facing countries that are already implementing mandatory large-scale food fortification programmes, because these will not achieve the intended health outcomes.

Third, most fortification programmes have been treated as vertical interventions with limited alignment or harmonisation. Although many of the same actors and stakeholders are involved with the fortification of different foods vehicles, the programmes have not been linked to identify potential synergies and opportunities for greater efficiency in design, implementation and monitoring.

Lastly, few national programme assessments have measured the impact of fortification on biological (e.g. on iron deficiency anaemia) and functional (e.g. child development) outcomes.<sup>34</sup>

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## Critical need to take a new approach to addressing malnutrition in all its forms during crises

### Understanding crisis and fragility

The World Bank estimates that around 2 billion people live in countries affected by fragility, conflict and violence,<sup>35</sup> and classifies 36 countries or territories as being in fragile situations now.<sup>36</sup> Crises take many shapes and forms, such as deteriorating governance, prolonged political crisis, post-conflict transition and fragile reform processes, often in a context of natural resource disasters and climate change. The World Bank also estimates that the share of extremely poor people living in conflict-affected areas will rise to 50% by 2030.<sup>37</sup>

Crises are leading to mass population movement either within a country (internally displaced), estimated at 40 million people, or as refugees in bordering countries, estimated at 25.4 million people.<sup>38</sup> This level of movement is higher than any other time in recent history and it is estimated that around 201 million people across the world need humanitarian assistance.<sup>39</sup> Over two thirds of all refugees are from just five countries – South Sudan, Somalia, Afghanistan, Myanmar and Syria – and more than half of the refugee population is under the age of 18.<sup>40</sup> Mass population disruption results in an increased risk of malnutrition, food and social insecurity and sickness, loss of livelihoods and economic opportunities, and death.<sup>41</sup>

One of the key messages from the 2017 *Global Nutrition Report* was that peace and stability (SDG 16) is essential for good nutrition. Yet war, instability and climate-related disasters continue to affect an increasing number of countries. They are a significant factor in the estimated 124 million people in 51 countries facing significant food insecurity.<sup>42</sup> The *Global Report on Food Crisis* reports that this had increased by 11 million people from 2016, equivalent to an 11% rise. It also indicates that the rise is due to new or intensified conflict and insecurity in countries such as Yemen, (northern) Nigeria, the Democratic Republic of the Congo, South Sudan and Myanmar. Persistent drought also played a major role in countries including Kenya, Somalia and Uganda, and in southern Africa.

The 2017 *Global Nutrition Report* also highlighted that famine was declared that year in South Sudan and a high risk of famine reported for (northern) Nigeria, Somalia and Yemen. The crises in these four countries led to an estimated 10 million people being displaced, and 31.6 million people classified as in crisis.<sup>43</sup> In response to this, humanitarian funding needs in the four countries have more than doubled, from US\$2.9 billion in 2013 to more than US\$6.5 billion in 2017 and are currently estimated at US\$7.27 billion in 2018.<sup>44</sup>

### Coexistence of malnutrition in all its forms in crises

Efforts to address malnutrition in crisis situations have historically focused on saving lives by identifying and treating wasting and by protecting and promoting infant and young child feeding. This is critical where the rates of wasting are high, have increased or are in danger of increasing, such as in the famine-risk countries of Somalia, Yemen, South Sudan and (northern) Nigeria.

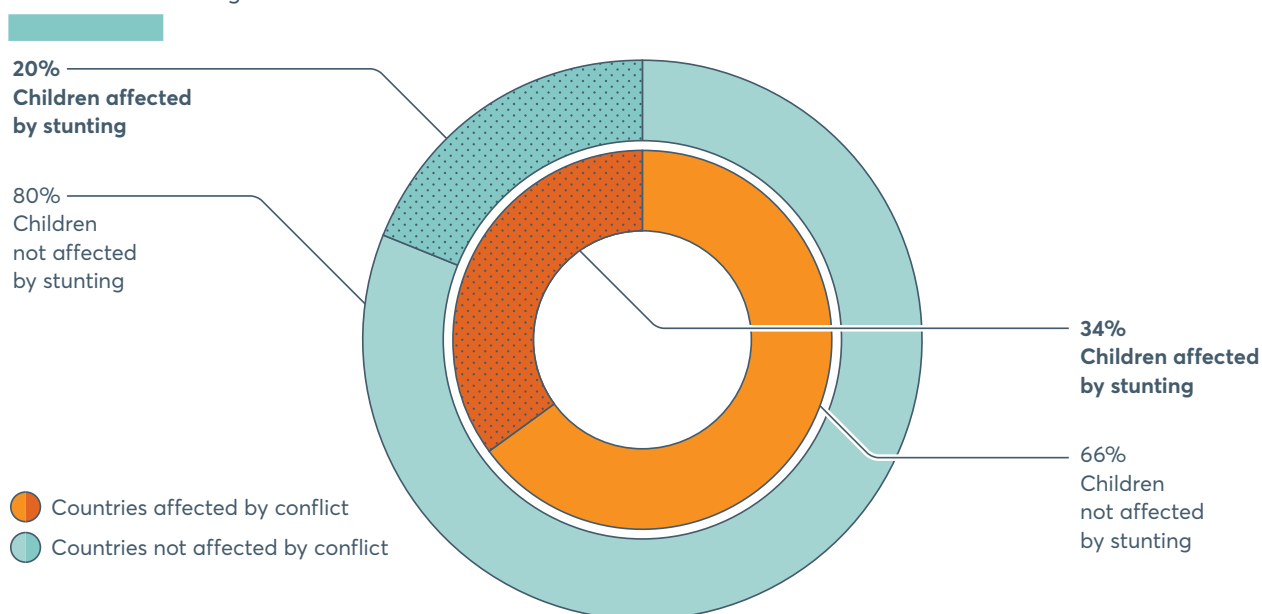
However, the reality of the malnutrition burden is now far more complex. Most of the world's wasted children do not actually live in a humanitarian context – and it is not just wasting which is a problem in crises. Emerging evidence indicates fragility, conflict and violence impact all forms of malnutrition. Both wasting and stunting occur in crisis and stable contexts and there are associations and inter-causality between the forms.<sup>45</sup> There is a greater burden of both wasting and stunting coexisting in young children (see Spotlight 2.5, Chapter 2) and pregnant women who are exposed to conflict give birth to children of lower weight – thus transmitting the adverse effects of conflict across generations.<sup>46</sup>

While the increased risk of wasting in these crises contexts is very well known, there is now increasing evidence that high levels of stunting occur and can even increase in protracted crises. Country-level stunting data shows interesting associations: that the prevalence of stunting is notably greater in countries affected by conflict than those that are not (Figure 3.3). Other estimates suggest that 45–75%<sup>47,48</sup> of the global stunting burden is located in fragile states; however, this is a wide range and points to the need for further data and analyses to confirm the estimates.<sup>49</sup>

Similarly, until recently, micronutrient deficiencies (except for a spate of outbreaks of scurvy and vitamin B deficiencies in refugee contexts in the 1980s and early 1990s) and non-communicable diseases (NCDs)/obesity have barely been on the radar of those responsible for responding to crises. This is beginning to change with growing recognition of the high burden of multiple forms of malnutrition in protracted and complex crisis contexts.<sup>50</sup>

Vast refugee populations in the Middle East present an example of overlapping burdens of wasting, stunting, micronutrient deficiencies and obesity. Spotlight 3.3 describes actions that have been taken to address malnutrition in all its forms among crisis-affected refugee populations in Lebanon.

**FIGURE 3.3**  
Prevalence of stunting in conflict countries versus non-conflict countries



**Source:** Development Initiatives based on 2018 INFORM Index for Risk Management and Joint Malnutrition Estimates data.<sup>51</sup>

**Notes:** Prevalence weighted by population based on available data for 148 countries. A country is affected by conflict if it scores 7 or higher in INFORM's 'Currently highly violent conflict intensity' indicator.

### Actions to address malnutrition in all its forms among refugees in Lebanon

Hala Ghattas, Zeina Jamaluddine and Chaza Akik

It is now estimated that one in every five people in Lebanon is a refugee. Lebanon, a small Mediterranean middle-income country, hosts 992,127 Syrian registered refugees who have arrived since 2011,<sup>52</sup> as well as an estimated 260,000–280,000 Palestinian refugees<sup>53</sup> who have been in the country since 1948, and a further 32,274 Palestinian refugees from Syria.<sup>54</sup> In Lebanon, which faces its own fast-changing nutrition challenges, these long-term refugees face overlapping burdens of poverty, food insecurity, poor diets, rising overweight and obesity, and high rates of NCDs.

Palestinian refugees live mainly in poor conditions in urban camps and gatherings, and rely on the over-stretched UN Relief and Works Agency for Palestine Refugees (UNRWA) for education, healthcare and social welfare services. Among households, 62% experience food insecurity, and 47% of people aged 25 to 59 years report a chronic disease – hypertension and diabetes being the most common.<sup>55</sup>

By 2018, the Syrian conflict was reported to have contributed to the internal displacement of 6.2 million people and an additional 5.1 million refugees in neighbouring countries: Jordan, Lebanon and Turkey.<sup>56</sup> Refugees from Syria have been dispersed across Lebanon since 2011 and live in host communities or informal tented settlements. Their food security gets worse each year, with poor-to-borderline household food consumption increasing from 13% in 2014 to 38% in 2017.<sup>57,58</sup> Diets are particularly low in meat, fruit and micronutrient-rich vegetables.<sup>59,60</sup> Child diet diversity is also low, with only 9% of children aged 6 to 23 months achieving minimum diet diversity.<sup>61</sup> In 2016, global acute malnutrition and stunting prevalence in children aged 0 to 59 months was 2% and 15% respectively.<sup>62</sup> In parallel, 34% and 29% of adults aged 18 to 69 years are overweight and obese respectively, 49% have raised total cholesterol,<sup>63</sup> and more than half of Syrian refugee households include a member diagnosed with one of five NCDs.<sup>64</sup>

Faced with these challenges, humanitarian organisations have established programmes to respond to both the acute and basic needs of refugees, as well as their longer-term healthcare needs. Examples include:

#### School feeding and nutrition education

The World Food Programme (WFP) runs a school feeding programme in 38 public schools which cater to both Lebanese and Syrian refugee children.<sup>65</sup> Rather than focusing on increasing calorie intake, WFP adapted its programme to contextual needs, aiming to increase diet diversity by providing fresh fruit and milk at school, as well as nutrition education.

Two UNRWA primary schools have piloted an innovative Healthy Kitchens programme, involving refugee women trained in food safety and hygiene who provide a daily healthy snack to Palestinian refugee schoolchildren. These pilots have shown improvements in food security, social support and the mental health of women, a rise in child dietary diversity, and a fall in children's consumption of sugar-sweetened beverages and desserts.<sup>66,67</sup>

#### Food and cash assistance programmes

Various targeted electronic food voucher and multi-purpose cash programmes have been established over the years to provide food and other basic needs to different vulnerable refugee subpopulations, including Syrians and Palestinians. Impact evaluations have shown that multipurpose cash assistance increases food expenditure, but does not improve access to healthcare services. Both e-food vouchers and cash helped improve diet diversity and other food security indicators, with bigger improvements seen among people receiving unrestricted cash assistance than e-food vouchers.

### Strengthening local healthcare systems

In collaboration with the Lebanese Ministry of Public Health, UNHCR has responded to the basic healthcare needs and the high burden of NCDs among Syrian refugees by supporting the primary healthcare system through subsidised care, and a referral system for secondary and tertiary care. Three quarters (75%) of eligible treatment costs are covered, rising to 100% for vulnerable subgroups. UNRWA also operates a comprehensive primary healthcare system with full coverage for Palestinian refugees, including targeted screening programmes for NCDs, as well as a referral system which covers 90% of secondary and tertiary care. An innovative pilot project in both public and UNRWA primary healthcare centres has trialled an e-health app that has improved case detection and referrals for NCDs.

In this context, the remaining challenges are to ensure sustainability of these programmes to improve healthy diets in childhood, and improve food security and access to health services across these vulnerable populations over time – particularly when humanitarian agencies are increasingly threatened by budget cuts.

## Building nutrition resilience by increasing humanitarian and development links<sup>68</sup>

An important emerging issue is how to build resilience to malnutrition in the context of increasing fragility and instability, and the various forms of malnutrition experienced. The impetus behind the growing resilience agenda has been the realisation that an estimated 86% of international humanitarian assistance goes to countries affected by long and medium-term crises.<sup>69</sup> Yet assistance is mostly in the form of short-term programming, which is unable to deliver the resilience building needed for crisis-affected populations to avoid their nutritional status deteriorating.

More lessons are gradually being learned about what it takes to build nutrition resilience, including preparedness planning, early warning and surge capacity for scaling up systems, human and financial capacity and involving multiple sectors.<sup>70,71</sup> Critical to this process of building resilience is bringing together the development and humanitarian communities.<sup>72</sup> This would help, especially in protracted crises, in discussing and developing joint policies and frameworks, predictable financing and funding mechanisms, and ensuring a 'balance' of programmes is achieved across the range of high impact nutrition-direct interventions and other sectoral programming, such as social protection programmes.

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Consistent with lack of recognition of malnutrition beyond wasting in crisis contexts is that historically wasting and stunting have been siloed along humanitarian–development lines, with high prevalence of wasting being seen as a ‘humanitarian’ issue and stunting as a ‘development’ issue.<sup>73</sup> Discussions about how to bring the two communities together escalated during the 2016 World Humanitarian Summit with participants calling for stronger links between humanitarian and development programming.<sup>74</sup> A key commitment to action from the summit is ‘transcending humanitarian–development divides’,<sup>75</sup> efforts at which have been described as ‘strengthening the humanitarian–development nexus’. The UN Office for Coordinating Humanitarian Affairs (OCHA) has since developed the New Way of Working framework that also calls for more joined-up humanitarian and development analysis, planning, coordination and financing to support collective outcomes.

Organisations such as WFP, with decades of experience providing humanitarian assistance, are shifting from short-term emergency response mechanisms to funding over a three-to-five-year period, along with including stunting reduction targets as an explicit goal in their three-to-five-year country strategies. Under the Inter-Agency Standing Committee<sup>76</sup> the Global Nutrition Cluster, which supports the coordination of nutrition response in crises, is increasingly focused on integrated famine prevention packages including nutrition, food security, water, sanitation and hygiene (WASH) and health measures. Such programmes have been implemented for the first time in northern Nigeria, South Sudan, Somalia and Yemen during 2017. Some countries are also recognising the need to build resilience through a more ‘development’-oriented approach to what was previously considered ‘humanitarian’ context. The Kenyan government’s approach presents an example of a country-led approach to resilience. It demonstrates that a stronger development-focused approach can reduce the burden on traditional humanitarian response, benefitting crisis-prone populations.

A challenge to the humanitarian and development communities forging closer links is the lack of disaggregated and aggregated data depicting the extent, relationships and patterns of multiple forms of malnutrition. Better data is needed to effectively advocate for the type of institutional reform so that these multiple burdens before, during and after crises can be adequately addressed. A combination of more evidence describing multiple burdens and of the effectiveness of interventions that can address multiple forms of malnutrition simultaneously should speed up institutional reforms. These reforms can then underpin a more comprehensive set of development and humanitarian responses.

Funding is also a major issue. Highly fragile and conflict-affected contexts include South Sudan, where over half of aid is humanitarian,<sup>77</sup> and Somalia, which has been the recipient of continuous humanitarian aid for around three decades and where over half (56%) of aid has been humanitarian.<sup>78</sup> In such contexts, there is scope for governments to be more transparent and accountable in their aid and financing processes and donors to be less risk averse and consider more multi-year funding as well as pooled resources and direct budget support with the eventual aim of establishing government-funded and controlled services. Implementing partners could also think more strategically about how to strengthen, through programme integration, government and other local agency services, building sustainable and scalable programmes in these complex environments. The humanitarian community cannot build nutrition resilience alone without the effective engagement of development actors and without considering how to use humanitarian funding in a more flexible and resilience/development-orientated way. To date financing is short term and unpredictable while activity planning is based on repeated yearly project cycles that save lives but cannot prevent malnutrition in the first place.

Spotlight 3.4 describes an approach to equip health systems to effectively manage any sudden increases in wasting while at the same time working with multiple sectors to prevent wasting and stunting in the crisis response.



## Kenya's resilience-building approach

Jeremy Shoham and Carmel Dolan

Kenya's economy is growing and it has an ambitious 2030 development vision. As a result, its humanitarian system architecture has largely been replaced by greater government investment in resilience building, social protection programmes and early response systems.

A key element of this for nutrition is the integration of wasting treatment into the health system and a surge model which allows for surge treatment response in the most crisis-prone arid and semi-arid lands. In recent years, the government of Kenya has established social protection programmes in these vulnerable areas (65% government funded) and a cash transfer programme for up to half a million people. There are also government-funded social protection programmes for older people, severely disabled persons, orphans and vulnerable children, as well as an asset-creation cash transfer programme implemented by the WFP.

Resilience programming has become a major component of Kenya's national Mid-Term Development Plan and is a key pillar of the Ending Drought Emergencies (EDE) framework. Central to the EDE is the strengthening of systems that allow earlier responses to threats before a full-scale crisis arises, including by diversifying livelihoods and anticipating risks. This has largely replaced the need for more traditional humanitarian response in Kenya. The National Drought Management Authority, which rolls out the EDE, straddles humanitarian and development programming and is devolved to the 23 most vulnerable counties. Nutrition is a cross-cutting concern and stunting is one of the key indicators for monitoring EDE progress.

In 2011, the response to the severe Horn of Africa drought that affected large parts of Kenya was characterised as late, poorly coordinated, and with low levels of government investment and leadership, little attention to drought resilience building, and high levels of child wasting and death. In contrast, the response to the 2016–2017 drought started earlier and while child wasting remained high in many affected counties, there were fewer deaths. In general, the 2016–2017 drought response demonstrated progress in how Kenya's systems have become orientated to reduce risk and respond more quickly and effectively to crisis. Several factors have contributed to this and, taken together, have enabled a considerable degree of strengthened humanitarian and development links. The following enabling factors have been identified:

1. National economic growth: Kenya is now classified as a lower-middle-income country.
2. Strong government leadership for the crisis response, with humanitarian partners providing gap filling rather than first-line response and development partners' investments aligned with national risk-reduction priorities.
3. Devolution of government since 2012, which has provided freedom for local governments to manage budgets directly, determine county-level priorities and respond early to emerging crises.
4. The elaboration and initial implementation of the EDE framework to achieve greater sector and humanitarian–development system links.
5. Strengthened health systems and establishment of a surge capacity model for the early treatment of wasting.
6. Establishment of scalable social protection systems for the most vulnerable people.

### Bridging the humanitarian and development gap

Anushree Rao

In 2013, at the first Nutrition for Growth (N4G) summit, Concern Worldwide pledged US\$116.7 million to nutrition programmes, mainly in fragile states. This financial commitment was met ahead of schedule, and another US\$100 million promised for 2018 to 2020. This funding is used to test and implement scalable solutions in some of the hardest-to-reach areas and populations, including programmes designed to treat and boost resilience to acute malnutrition.

Concern's funding included expanding its surge model for the community-based management of acute malnutrition. This model equips health systems in fragile settings to manage acute malnutrition effectively by triggering thresholds for a 'surge' humanitarian response, alongside existing management of routine acute malnutrition. It has now been applied in Kenya, Uganda, Niger and to some extent in Chad. The pilot in Kenya's Marsabit County showed that early warning and action alongside longer-term nutrition programmes can help to bridge the humanitarian–development gap. An evaluation concluded that the health system was better equipped to cope with increased cases of acute malnutrition during predictable crises, without undermining long-term health and nutrition work. The Kenyan government is now looking at embedding community-based management of acute malnutrition surge in health facilities servicing other drought-prone areas.

Concern Worldwide has also funded programmes designed to build resilience to acute malnutrition. For example, a community resilience to acute malnutrition (CRAM) programme in Chad aimed to improve nutrition in young children and build community resilience to shocks and stresses adversely impacting health and nutrition. The programme reached 4,000 households with a package of integrated nutrition and health services, WASH, climate-smart agriculture and livestock management. An impact evaluation of CRAM<sup>79</sup> found it protected against an increase in both wasting and stunting; increased the rate of exclusive breastfeeding in children under the age of six months; increased access to, and use of, boreholes and latrines; and boosted knowledge (but not practice) of hand-washing. In CRAM populations wasting rates stabilised compared with increases among control groups, while children's stunting prevalence in the CRAM settlements was 7% lower than those in the control settlements. CRAM showed that integrating multiple sectors such as agriculture, WASH, livelihoods, gender and health can significantly improve childhood malnutrition. However, the impact of CRAM on food insecurity remains ambiguous.

## Burden of malnutrition in adolescence

There is growing awareness of the importance of adolescent health and nutrition and increasing recognition that investing in this vital life stage is critical to reaching global targets and goals.<sup>80</sup> In 2017 and 2018 two calls to action were made on adolescent nutrition. In 2017 the Agenda for Action to Close the Gap on Women's and Girls' Nutrition was launched at the Milan Nutrition Summit, which called on the nutrition community to adopt a life-cycle approach that prioritises adolescents.<sup>81</sup> And in 2018, a new call to action was published: Better Data Now to Drive Better Policies and Programs in the Future. The call was launched following a stakeholder consultation in October 2017 on 'Adolescent girls nutrition; evidence, guidance and gaps' co-hosted by USAID's Strengthening Partnerships, Results, and Innovations in Nutrition Globally project (SPRING) and the Pan American Health Organization. More than 100 organisations have now signed up, showing their commitment to this important age group. The call has seven priority actions covering data gaps, policy, indicators and surveillance.

### Seven priority actions for improving adolescent girl nutrition<sup>82</sup>

1. Engage and partner with adolescents in the design and implementation of research, policies, programmes, regulations and guidelines, recognising and learning from successful engagement with adolescents in other sectors.
2. Assess how nutrition policies and regulations shape the food environment and influence adolescent nutrition and diet quality.
3. Develop and use standardised indicators for assessing adolescent health, nutrition and social and emotional well-being.
4. Ensure that adolescents are included in national nutrition surveillance, appropriately sampled in population surveys and disaggregated in routine programme-monitoring data.
5. Conduct quantitative and qualitative research to measure, analyse and address the underlying determinants of malnutrition and the context-specific factors affecting adolescents' food choices, diet and eating practices, physical activity and social and emotional well-being.
6. Design implementation research to improve programme delivery, use, cost effectiveness and scale, exploring the use of existing programmes and platforms when feasible.
7. Conduct rigorous evaluations of interventions to assess their impact and determine the right combination and dosage of macro and micronutrients as well as the optimal age and duration for adolescent interventions to enhance growth and development outcomes.

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These calls are being made in the context of recognising that adolescence is a critically important life stage to promote good nutrition and sound well-being into adulthood for both boys and girls. Adolescence<sup>83</sup> (from 10–19 years) is a time of not only sexual maturation but also rapid growth, second only to the first year of life with major anatomical, physiological and social changes. A growing body of international evidence suggests that not only is some ‘catch-up’ growth (height) in adolescence possible, but that optimal growth during this stage can have important knock-on effects on other key outcomes, such as improved cognition and reduced risk of NCDs.<sup>84</sup> Adolescence therefore presents a ‘second window of opportunity’, not only to improve the health and nutritional status of adolescents themselves, but to break the cycle of intergenerational malnutrition and ill health.

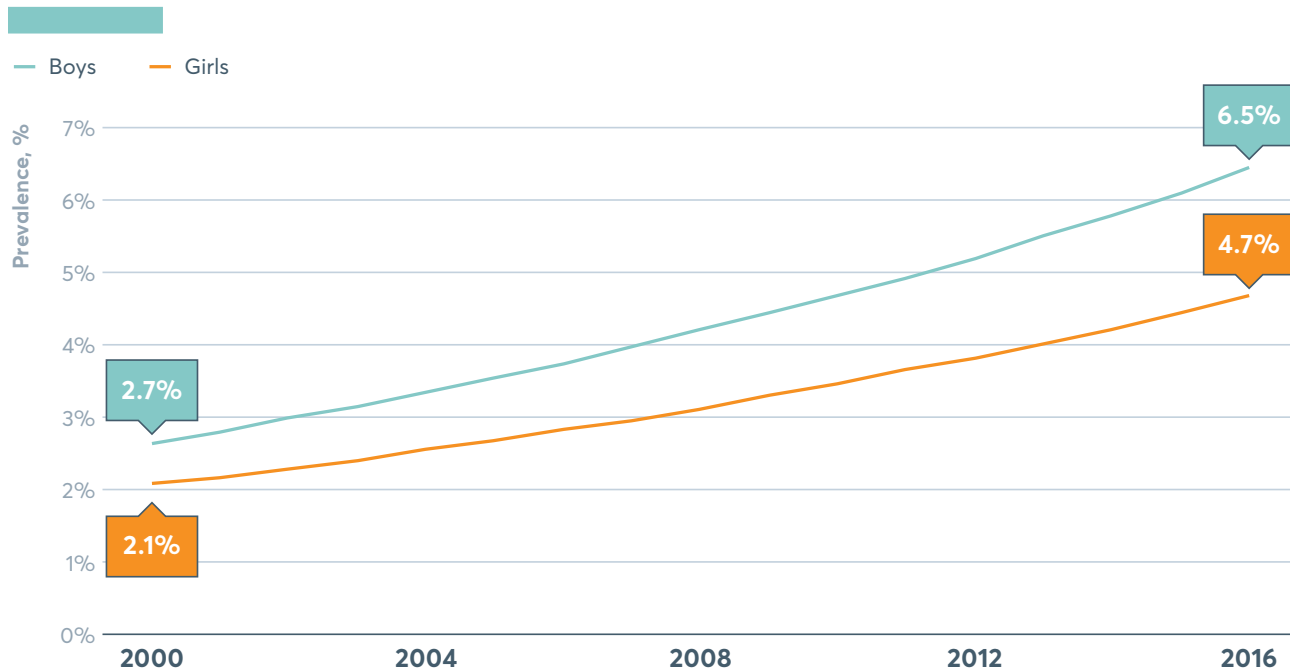
Adolescent girls are often married, which is important because of all the births to girls in developing countries under the age of 18 it is estimated that 9 in 10 are married.<sup>85</sup> Early marriage (i.e. just after the onset of puberty and before girls reach adulthood) occurs in many countries. In Niger for example, 76% of women were married before the age of 18.<sup>86</sup> Pregnancy in adolescence carries additional risks due to the girls’ immaturity, especially risks of mortality and adverse outcomes for both the mother and baby.<sup>87</sup> It is estimated that 95% of births to adolescents occur in developing countries, and that 19% of young women in developing countries become pregnant before the age of 18.<sup>88</sup> Evidence suggests that when maternal pre-pregnancy body weight is either too low or too high, risks to both mother and baby are higher. Pre-pregnancy underweight is significantly associated with preterm births, small for gestational-age babies and low birth weight. Meanwhile pre-pregnancy overweight and obesity are associated with increased risk of hypertensive disorders, pre-eclampsia and gestational diabetes.<sup>89</sup>

The uniqueness of the adolescent period in the human life cycle is because it is biologically, socially and culturally sensitive. Adolescence is a period of openness to new ideas making it an ideal opportunity to target and improve dietary behaviours at school, home and via technology such as social media<sup>90</sup> that will influence nutritional status into adulthood.

Adolescence is also the period where potentially harmful behaviours can become established. Current data indicates that unhealthy dietary behaviours among adolescents are getting worse (see Chapter 4). While much attention has been placed on underweight in adolescence, data suggests a significant increase in overweight and obesity among adolescents (Figure 3.4). Data from 200 countries shows both male and female adolescent obesity rates (among 10–19 year olds) are increasing annually, reaching 6.5% and 4.7% respectively in 2016. Interestingly, the burden falls more heavily on boys and Figure 3.4 shows the gap between boys and girls is also widening each year, yet more clarity is needed on the mechanisms of this trend. However, in Africa, adolescent girls have a higher prevalence of obesity than boys (Figure 3.5).

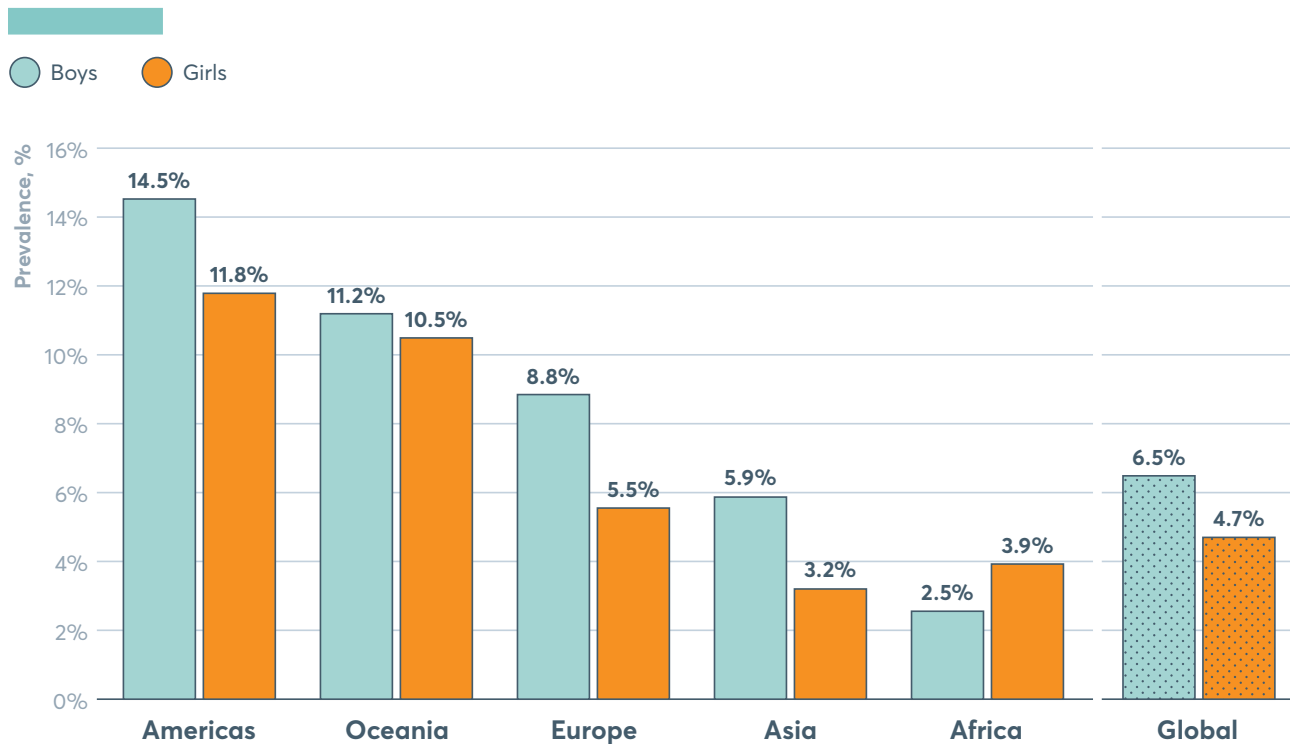
The development of new research, programmes and policies does at least indicate that more attention is now being placed on this critical life stage. Some of these programmes are exemplified in Spotlight 3.5, all of which indicate innovative approaches are being taken to bring in adolescent voices.

**FIGURE 3.4**  
Trends in adolescent obesity, ages 10 to 19 years, 2000–2016



Source: NCD Risk Factor Collaboration.

**FIGURE 3.5**  
Adolescent obesity, ages 10 to 19 years, by region, 2016



Source: NCD Risk Factor Collaboration.

Notes: Regional figures based on data for 195 countries.

## SPOTLIGHT 3.6

### **Bringing in adolescent voices: innovations in research, programmes and policies to tackle malnutrition in adolescence**

Juliet Bedford, Sarah Parkinson, Ashish Kumar Deo, Siddharth Kanoria, Justin Stokes, Caroline Fall, Sabiha Sultana, Rudaba Khondker, Mary Penny and Knut-Inge Klepp

Recent research shines a light on adolescent nutrition as a critically important life stage where interventions can have positive ripple effects. For example, Young Lives is an international study of childhood poverty following the lives of 12,000 children in Ethiopia, India (in the states of Andhra Pradesh and Telangana), Peru and Viet Nam over 15 years. This multinational cohort study is contributing to emerging evidence that, under favourable conditions (including targeted programmes such as conditional cash transfers), catch-up growth is possible during childhood/adolescence and is associated with improved cognitive function.<sup>91</sup>

New research programmes are now being initiated to further explore effective interventions. For example, Transforming Adolescent Lives through Nutrition (TALENT) is a consortium of researchers from the UK, India, Ethiopia, Côte d'Ivoire, Kenya, the Gambia and South Africa dedicated to understanding what adolescents eat, what influences their diets and how to make their diets healthier. Established in February 2018, TALENT is funded by the UK Medical Research Council. The first phase involves training nine teams from centres in India and Africa to collect qualitative data from young (aged 10 to 12 years) and older (aged 15 to 17 years) adolescents. The aim is to understand what drives adolescent food choices and behaviour, and how these drivers change throughout adolescence. TALENT will use this new understanding to develop and evaluate context and age-specific interventions to improve adolescent nutrition. The project is innovating new ways of co-creating interventions with adolescents themselves, their communities and policymakers to improve adolescent health, now and in the future.

Another research programme launched in 2018 is Co-CREATE.<sup>92</sup> This EU-funded project brings together a consortium of universities, national public health bodies and civil society organisations and will run until 2023. The aim is to prevent overweight and obesity in European adolescents by promoting healthier diets and increased physical activity. The key innovative aspects of the project are that it includes and involves adolescence in all aspects of the project, including the youth organisation Press (the youth organisation of Save the Children Norway) as a formal partner of the consortium; the focus on policy and a system approach to policy analysis (rather than focus on a single policy or intervention measure characterising much of the research in this field); and a strong focus on social inequality, as the potential differential impact policy measures and interventions have/might have on different social groups are investigated.



During 2016 to 2018, another project used a portfolio of creative tools to facilitate adolescents' participation and capture their priorities and lived experiences in their own voices. Conducted by Anthrologica and the WFP, it involved over 1,300 adolescent girls and boys from across Cambodia, Kenya, Guatemala and Uganda. The adolescents participated in workshops, using tools such as polaroid cameras to highlight issues related to access to food, food cultures and food aspirations. Participants used self-portraits and graffiti walls to depict their personal experiences and developed social network maps to explore relations with their peer groups, household, wider communities, key influencers and preferred communication channels. A key finding of the research was the recommendation made by adolescents across the study that 'you need to speak our language' and 'you need to come to us'.

The 'Adolescent Motivations Study' conducted in early 2018 by the Global Alliance for Improved Nutrition and Quantum Consumer Solutions in Bangladesh also took an innovative approach to delving more deeply into adolescent perspectives. On the basis of earlier work showing that nutrition and health are rarely primary factors in decision-making, it used ethnographic and qualitative methods to explore unstated, irrational and compelling life insights of adolescents to dig deeper into their motivations. The aim was to use the motivations identified to help design nutritional messages that align improving diet quality with fulfilling adolescents' desires and future goals.

The government of Bangladesh is also stepping up to focus on adolescents. Since 2010, Bangladesh's national policies on education, children, health, nutrition and population have all included measures on adolescent development, especially for adolescent girls. In 2017, the Ministry of Health and Family Welfare brought these different strands together into the National Strategy for Adolescent Health 2017–2030. This is unique in involving adolescents in its design and considering the broad and holistic understanding of the concept of health to address the overall health and nutritional needs of adolescents. The strategy also covers violence against adolescents, adolescent mental health and cross-cutting issues of social and behaviour change communication, vulnerable adolescents and adolescents in challenging circumstances.



04

2017. Ethiopia.

A mother breastfeeds her four-month-old son.  
© UNICEF Ethiopia/2017/Demissew Bizuwerk

# What people eat and why it matters

# KEY POINTS

- 1** Diets are a common cause of malnutrition in all its forms and contribute to disease. They matter for nutrition and health outcomes at all stages of the life cycle.
- 2** Gaps in the availability and quality of data make it difficult to get a comprehensive picture of what people are eating around the world, but progress has been made in collecting, collating and analysing data, meaning our understanding of diets is improving.
- 3** The diets of infants and young children, including the extent of breastfeeding and dietary diversity, remain inadequate for good nutrition. New analysis shows there are differences between countries, income groups and urban and rural locations, and improvements are needed to ensure young children have access to nutritious diets in all countries.
- 4** Regardless of wealth, school-age children, adolescents and adults are eating too many refined grains and sugary foods and drinks, and not enough foods that promote health such as fruits, vegetables and whole grains. A significant proportion of packaged foods fail to meet criteria for foods contributing to positive health outcomes.
- 5** There is evidence that interventions to improve diets, such as fiscal measures and reformulation, can have positive outcomes. All stakeholders, including governments and businesses, need to take more concerted action to improve diets.

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## Introduction

In this chapter, we highlight the importance of diet as cause and solution of the global burden of malnutrition. To do so, we explore new and emerging data on the state of diets around the world.

Ensuring access to and consumption of a sufficient quantity of food that is culturally acceptable, affordable, nutritious and healthy for everyone presents a grand challenge as we look towards achieving the Sustainable Development Goals. Current dietary patterns – including the degree to which babies breastfeed – are a common cause of malnutrition in all its forms (Box 4.1).

Large data gaps on exactly what people eat and drink in many countries persist.<sup>1,2</sup> Historically, there have been significant challenges to obtaining adequate diet data in three areas.<sup>3</sup> First, while a few countries have been collecting data on food consumption on a regular basis for some years, reliable information in the vast majority of countries is old or unavailable. Conclusions about what people eat and how dietary patterns have changed over time have thus been based on estimates of national food supply data (what is produced, imported and exported in a country), rather than direct measurement of the food people consume. While numerous studies exist, many have a narrow focus and use different metrics, and therefore produce data of limited use in understanding dietary impacts outside a specific context.

Second, there is no consensus among researchers on a standardised way to measure diets that encompasses all aspects of the diet – adequacy and moderation in quantity, diversity, quality and safety (Box 4.1). Existing metrics developed to provide indicators of household food access and micronutrient intakes, such as dietary diversity scores, were not designed to, and do not capture, other aspects of diets, such as risks to obesity and diet-related non-communicable diseases (NCDs). Some comprehensive metrics have been developed in high-income countries, such as the Alternative Healthy Eating Index and various Mediterranean diet scores but incorporate cultural eating patterns that may not apply directly to low and middle-income countries.

Third, filling data gaps can be costly and intensive work for those people collecting the data and those providing it.

These challenges have led to increasing calls to improve the quality and availability of data.<sup>4</sup> This chapter reviews the steps made to improve data collection, collation and analysis. It shows progress in some critical areas: more collation and analysis of global databases and further efforts to facilitate data collection into the future, more disaggregated analysis, and deeper analysis of data sources on breast milk substitutes and packaged foods. Where possible, the findings from existing data on the diets of infants and young children, adolescents and adults are presented.

The emergence of better data on global diets – the factors influencing nutritional status and what people eat – helps identify critical issues and actions that can be taken by governments, businesses and civil society. For example, new data on the factors influencing variability in the cost and availability of fruits, vegetables, nuts, pulses, animal source foods, oils and fats in different settings and times, is informing the development of more targeted strategies to improve nutrition.

## Diets of infants and young children

Optimal nutrition is critical during infancy and early childhood. Adequate diets and related feeding practices are essential to ensure health, growth and development of children to their full potential. There have been steps forward in our ability to understand how infant diets vary between countries, within countries and within wealth groups. UNICEF collates data on eight core 'infant and young child feeding (IYCF) indicators' – four relating to breastfeeding and four to 'complementary feeding' (Table 4.1). In 2016, analysis<sup>5</sup> of these indicators showed comparable data on breastfeeding for high and low-income countries, showing that high-income countries have shorter breastfeeding duration than do low-income and middle-income countries.

Global data shows that fewer than half (42.4%) of all newborns are put to the breast within the first hour of birth (known as 'early initiation'). It also shows that only 40.7% of babies are exclusively breastfed up to the age of six months. Fewer than half of children aged 20 to 23 months (45.1%) get any breast milk.<sup>6</sup> A new initiative launched in 2017 to galvanise international action to improve this – the Global Breastfeeding Collective – also found that progress in actions designed to protect and promote breastfeeding is extremely slow (Spotlight 4.1).

### BOX 4.1

#### A healthy diet

A healthy diet is sufficient and balanced in terms of quantity, quality and safety:

- **Quantity:** sufficient dietary energy to maintain life, support physical activity and maintain a healthy body weight, and enough macro and micronutrients to meet nutrition and health needs, but with without excessive consumption of dietary energy.
- **Quality:** containing diverse nutrient-dense foods from basic food groups including vegetables, fruits, whole grains and cereals, dairy foods and animal and plant-based protein foods, while limiting foods and beverages high in saturated and trans fats, added sugars and salt.
- **Safety:** with foods free from biological, chemical and physical contaminants that lead to food-borne disease.

Based on the available scientific evidence on the link between diet, malnutrition and diseases, the World Health Organization (WHO)<sup>7</sup> recommends the following as a diet that prevents malnutrition in all its forms, as well as NCDs:

- High in fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, brown rice)
- Intake of animal source foods (e.g. dairy, meat, eggs, fish and shellfish) in moderation, and limit processed meats
- Low intake of refined sugars that are added to foods or drinks by the manufacturer, cook or consumer, and concentrated sugars naturally present in honey, syrups, fruit drinks and fruit juice concentrates
- Use of unsaturated fats or vegetable oils (e.g. found in fish, avocado, nuts, sunflower, canola and olive oils) over saturated fats (e.g. found in fatty meat, butter, palm and coconut oil, cream, ghee and lard). Industrial trans fats, or partially hydrogenated oils (found in processed food, fast food, snack food, fried food, baked goods, margarines and spreads) are not part of a healthy diet.

## SPOTLIGHT 4.1

### Results of the 2017 Global Breastfeeding Scorecard

Laurence Grummer-Strawn

A step forward in 2017 to galvanise political and financial support to increase breastfeeding worldwide was the launch of the Global Breastfeeding Collective by UNICEF and WHO.<sup>8</sup> The Collective, a network of 22 international organisations, published a call to action, set seven priorities to improve national support for breastfeeding and introduced a new Global Breastfeeding Scorecard to track these priorities. The results published in 2018 show just how much more work is needed.<sup>9,10</sup> In brief:

- **Funding:** Only seven countries globally receive at least US\$5 per birth to support breastfeeding programmes.
- **Regulation of marketing of breast-milk substitutes:** Just 35 of 194 countries have laws to cover all areas of commercial infant formula, while a further 96 are partially covered. Monitoring and enforcement are reportedly weak.
- **Paid maternity leave:** Of 178 countries examined, only 21 meet the criteria of providing at least 18 weeks maternity leave at full pay using social insurance or public funds.
- **Baby-friendly hospitals:** While the vast majority of countries have implemented the Baby-friendly Hospital Initiative at some point, 64 have not assessed or reassessed any facilities in the last five years, suggesting the initiative has become dormant.
- **Breastfeeding counselling:** Most countries reporting this indicator have incorporated infant and young child feeding counselling into at least 75% of their primary healthcare facilities. However, the data does not indicate how many women actually receive counselling.
- **Community support programmes:** Among the 93 countries that reported data, just over half indicated that such programmes existed in more than 75% of districts, but there is no information on how many women are reached with these programmes or on the quality of services provided.
- **National assessments:** Only 83 countries have completed the World Breastfeeding Trends Initiative assessment of breastfeeding policies, programmes and breastfeeding rates in the past five years. Meanwhile 54 countries, mostly high-income ones, have no comparable data on exclusive breastfeeding.



When it comes to solid food, the picture is even more dismal. Fewer than one in five children (15.6%) aged 6 to 24 months eat a minimally acceptable diet. Only two thirds (68.5%) of infants aged 6 to 8 months eat any solid food at all, and more than half (51.2%) of children aged 6 to 24 months do not get the recommended minimum number of meals<sup>11</sup> (Table 4.1).

New analysis of sales data also reveals that a significant (and likely unprecedented) worldwide change in infant and young child diets is underway. Globally, infant formula (0–6 months) sales increased from 7.1kg per infant in 2005 to 11.0kg per infant in 2017, representing a 54.9% (3.9kg) increase. Sales are growing across all regions except North America where there is a modest decline (Figure 4.1). The most significant absolute change in sales is in Asia, driven by China as home to the world’s second-largest infant and young child population.<sup>12</sup>

Sales growth is strong not only in standard formula (for consumption by infants aged 0–6 months) but also in the follow-up (7–12 months) and toddler (13–36 months) formula categories, which can displace ongoing breastfeeding if marketed and consumed inappropriately. Because products in these latter categories are often branded, packaged and labelled in ways that resemble infant formula, their marketing may indirectly promote the use of infant formula and could be erroneously introduced in the first six months of life.<sup>13</sup> WHO has long maintained that these milks are unnecessary and supplant the feeding of breast milk.<sup>14</sup>

Despite this dismal picture, there are examples of rapid improvements in the diets of infants and young children from national policies and community-level action. Spotlight 4.2 highlights two such examples of where concerted and concentrated action made a difference.

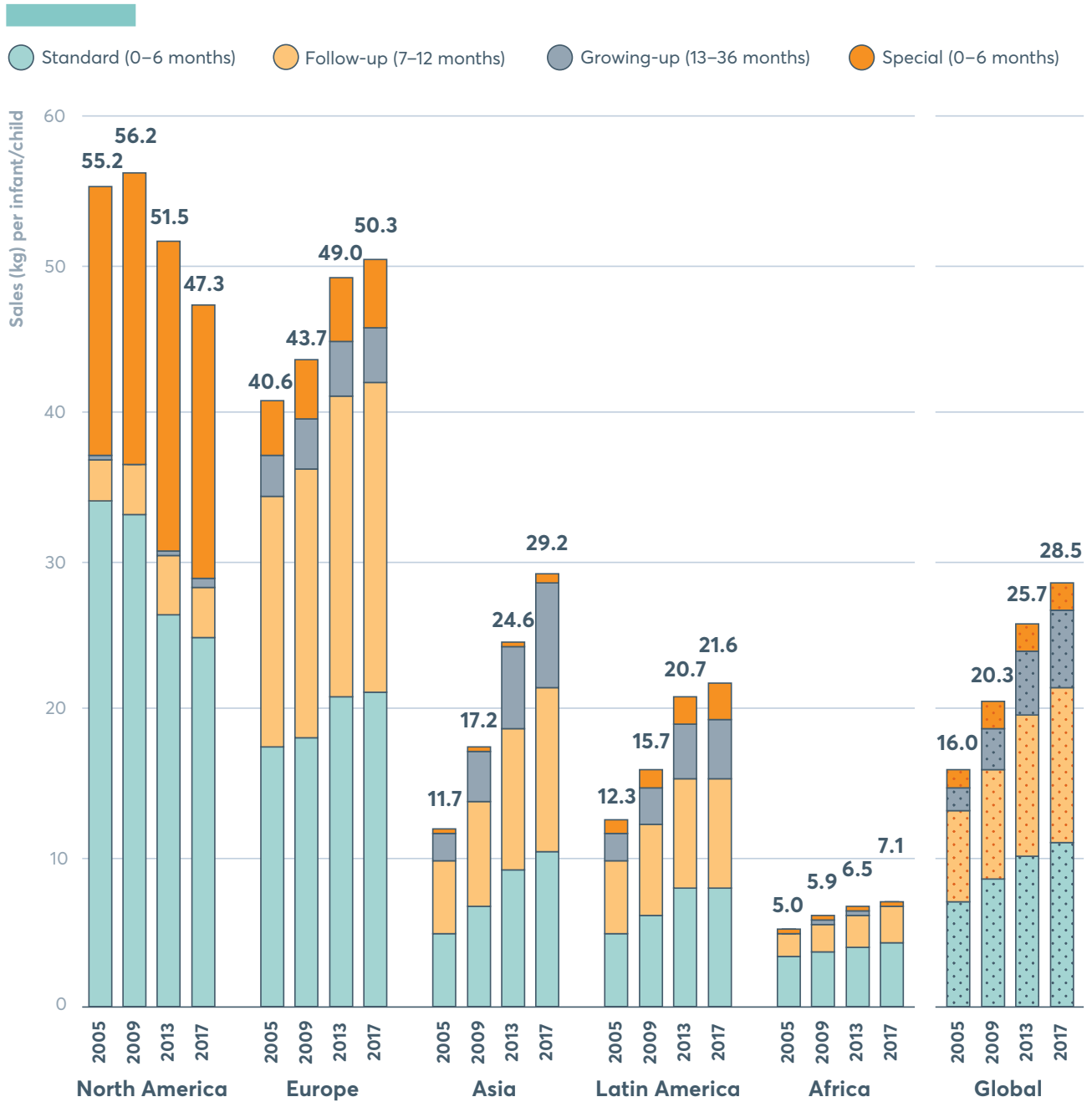
**TABLE 4.1**  
Indicators of infant and young child feeding practices

INDICATORS	WHAT THEY MEASURE	GLOBAL PREVALENCE (LATEST AVAILABLE DATA BETWEEN 2013–2018)
Early initiation of breastfeeding	Proportion of children born in the last 24 months who were put to the breast within one hour of birth	42.4%
Exclusive breastfeeding under 6 months	Proportion of infants 0–5 months of age who are fed exclusively with breast milk	40.7%
Continued breastfeeding at 1 year	Proportion of children 12–15 months of age who are fed breast milk	71.1%
Continued breastfeeding at 2 years	Proportion of children 20–23 months of age who are fed breast milk	45.1%
Introduction of solid, semi-solid or soft foods	Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods	68.5%
Minimum dietary diversity	Proportion of children 6–23 months of age who received foods from 5 or more food groups during the previous day	25.4%
Minimum meal frequency	Proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more	51.2%
Minimum acceptable diet	Proportion of children 6–23 months of age who receive a minimum acceptable diet. Composite indicator of minimum dietary diversity and minimum meal frequency	15.6%

Source: Definitions: WHO.<sup>15</sup> Data: UNICEF, Division of Data Research and Policy (2018), Global UNICEF Global Databases: Infant and Young Child Feeding, New York, May 2018.

**FIGURE 4.1**

Trends and patterns in per infant/child commercial breast milk substitutes sales by region,\* 2005–2017



Source: Euromonitor International Market Information Database.<sup>16</sup>

Notes: Standard milk formula = milk formulas in powder and ready-to-drink liquid form, given to infants usually between birth and 6 months (age band defined for each country where possible). Values given are for dry-weight in kilograms. Follow-on milk formula = those in powder and ready-to-drink liquid form, given to babies aged between 7–12 months. Values given are for dry-weight in kilograms. Growing-up milk formula = in powder and ready-to-drink liquid form, given to babies/toddlers from 13 months onwards. Values given are for dry-weight in kilograms. Special baby milk formula = given to babies to prevent or treat allergies to standard milk formula (e.g. soy-based formulas). Values given are for dry-weight in kilograms.

\*Excludes data for Oceania because of high volumes of formula purchased in Australia and New Zealand for informal 'grey channel' export to China. Excludes Caribbean islands.

## Rapid progress to improve the diet of infants and young children is possible

Joy Miller Del Rosso, Kathleen Pellechia, Silvia Alayon, Karin Lapping and Laurence Grummer-Strawn

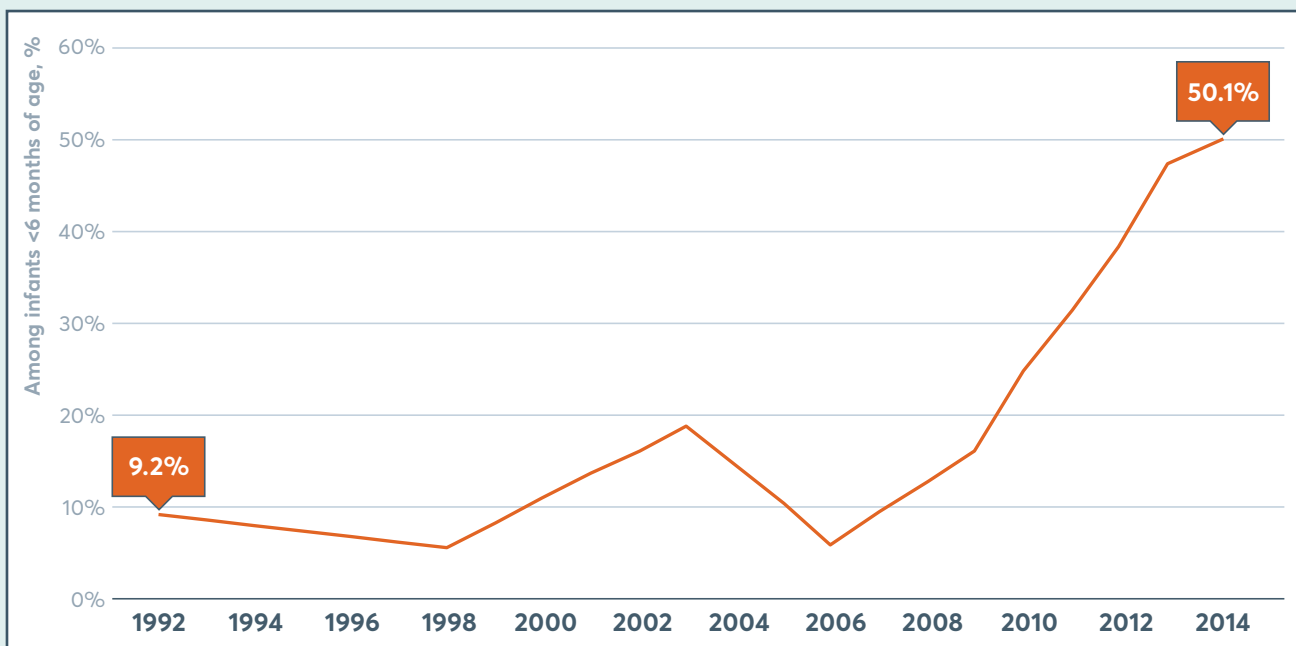
Diets among infants and young children are evidently inadequate for good nutrition. Nevertheless, there are encouraging signs that rapid progress is possible at a national and community level. For example, in Burkina Faso<sup>17</sup> throughout the 1990s and early 2000s fewer than one in ten infants under six months of age were exclusively breastfed. Yet the most recent data from 2014 shows that rates have shot up to more than half (Figure 4.2).

The government has shown strong commitment and ownership for all steps of the process. Burkina Faso's 2008 Employment Code now fully complies with the International Labour Organization convention on maternity protection, with legislation requiring women be given 14 weeks of fully state-funded maternity leave. Laws on the marketing of breast-milk substitutes prohibit advertising infant formula, follow-up formula, bottles and teats, and bans samples and gifts to mothers and gifts to healthcare workers.

All primary healthcare facilities now provide individual infant and young child feeding counselling, and 70% of districts have put in place community programmes for breastfeeding. There was a participatory development of the national IYCF plan, which ensured buy-in from all stakeholders and allowed for rapid roll out, with the use of mother support groups as a strong community platform for IYCF interventions.

**FIGURE 4.2**

Exclusive breastfeeding rates in Burkina Faso, 1992–2014



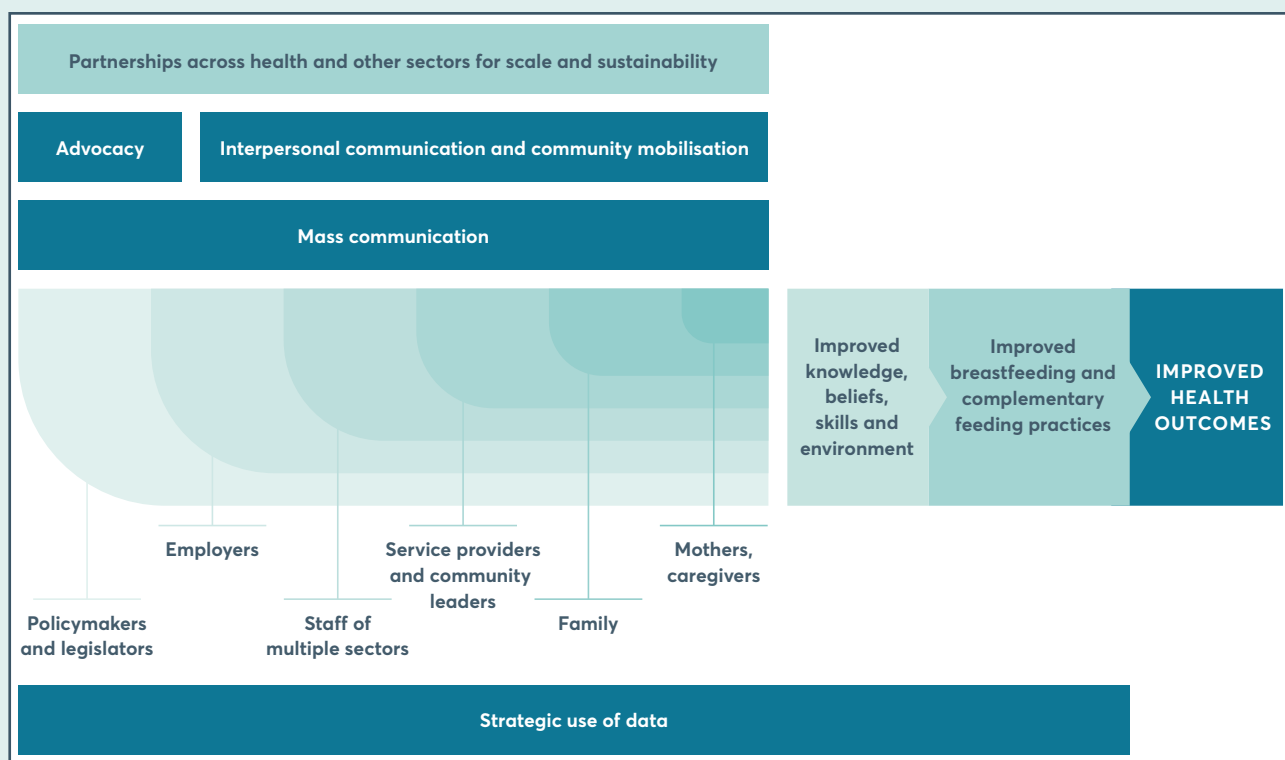
Source: UNICEF, Division of Data Research and Policy (2018). Global UNICEF Global Databases: Infant and Young Child Feeding, New York, May 2018.

Notes: For definitions of terms please see Table 4.1.

## SPOTLIGHT 4.2 CONTINUED

An example of a community-based initiative which has also shown very high rates of turnaround is the Alive & Thrive (A&T) initiative, a 12-year initiative to drive innovation, learning and nutrition impact at scale. Initially funded by the Bill & Melinda Gates Foundation, and working with partners and additional funding from the governments of Canada and Ireland, it is guided by a clear framework (Figure 4.3). Originally implemented in Bangladesh, Ethiopia and Viet Nam, A&T has expanded its work to new countries such as Burkina Faso, India and Nigeria, regional delivery mechanisms in Southeast Asia and West Africa, interventions for maternal and adolescent nutrition, and delivery channels through agriculture and social protection programmes.

**FIGURE 4.3**  
Framework for implementing infant and young child feeding programmes at scale



Source: Alive & Thrive, 2016.

Through its early work, A&T reached millions of mothers with children under two years of age through interpersonal and mass communication, and community mobilisation on IYCF. Thousands of trained frontline workers visited mothers at home to help with new behaviours. Mass media was used to drive demand for services and reinforce messages. In Bangladesh, IYCF television and radio spots ran for more than three years, while in Viet Nam, an award-winning TV campaign challenged misperceptions about the adequacy of breast milk and the need for water. A&T worked with BRAC to deliver interventions in Bangladesh. In Ethiopia and Viet Nam, A&T worked through government health systems, introducing the first-ever social franchise model for IYCF in health facilities in Viet Nam.

Systematic measurement, learning and evaluation have been essential. Data drove advocacy, and motivated decision-makers. Insights from diverse data sources, and rigorous monitoring and evaluation, allowed for learning and adjusting implementation. Policy advocacy was a four-part, iterative process to: establish and sustain partnerships, determine the evidence base, develop messages and materials, and create consensus around issues.

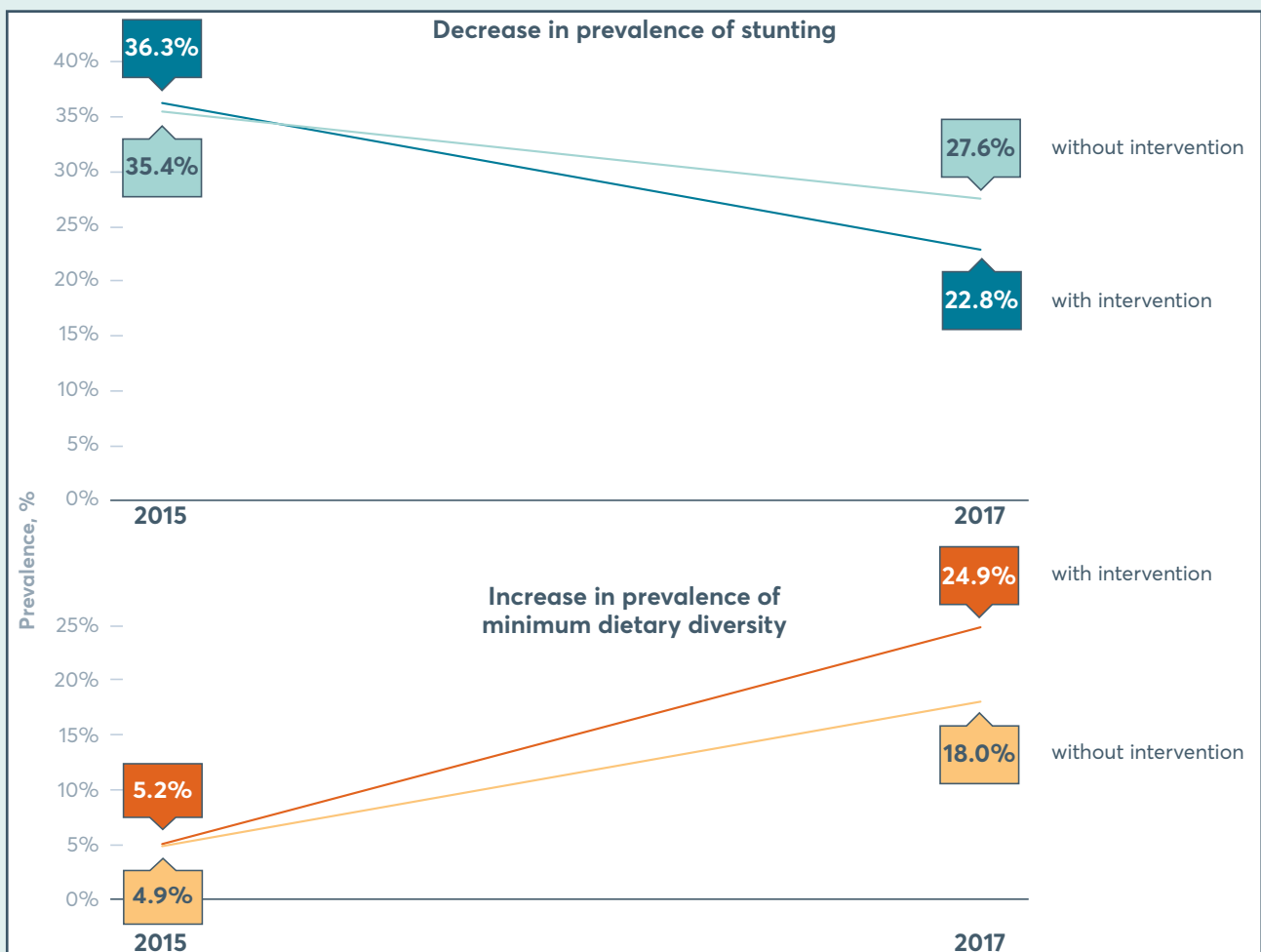
A&T is meeting its goal of improving nutrition at scale. Impact evaluations in Bangladesh, Burkina Faso, Ethiopia and Viet Nam showed significant IYCF behaviour changes.<sup>18–21</sup> In Ethiopia, an adapted strategy with agriculture extension workers and religious leaders increased child dietary diversity and contributed to a reduction in stunting (Figure 4.4).

In 2016, A&T commissioned studies to assess how well the original interventions were being delivered and whether behaviour changes were sustained two years after responsibility for all aspects of the programme, including funding, were transitioned to partners in Bangladesh and Viet Nam. Programmes continued, but not surprisingly, were modified, particularly frontline worker home visit and contact frequency. Yet, IYCF practices are better than before the start of the initiative.<sup>22</sup>

A&T has published more than 80 papers documenting its approach and impact. Programme tools are available for others to adapt and use.<sup>23</sup> Most of the important lessons A&T learned are experience-based: plan for scale and sustainability at the outset, build and nurture alliances that leverage the unique skills of each stakeholder, focus on a small set of measurable outcomes and monitor and communicate about them regularly, tailor social and behaviour change strategies based on an understanding of mothers' and communities' realities, derive innovations from those responsible for programmes and nutrition outcomes, and, last but not least, always use data strategically.

**FIGURE 4.4**

Improvements in child dietary diversity and stunting in Ethiopia, 2015–2017



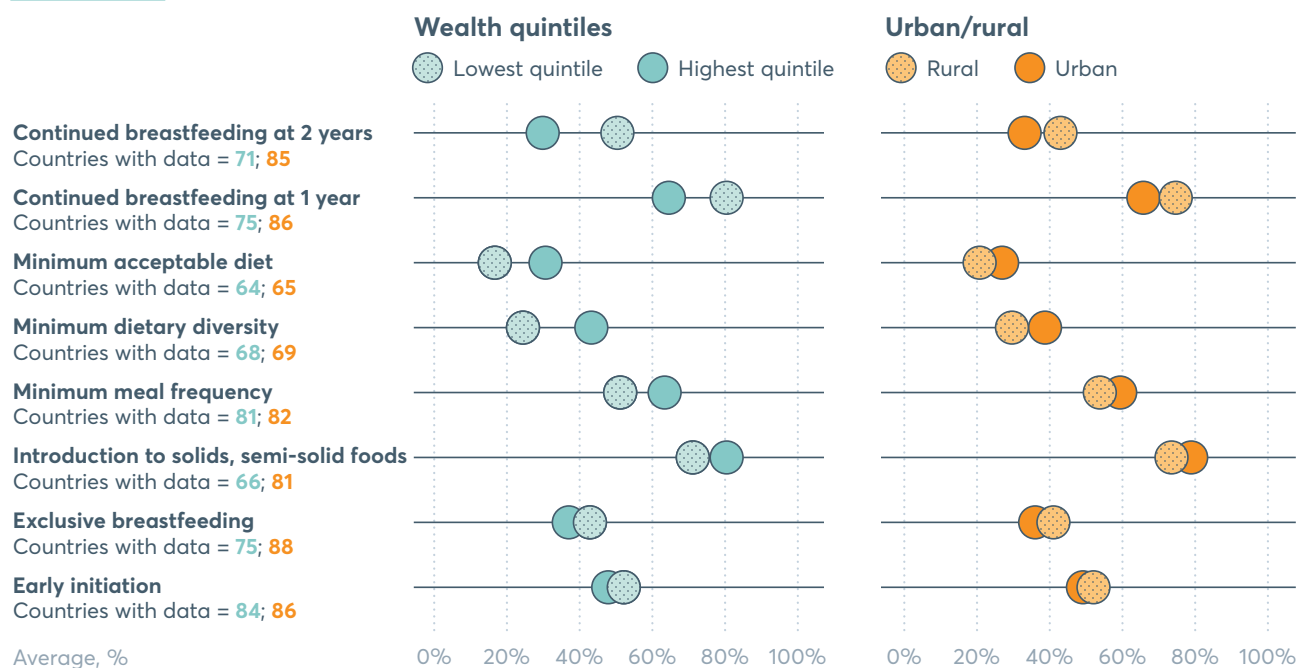
Source: Alive & Thrive, International Food Policy Research Institute, 2018.

In 2017, UNICEF further disaggregated the core set of IYCF indicators by sex, urban/rural, wealth quintile, maternal education and region in the country. This data disaggregation shows there are differences across the IYCF indicators with urban/rural and with wealth.<sup>24</sup> Between urban and rural areas (Figure 4.5), rural areas have better continued breastfeeding (at 1 and 2 years), exclusive breastfeeding, and early initiation of breastfeeding compared with urban areas. Yet urban areas emerge as better than rural in indicators that track minimum acceptable diet, minimum dietary diversity, minimum meal frequency and introduction to solids and semi-solid foods. The gaps between the prevalence of practices are greatest for continued breastfeeding (a difference of 9.8 percentage points for continued breastfeeding at 2 years, and a difference of 8.7 percentage points for continued breastfeeding at 1 year), and minimum dietary diversity – for which rates are greater in urban areas than rural areas by 9.1 percentage points.

When looking at the differences between wealth quintiles (within countries) of complementary feeding practices in Figure 4.5, there is a 14.1 percentage point gap between the lowest and highest wealth quintiles for children with a minimum acceptable diet. Prevalence in the lowest quintile is almost half that reported in the highest quintile. Children from the lowest wealth quintile have 51.4% minimum meal frequency compared with 63.6% in the highest quintile. The same for minimum dietary diversity: highest wealth quintiles have 43.3% minimum dietary diversity whereas children from the lowest quintile have 24.4%. The smallest difference in prevalence between quintiles is reported in early initiation – there is a gap of 4.3 percentage points between the lowest and highest quintile.

**FIGURE 4.5**

How infant and young child feeding practices differ across wealth quintiles, and urban and rural areas



Source: UNICEF, Division of Data Research and Policy (2018), Global UNICEF Global Databases: Infant and Young Child Feeding, New York, May 2018.  
 Notes: Based on unweighted means, the latest available since 2011. Includes only countries for which there is comparable data across each indicator.



Owing to the methods of data collection, this data does not capture the extent of intake of packaged, processed foods now more widely available in the marketplace (Figure 4.11), many of which are high in fats, sugars and salt. Independent research indicates that in low and middle-income countries, babies and young children are consuming packaged snack foods such as soft drinks, juice/juice drinks, savoury snacks, sweet biscuits, cakes and sweets on a regular basis, albeit it with significant variation between settings.<sup>25,26</sup>

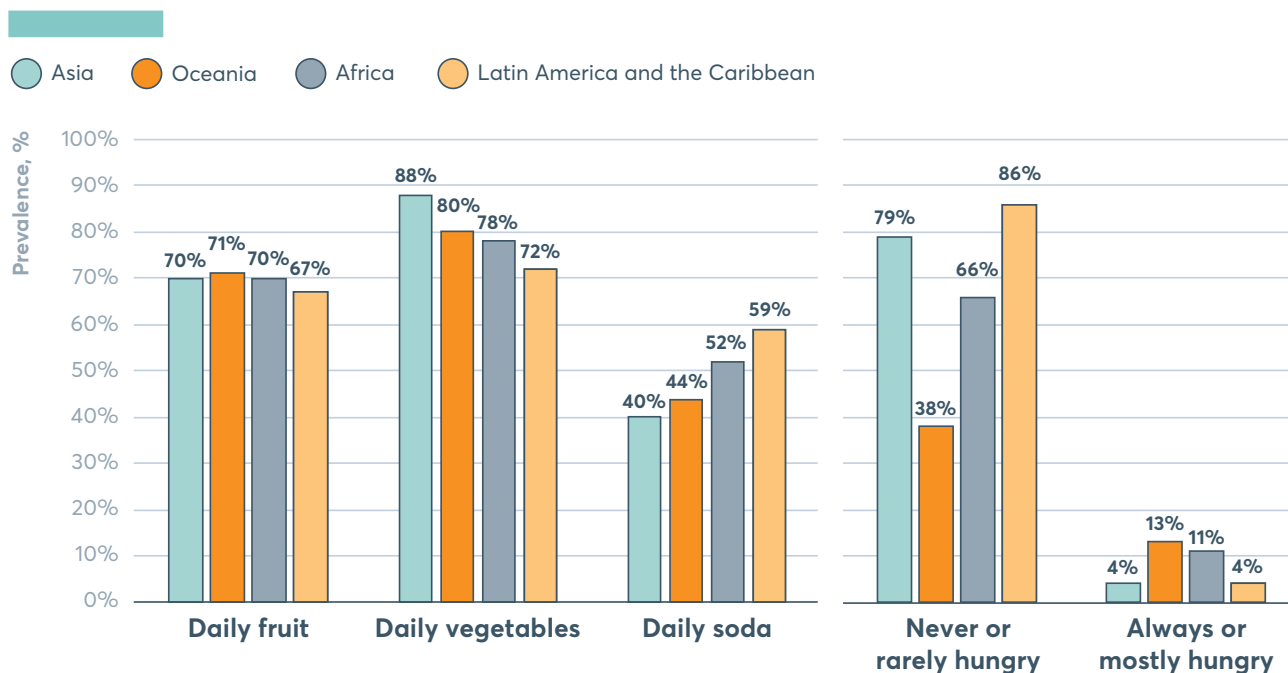
## Diets of adolescents

The Global School-based Student Health Survey is a survey on school-age children and adolescents (ages 13–17), developed by WHO and the Centers for Disease Control and Prevention that started in 2003.<sup>27</sup> Resulting datasets compile survey results for 103 economies, comprising 92 countries and 11 territories covering all income groups: 14 low-income countries, 30 lower-middle-income countries, 34 upper-middle-income

countries, and 19 high-income countries (six territories do not have income group classifications assigned by the World Bank). The survey offers data disaggregated by boys and girls, and urban and rural. Questions relevant to diet are: how many times per day did you eat fruit or vegetables or soda in the past 30 days? And how often did you experience hunger?

New analysis of this existing dataset shines a light on the diets of young people. On average, 63.3% of school-aged children (aged 13–17) from 83 economies<sup>28</sup> reported eating fruits and vegetables daily. Around a third (30.3%) of young people do not eat fruit daily while 13.9% do not eat vegetables daily and 7.5% of children do not eat fruits and do not eat vegetables daily. As Figure 4.6 shows, Oceania has the highest consumption of fruit and Asia the highest of vegetables. Children in Latin America consume the most soda daily (59.3% compared with Asia at 40.0%), while 43.7% of children reported consuming soda at least once a day. Around 1 in 20 children reported feeling hungry, with more hunger among school-age children in Africa and Oceania.

**FIGURE 4.6**  
Prevalence of daily fruit, vegetable and soda intake among school-age children and adolescents



Source: Global School-based Student Health survey. Data accessed 4 May 2018.

Notes: Based on results from 83 economies with data (on children and adolescents aged 13 to 17 years). Europe has been excluded due to lack of data.

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## Adult diets

One element improving our understanding of what the world eats has been the development of global databases that collate national and subnational surveys and generate estimates based on dietary data. These can help policymakers better understand what people are eating and how to shape and invest in the public health and food policy agendas of the country.<sup>29</sup> The databases include the Global Dietary Database, the Global Burden of Disease (GBD) and the Food and Agriculture Organization (FAO)/WHO Global Individual Food Consumption Data Tool (GIFT), as well as more analysis of existing global surveys.

## The Global Dietary Database and Global Burden of Disease database

Two of the new data platforms are the Global Dietary Database based at Tufts University in the US and the GBD, based at the University of Washington in the US.<sup>30</sup>

These data platforms provide insights into dietary patterns and risk factors for public health research and policy. Systematic global data on dietary intakes is important for quantifying the disease burden that comes from suboptimal diets, and which food groups or nutrients have potential beneficial or harmful risks. It also allows for disaggregation of dietary data by age, sex and time and provides impetus for national governments to improve local and national disaggregated data on diets to support them to identify intervention targets for nutrition programmes and initiatives to reduce the burden of diet-related NCDs.<sup>31</sup>

The Global Nutrition Report presents data from the GBD published in 2016 assessing how different dietary factors can be risk factors and attribute to the burden of disease.<sup>32</sup> Risk factors associated with diet included in the GDB study include: *diet low in* fruits, vegetables, legumes, whole grains, nuts and seeds, fibre, seafood omega-3 fatty acids, polyunsaturated fatty

acids, calcium, milk and *diet high in* red meat, processed meat, sugar-sweetened beverages, trans fatty acids and salt.

## Sources of the GBD data

To estimate the mean intake of each component of diet, the GBD study uses data from nationally and subnationally representative nutrition surveys and household budget surveys. It also uses sales data from Euromonitor International for fruits, vegetables, legumes, nuts and seeds, red meat, processed meat, milk and sugar-sweetened beverages, as well as data on availability of fruits, vegetables, legumes, nuts and seeds, milk and red meat from FAO food balance sheets. For nutrients, it estimates their national availability by using data from FAO's Supply Utilization Accounts and the US Department of Agriculture's National Nutrition Database for Standard Reference. For each dietary factor, it estimates the age pattern of consumption based on nutrition surveys (i.e. 24-hour diet recall) and applies that age pattern to sales and FAO data. Data from 24-hour dietary recall are considered the gold standard and data from other sources are adjusted accordingly.

## Limitations of the GBD data

There are limitations of the GBD data that should be noted. Standardised primary individual-level dietary data collection and analysis is not available in many countries and regions of the world.<sup>33</sup> Thus, the GBD relies on various surveys and modelled data and does secondary data analysis to understand how key dietary indicators relate to undernutrition and NCDs. Dietary data is from mixed sources and is not available for all countries; particularly limited data is available from nationally representative 24-hour dietary recall from developing countries. The 24-hour diet recall is considered the gold standard method of dietary assessment while evidence from validation studies suggests it is not highly reliable due to underreporting of intake. In the absence of national food composition tables, many countries rely on data from other countries (e.g. US Department of Agriculture food

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composition tables) to estimate nutrient intake and this approach can under or overestimate the true intake of nutrients in those countries.

## Determining risk of dietary factors

The GBD study identified four types of distributions of exposure: theoretical minimum risk, plausible minimum risk, feasible minimum risk and cost-effective minimum risk.<sup>34</sup> For the dietary data, the GBD uses the 'theoretical minimum-risk exposure level' (TMREL). By definition, TMREL is the exposure level (i.e. intake level of a food or nutrient) that minimises the risk of death from all causes related to a single risk factor. The goal was to have an objective approach to estimate the optimal intake for each dietary factor rather than using the conventional, subjective 'expert-opinion' approach. To do so, the GBD study looked across many studies to assess the relationship between each dietary risk and disease endpoint and calculated the level of intake associated with the lowest risk of mortality from that disease endpoint. This gives a disease-specific optimal level of intake. Thereafter, it calculated the TMREL as the weighted average or midpoint of these numbers using the global number of deaths from each disease as the weight.

The GBD study established the minimum risk exposure (TMREL) of 15 dietary factors (Table 4.2).

## What the GBD data tells us about how socioeconomic status relates to adult diets

Disaggregating the data by wealth shines a light on the relationship between a country's economic status and intake of certain foods and nutrients. In Figure 4.7, countries from the GBD database were disaggregated across the four country income groups – from low to high income – and the average intake of key food groups and nutrients was examined. The middle line shows the minimum risk of mortality for

these foods and nutrients. If the country income group was to the left of the middle line, it was below the minimum risk threshold; if the group was to the right, it was above.

When data is disaggregated by country income (Figure 4.7), it shows that all income groups exceeded or reached the minimum risk of death (using the measure of TMREL in Table 4.2) of the daily intake of sugar-sweetened beverages and salt. Wealth may not be a guarantee for a healthy diet either – the data from high-income countries shows they are taking in too little of legumes, vegetables, polyunsaturated fats, whole grains, fruit, calcium, milk, nuts and seeds which would minimise their risk of death. High-income countries also exceed the minimum risk exposure for sugar-sweetened beverages, salt, processed meat, red meat, saturated fat, trans fat and omega 3 fatty acids. Low and lower-income countries' intake of legumes exceeded that of upper-middle and high-income countries which indicates a lower risk of mortality associated with that food group. This data indicates that all country income categories are consuming too little of fruits and vegetables – an important source of micronutrients highlighted in Chapter 3.

## The consequence of our diets

### What the GBD data tells us about the link between diets and disease

The GBD database has also linked these food groups and components with disease using disability-adjusted life years (DALYs – one represents losing the equivalent of one year of full health) (Figure 4.8).<sup>35</sup> The data shows that diets low in fruits, whole grains and nuts and seeds contribute most to the disease burden, and of disease, mostly ischemic heart disease. The data also shows that high intake of salt is a risk factor contributing to DALYs related to ischemic heart disease, stroke and haemorrhages. Ischemic heart disease and diabetes DALYs make up most of those attributable to dietary risks.

**TABLE 4.2**

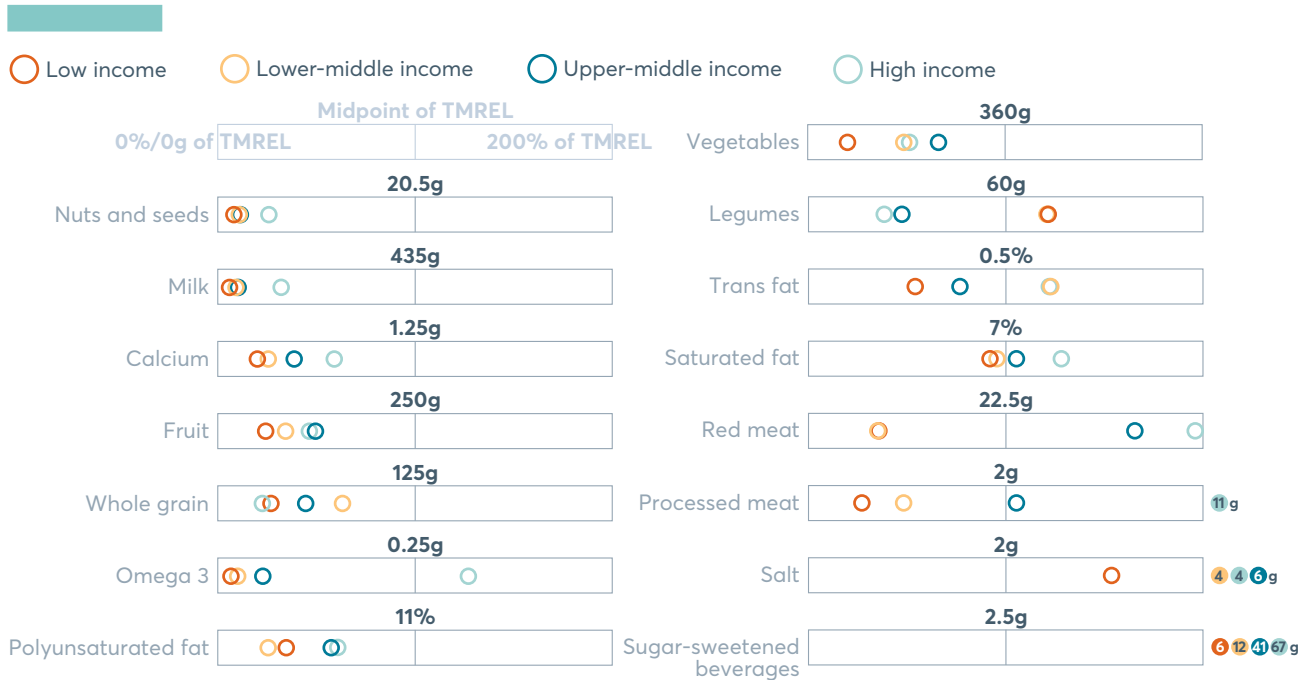
Minimum risk exposure (TMREL) of 15 dietary factors

DIETARY 'RISKS'	EXPOSURE DEFINITION	THEORETICAL MINIMUM RISK EXPOSURE LEVEL
Diet low in fruits	Average daily consumption of fruits (fresh, frozen, cooked, canned or dried fruits, excluding fruit juices and salted or pickled fruits)	200–300 grams per day
Diet low in vegetables	Average daily consumption of vegetables (fresh, frozen, cooked, canned or dried vegetables, excluding legumes and salted or pickled vegetables, juices, nuts and seeds and starchy vegetables such as potatoes or corn)	290–430 grams per day
Diet low in legumes	Average daily consumption of legumes (fresh, frozen, cooked, canned or dried legumes)	50–70 grams per day
Diet low in whole grains	Average daily consumption of whole grains (bran, germ and endosperm in their natural proportion) from breakfast cereals, bread, rice, pasta, biscuits, muffins, tortillas, pancakes and other sources	100–150 grams per day
Diet low in nuts and seeds	Average daily consumption of nut and seed foods	16–25 grams per day
Diet low in milk	Average daily consumption of milk including non-fat, low-fat and full-fat milk, excluding soy milk and other plant derivatives	350–520 grams per day
Diet high in red meat	Average daily consumption of red meat (beef, pork, lamb and goat but excluding poultry, fish, eggs and all processed meats)	18–27 grams per day
Diet high in processed meat	Average daily consumption of meat preserved by smoking, curing, salting or addition of chemical preservatives	0–4 grams per day
Diet high in sugar-sweetened beverages	Average daily consumption of beverages with $\geq 50$ kcal per 226.8 gram serving, including carbonated beverages, sodas, energy drinks, fruit drinks, but excluding 100% fruit and vegetable juices	0–5 grams per day
Diet low in fibre	Average daily intake of fibre from all sources including fruits, vegetables, grains, legumes and pulses	19–28 grams per day
Diet low in calcium	Average daily intake of calcium from all sources, including milk, yogurt and cheese	1.00–1.50 grams per day
Diet low in seafood omega-3 fatty acids	Average daily intake of eicosapentaenoic acid and docosahexaenoic acid	200–300 milligrams per day
Diet low in polyunsaturated fatty acids	Average daily intake of omega-6 fatty acids from all sources, mainly liquid vegetable oils, including soybean oil, corn oil and safflower oil	9–13% of total daily energy
Diet high in trans fatty acids	Average daily intake of trans fat from all sources, mainly from partially hydrogenated vegetable oils and ruminant products	0–1% of total daily energy
Diet high in salt	24-hour urinary salt measured in grams per day	0–4 grams per day

■ Source: Global Burden of Disease, the Institute for Health Metrics and Evaluation.

**FIGURE 4.7**

Consumption of food groups and components across income groups, 2016

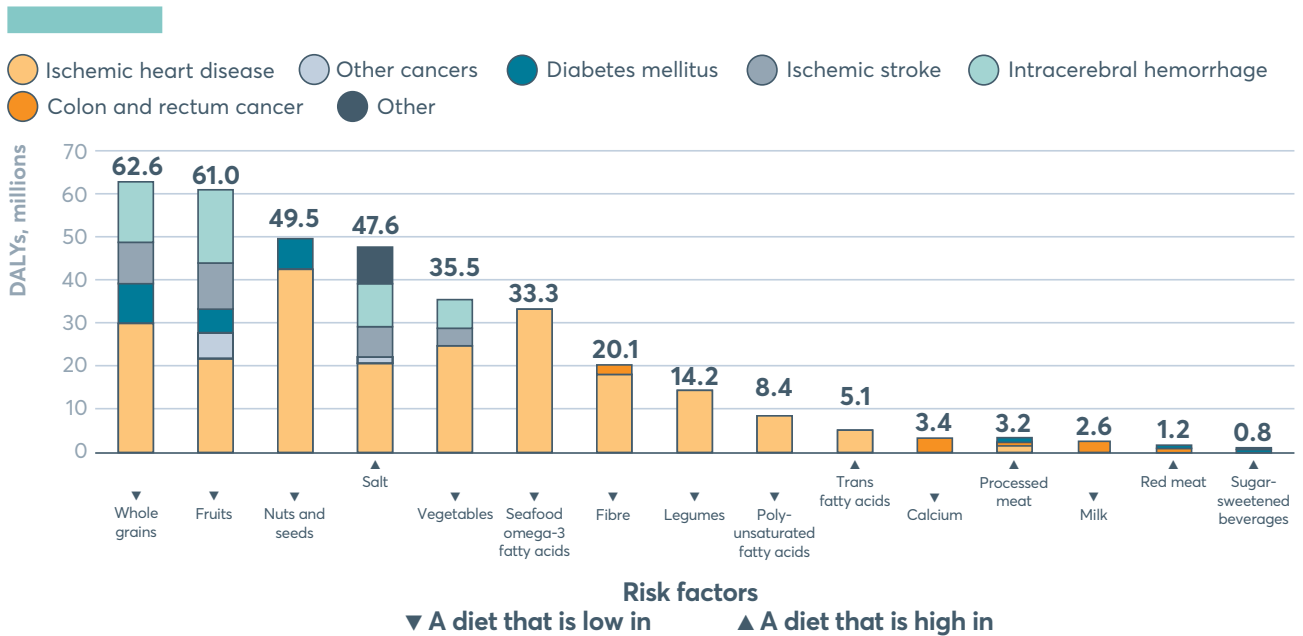


Source: Global Burden of Disease, the Institute for Health Metrics and Evaluation.

Notes: Men and women aged 25 and older. Chart ordered by mean. TMREL: theoretical minimum risk exposure level.

**FIGURE 4.8**

DALYs related to each dietary risk factor



Source: Global Burden of Disease, the Institute for Health Metrics and Evaluation.

Notes: One disability-adjusted life year (DALY) represents losing the equivalent of one year of full health. The total number of DALYs due to diet is less than the sum of the number of DALYs attributable to all individual components because 1) the risk is not additive and 2) the effect of foods are mediated through nutrients.

Other cancers = acute lymphoid leukaemia, acute myeloid leukaemia, breast cancer, chronic lymphoid leukaemia, chronic myeloid leukaemia, gallbladder and biliary tract cancer, kidney cancer, liver cancer due to alcohol use, liver cancer due to hepatitis B, liver cancer due to hepatitis C, liver cancer due to other causes, multiple myeloma, non-Hodgkin lymphoma, oesophageal cancer, other leukaemia, ovarian cancer, pancreatic cancer, thyroid cancer, uterine cancer. Other Alzheimer's disease and other dementias, asthma, atrial fibrillation and flutter, cataract, chronic kidney disease due to diabetes mellitus/glomerulonephritis/hypertension/other causes, gallbladder and biliary diseases, gout, hypertensive heart disease, low back pain, osteoarthritis.

## SPOTLIGHT 4.3

### Opening up national-level data on food consumption<sup>36</sup>

Efforts are underway to collate datasets relevant to all forms of malnutrition and make them available for all via an open access platform. This is essential to enable policymakers and implementers to respond to the reality that most countries are dealing with multiple malnutrition challenges.

FAO/WHO GIFT is collating existing subnational and national datasets to provide an open-access platform to make individual quantitative food consumption data from all countries around the world available to anyone who wants it.<sup>37</sup> FAO/WHO GIFT collates global age and sex-disaggregated data collected through individual quantitative 24-hour dietary recalls or records (tools describing all foods and beverages consumed by individuals). The harmonised datasets are shared through the FAO/WHO GIFT platform in the form of microdata and as ready-to-use food-based indicators in three areas: food consumption, nutrition and food safety. There are 5 datasets already available, 11 in the pipeline to be shared and 50 others to be shared within the next 4 years. The FAO/WHO GIFT inventory contains information on 114 surveys conducted in 42 low and lower-middle-income countries. Ultimately, FAO/WHO GIFT aim to create a 'snowball effect', encouraging as many groups as possible to share its data. Further initiatives are also underway to improve and facilitate dietary collection in the future, especially for low and middle-income-country contexts, as illustrated in Spotlight 4.3.

### Progress in collecting diet data

Mary Arimond, Anna Herforth and Jennifer Coates

A range of new initiatives has emerged in recent years to facilitate the collection of diet data. One exciting new development is the Gallup Diet Quality Worldwide project, a module in the Gallup World Poll aimed at providing comparable global information on adult diets – something that has never been done before. It takes five minutes to complete the survey, which covers minimum dietary diversity for women, a proxy indicator of micronutrient adequacy among women of reproductive age, a dietary diversity score for all adults, and an indicator of diet patterns to protect against diet-related NCDs. The module is being piloted in Brazil in 2018 and will disaggregate, track and compare trends by age, sex and other categories. If successful, the aim is to roll the programme survey out across more than 140 countries by 2021.

The International Dietary Data Expansion (INDDEx) Project<sup>38</sup> is developing INDDEx24 to improve data collection. INDDEx24 is an integrated dietary assessment platform comprising a cloud-based repository for storing, managing and accessing global dietary survey inputs such as food composition data, and a mobile application for conducting interviewer-administered 24-hour dietary recalls on a tablet. These two components are linked so the process of getting actionable dietary data can be faster, standardised and more intuitive. The platform is expected to be available for public use in 2019.

Intake is a new initiative, launched in 2017 by the Center for Dietary Assessment at FHI 360,<sup>39</sup> which aims to support the collection and use of dietary data in low and middle-income countries. It provides flexible and demand-driven technical assistance to meet the challenges of dietary survey and sample design, planning, implementation, analysis and use of data. Intake is developing novel multidimensional metrics of diet quality for women of reproductive age in low and middle-income countries, which do not need food composition data for tabulation thus making them simpler and easier than many 'whole-of-diet' measures previously developed for high-income settings.



## Understanding the cost of diets

Another advancement is the new data analyses methods that provide a more accurate picture of the cost of diets<sup>40</sup> and their affordability.<sup>41</sup> For example, the Indicators of Affordability of Nutritious Diets in Africa project (IANDA) is developing metrics using existing data from food price monitoring systems and being tested in Ghana and Tanzania.

Another new development is the Fill the Nutrient Gap tool. Described in Spotlight 4.4, it represents a new method for understanding what people can afford to consume and the potential impacts of the affordability of diets on fulfilling nutrient needs.

## Exploring data and trends in packaged, processed foods

### Sales data

Packaged, processed foods, such as baked foods, dairy products, sugar-sweetened beverages, processed meats, chips and crackers, cake mixes, pies, pastries and sweets now comprise a significant share of many diets around the world yet there is still relatively little data on their role in diets. New analysis of existing sales data and new data on the nutrient composition of packaged foods is helping to shine a light on the behaviour of consumers in purchasing these foods as well as in their nutrient quality.

## Fill the Nutrient Gap

Saskia de Pee, Janosch Klemm and Giulia Baldi

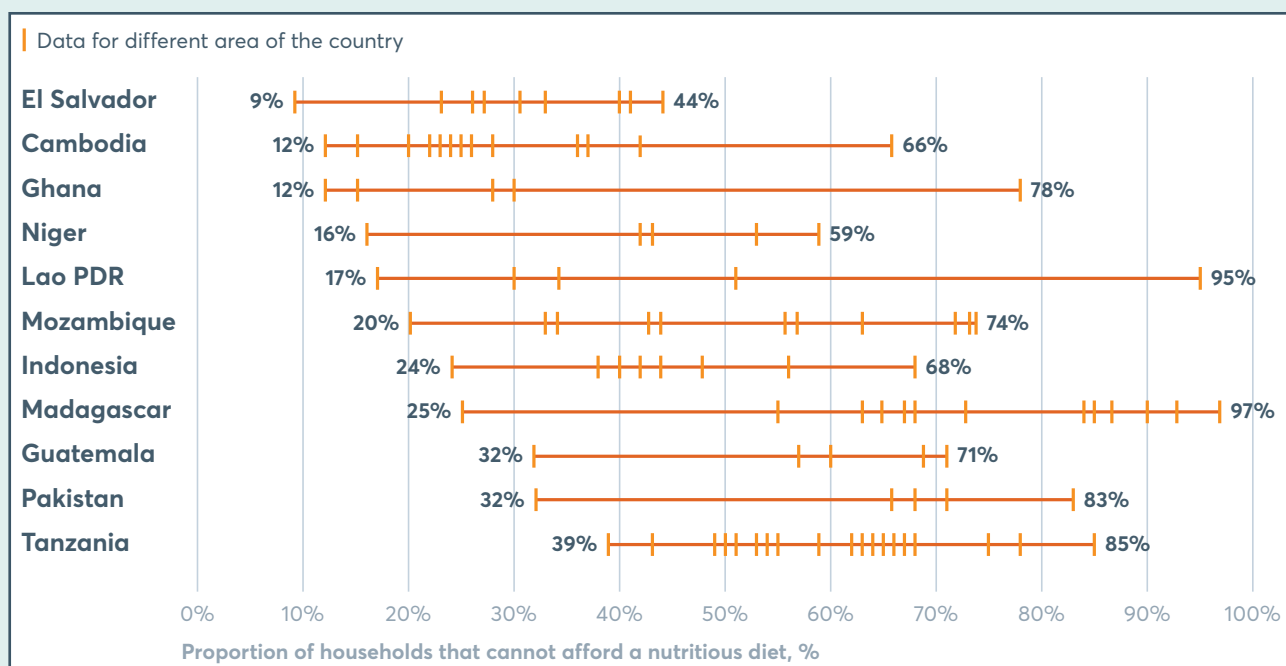
Fill the Nutrient Gap (FNG) is a new situation analysis and decision-making process<sup>42</sup> that supports multisectoral decision-making by identifying context-specific challenges to having a nutritious diet. It has been developed by the World Food Programme, with inputs from the International Food Policy Research Institute; University of California, Davis; Harvard University, Epicentre; Mahidol University; UNICEF and Save the Children. FNG identifies the likelihood of nutrient gaps among target groups and categories of households (for example, by wealth or location) and the barriers and opportunities to filling those gaps.

FNG analysis has two components. Firstly, a review of 100–200 secondary sources of information, including datasets, reports and published papers on malnutrition characteristics and trends, availability and physical and economic access to nutritious foods and existing initiatives to improve them, food choices and preferences, and the enabling environment for nutrition. Secondly, a cost-of-the-diet linear programming analysis which estimates, based on prices of locally available foods, the lowest cost of a nutritious diet for different target groups and a household made up of particular members. By comparing this cost with secondary data on household food spending, the proportion of households that cannot afford a nutritious diet can be estimated. The cost-of-the-diet is also used to model potential impact of different interventions to improve availability or access to nutritious foods and income.

Figure 4.9 shows the non-affordability of nutritious diets in 11 countries where FNG has been conducted. The data shows a range of non-affordability depending on the region in each country – for example, across different regions of El Salvador, 9% to 44% of households cannot afford a nutritious diet, whereas the range is much greater in Lao People's Democratic Republic (17% to 95%).

Other data from FNG shows that a nutritious diet for an adolescent girl is often the most expensive in the household due to her higher nutrient needs, particularly for micronutrients, during rapid growth and development. Adolescent girls require nutrient-dense foods (i.e. high in vitamins or minerals per 100 calories), such as animal products, vegetables, nuts, fruits and pulses – which tend to be more expensive. This in turn means that an adolescent girl whose family is already struggling to afford a nutritious diet will run a high risk of micronutrient deficiencies.

**FIGURE 4.9**  
Range of non-affordability of a nutritious diet across areas in different countries<sup>43</sup>



Source: Fill the Nutrient Gap summaries.<sup>44</sup>

Notes: The nutritious diet includes, per person, the average energy needs and the recommended intake for protein, fat, 4 minerals and 9 vitamins. The modelled household size and composition varies by country, but typically includes a breastfed child aged 12–23 months, a school-age child (6–7 years), an adolescent girl (14–15 years), a lactating woman and an adult man. Each data point represents an area of the country. Lao PDR: Lao People's Democratic Republic.

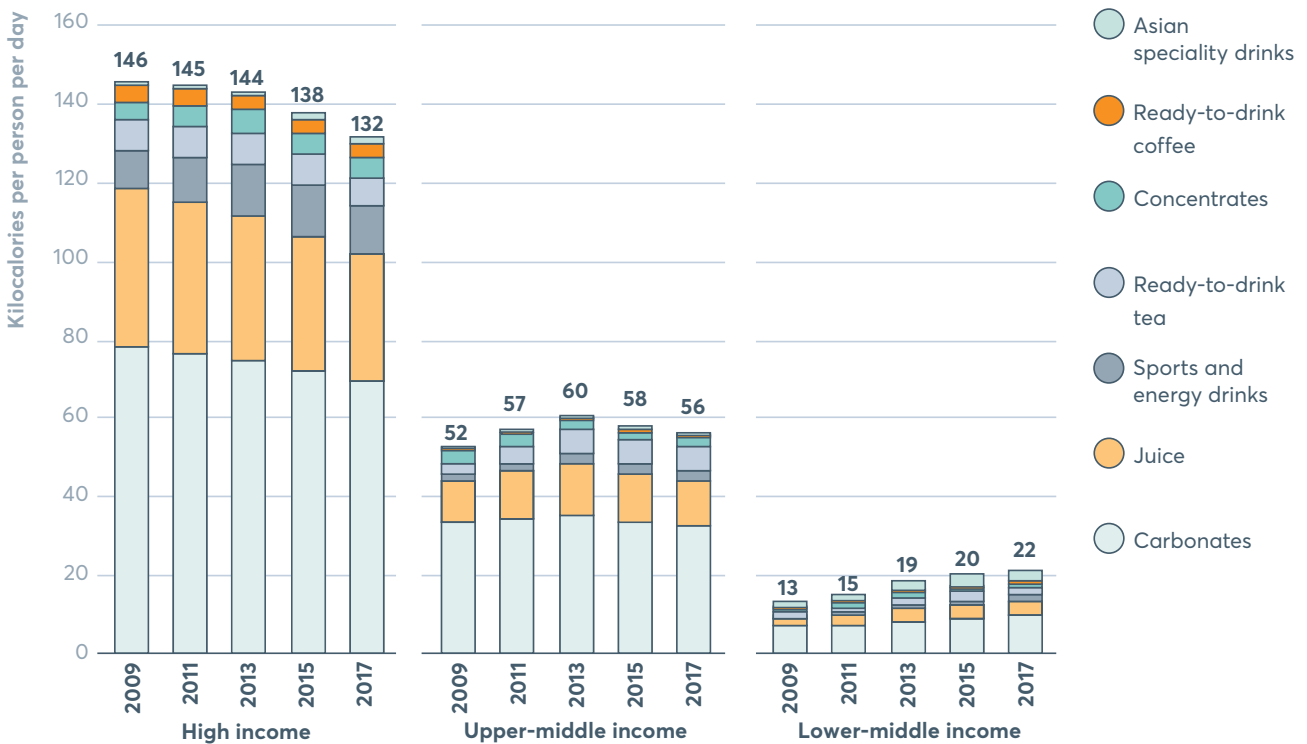
By focusing on ability to meet nutrient intake needs (a prerequisite for reducing malnutrition) and modelling the outcomes of different locally feasible interventions, the potential impact of complementary contributions by different sectors can be assessed and understood. Examples include lowering the prices of locally available nutritious foods, increasing the availability of nutritious foods in specific areas of the country, introducing biofortified crops, fortifying some staple foods, providing home-grown school meals, providing multi-micronutrient supplements to pregnant and lactating women, introducing fortified complementary foods to young children, and modifying social safety nets.

Euromonitor International sales data illuminates some patterns in worldwide purchasing behaviour. For example, the number of kilocalories purchased from sugar-sweetened beverages is highest in high-income countries but many have experienced moderate declines in recent years, whereas lower-middle-income countries have experienced a modest increase (Figure 4.10) over the same period. Figure 4.11 shows patterns and trends in per capita sales volumes in packaged food categories by region.

Europe, North America and Oceania purchase the highest volumes of packaged foods, although sales growth is stagnant or declining in the former two. In contrast, regions that are home to the bulk of the world's population – Asia and Africa – are undergoing significant growth, albeit from a lower baseline. Globally, sales of total per capita volumes of packaged food rose from 67.7kg per capita in 2005 to 76.9kg in 2017.

**FIGURE 4.10**

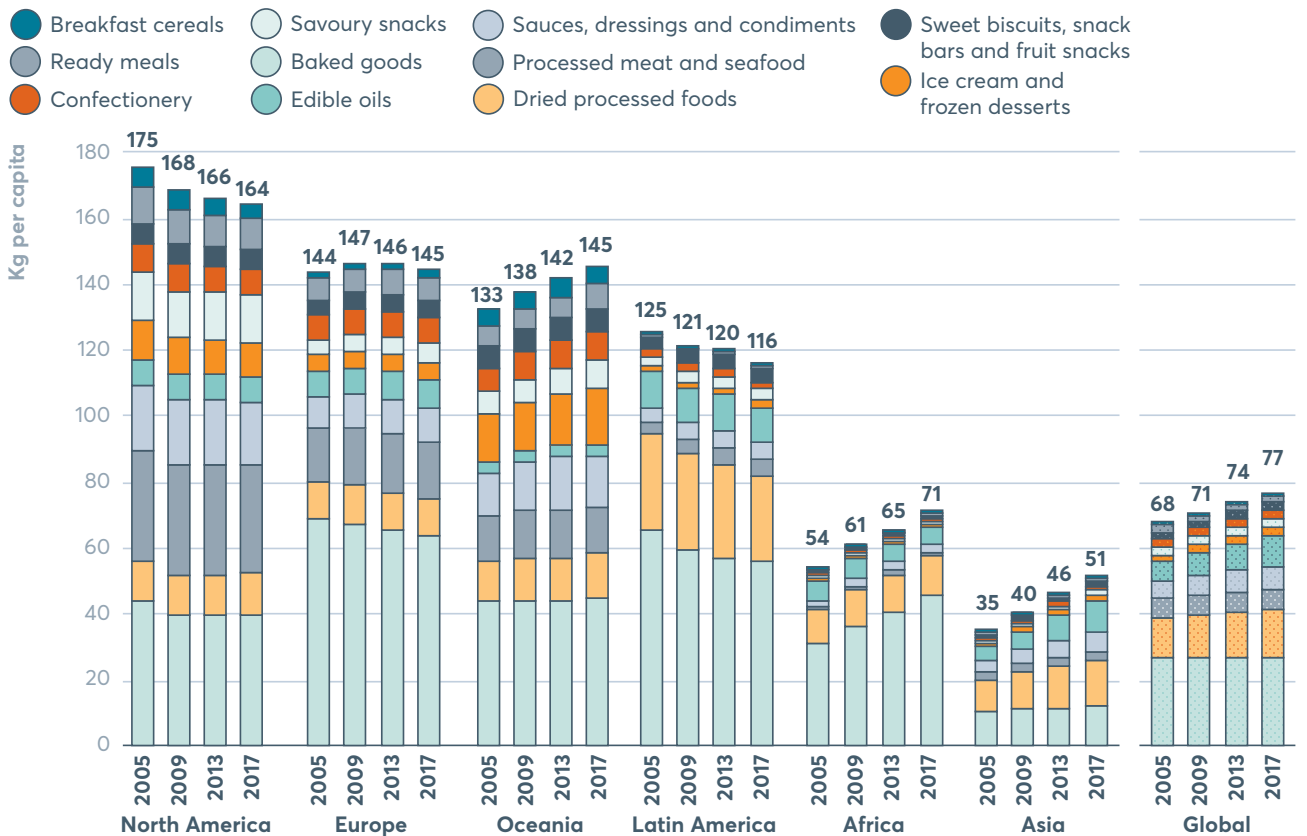
Trends in energy purchased from sugar-sweetened beverage categories, by country income level



Source: Data from the Euromonitor International Market Information Database.<sup>45</sup>

**FIGURE 4.11**

Trends and patterns in per capita packaged food category sales by region, 2005–2017



Source: Data is from the Euromonitor International Market Information Database.<sup>46</sup>

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## Nutrient quality of packaged foods

While the trends in sales of packaged foods are relatively clear, there is widespread debate about how packaged foods contribute to poor diets. These debates centre on the nutrient quality and health impacts of consuming packaged foods which are industrially processed and manufactured from multiple ingredients. For example, some studies<sup>47</sup> conclude this increases the overall dietary content of added or free sugars, saturated and trans-fat, salt and diet energy density, while decreasing protein, dietary fibre, potassium, iron, zinc, magnesium and other micronutrients.<sup>48</sup> Other studies point to an association between intake and obesity,<sup>49</sup> dyslipidemia,<sup>50</sup> hypertension,<sup>51</sup> gastrointestinal disorders<sup>52</sup> and cancer, including breast cancer.<sup>53</sup>

New, large-scale data is helping to inform this debate by providing insights into nutrient content of the packaged foods supply. Since 2015, the George Institute for Global Health, with other partners, has been establishing large databases of the nutrient content of packaged foods, collected using proprietary mobile technology in eight markets: Australia, China, Hong Kong, India, New Zealand, South Africa, the UK and the US. Mexico's Institute for Public Health (INSP) has compiled a similar database.

In 2017, the Access to Nutrition Foundation<sup>54</sup> in partnership with the George Institute for Global Health used these databases to analyse the nutritional quality of 23,013 products sold by 21 of the world's largest food and beverage manufacturers in these nine markets. This 'product profile' is an important new element of the 2018 Global Access to Nutrition Index published in May 2018.<sup>55</sup> Its purpose is to build a picture of the role these companies' products play in consumers' diets and to establish a baseline against which to measure any improvements they make to the nutritional quality of their portfolios over time.

Up to five of the best-selling categories for each company in each country were included in the analysis, based on 2016 sales data from Euromonitor International. Some categories were not eligible for inclusion, such as baby foods, and minimally processed products that

typically do not require nutrition labelling on-pack. (For the complete list, and for the full methodology, see the George Institute for Global Health report.<sup>56</sup>) The nutritional quality of each product was determined by applying the Health Star Rating system (developed and used in Australia, but applicable in any market). Products are rated between 0.5 stars (least healthy) to 5 stars (most healthy) and any product that scores 3.5 or above is considered healthy. The Health Star Rating assesses risk nutrients (overall energy, salt, total sugar, saturated fat) and positive nutrients (fruit and vegetable content, protein, fibre and in some cases, calcium), and scores products on the basis of nutritional composition per 100 grams or 100 millilitres.

While the full product profile includes analysis by company,<sup>57</sup> category and country, only the latter is presented here, that is the overall percentage of products in each of the nine countries that was rated as healthy.

Figure 4.12 shows the proportion of packaged food products in each country that has a Health Star Rating of 3.5 or more. These figures range from 37% of the products assessed in New Zealand, 34% in the US and Australia, 31% in the UK, to less than a quarter in South Africa, Mexico, India and China. The results suggest a disparity between developed and emerging markets. On average across all nine markets, 31% of products have a Health Star Rating of 3.5 or more, meaning 69% of products did not meet the healthy threshold and are thus of relatively low nutritional quality.

In 2018 the Access to Nutrition Foundation also published the Global Access to Nutrition Index 2018, which tracks company's policies, management systems and disclosure on seven key nutrition topics, including improving their product portfolio, responsible marketing and labelling and the affordability and accessibility of healthy products.<sup>58</sup> Key findings were that many packaged foods companies have stepped up their efforts to contribute to better diets over the last two years since the last index, as shown by an increase in the average score from 2.5 to 3.3 out of 10. Increasingly, companies' efforts to make and market healthier packaged foods are being embedded in their commercial strategies, rather than their corporate social responsibility

initiatives as was often the case in the past. Demand for products that enable healthy diets is becoming a major growth driver for businesses. However, the low average index score shows that most companies have much room to improve.

Governments are also taking actions to encourage and enable populations to consume fewer packaged, processed foods high in sugars, fats and salt. The ability to track policy actions has been facilitated in recent years by the development of two databases.

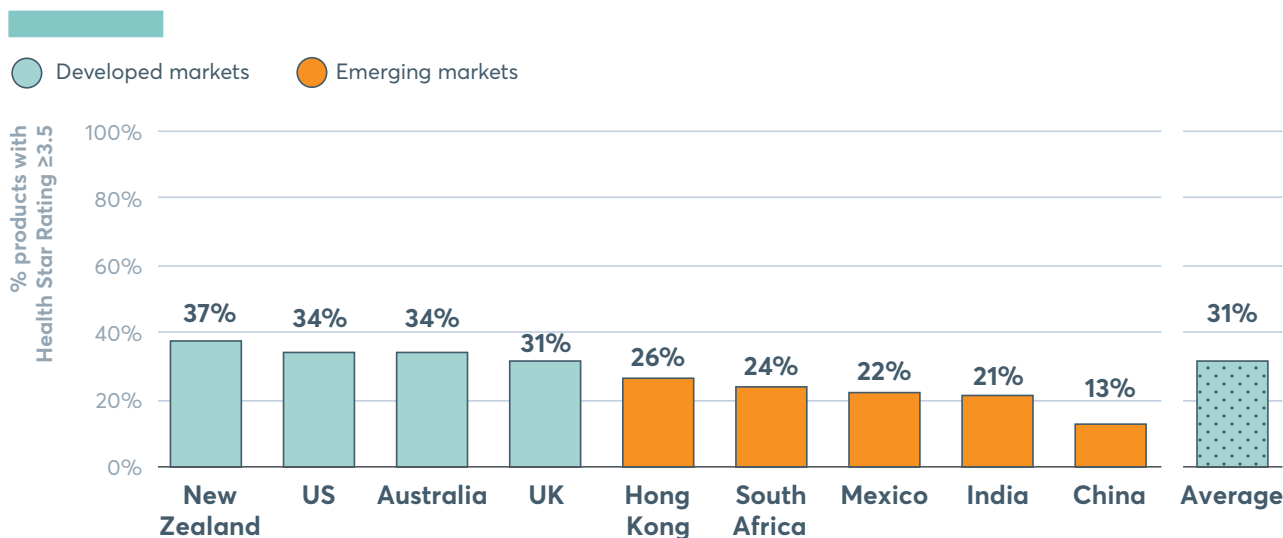
- The WHO Global database on the Implementation of Nutrition Action<sup>59</sup> (GINA), which includes more than 1,000 national policies in 191 countries and various intervention programmes being implemented in countries to promote healthy diets and address malnutrition in all its forms including obesity and diet-related NCDs. During WHO's 2nd Global Nutrition Policy Review in 2016–2017, 163 countries reported on their actions to promote healthy diets, including dietary guidelines, nutrition labelling, reformulation, trans fat ban, regulation of marketing to children, fiscal policies, portion size control, media campaigns and nutrition counselling.

- The World Cancer Research Fund database, NOURISHING, which monitors the implementation of 10 policies designed to improve diets associated with obesity and diet-related NCDs. Actions are reported across three food system domains: food environments, the food supply chain and behaviour change communication including front-of-pack labelling, marketing restrictions, fiscal measures, food reformulation and public awareness campaigns. As of September 2018, it has documented 475 implemented actions from over 100 countries.<sup>60</sup>

Spotlight 4.5 illustrates some of the steps governments are taking, based on analysis of policy actions tracked in these databases. Another important initiative is INFORMAS: the International Network for Food and Obesity/NCDs Research, Monitoring and Action Support. This is a global network of public-interest organisations and research groups working to enhance knowledge of what governments and businesses are doing to improve diets. INFORMAS monitors and benchmarks efforts to create healthy food environments and rates public and private sector policies and actions to reduce obesity and NCDs based on good practice benchmarks.<sup>61</sup>

**FIGURE 4.12**

Proportion of packaged food products by country meeting Health Star Rating of 3.5 or more (threshold for 'healthy')



Source: Access to Nutrition Index, Global Index 2018, Access to Nutrition Foundation, May 2018.

## SPOTLIGHT 4.5

### Government actions on packaged foods and drinks high in fats, sugars and salt

Philip Baker, Kathryn Backholer, Oliver Huse, Jacqui Webster, Lorena Allemandi, Kaia Engesveen and Chizuru Nishida

Governments are using a range of measures on packaged foods and drinks high in fats, sugars and salt. These include requiring labelling on food packages, restrictions on marketing, sugar-sweetened beverage taxes and food product reformulation strategies.

For example, more governments now require, or have produced voluntary guidelines on, front-of-pack nutrition labelling alongside the basic nutrient declaration (often referred to as back-of-the-pack labels). Chile, Peru and Uruguay, for example, now mandate that foods high in sugars, salt, fats and/or calories carry a front-of-pack warning label. Brazil, Israel and Canada are considering similar actions. Some countries have adopted 'traffic-light' style labels, which provide an indicator on the amount of sugar, fat and salt in foods, including Ecuador, while others have adopted 'scores' which provide an indication of the nutrient quality, such as the NutriScore scheme in France and Belgium.

Since WHO updated its guideline on sugars intake for adults and children in 2015 (recommending that free sugars are limited to less than 10% of total energy intake and further suggesting to reduce to less than 5% of total energy intake for further health benefits),<sup>62</sup> more governments have been taking actions to reduce the affordability and appeal of sugary foods and beverages. One area where there has been a significant increase in the number of implemented policies is sugar-sweetened beverage taxes.<sup>63,64</sup> According to WHO, 59 countries now have such taxes in place.<sup>65</sup> Not all of these appear to have health-related objectives, but there has been a marked increase in adoption in recent years as part of national efforts to address obesity and diet-related NCDs, such as in Ecuador, the Philippines and South Africa. Some countries have adopted tiered or sliding tax designs (i.e. with higher rates on beverages with greater sugar content per unit volume), which aim to incentivise consumers to choose lower sugar options and manufacturers to reformulate products. Example countries include Chile, Ecuador, France, Mexico, Peru, Portugal and the UK. To date, few countries tax 100% fruit juices and sweetened or flavoured milk-based beverages, which are high in free sugars.

Observational studies show that sugar-sweetened beverage taxes are working effectively to achieve their aims. A two-year real-world evaluation of Mexico's 2014 sugar-sweetened beverage tax found that sales of targeted beverages fell by 5.5% a year after taxes were implemented and 9.7% the next year, thereby reducing sales by 7.6% on average over the two-year period.<sup>66</sup> The greatest fall in purchases was seen among households of lower socioeconomic position (17% decline). The two-year follow-up evaluation revealed that consumer response had been sustained.<sup>67</sup> Since this natural experiment in Mexico, a further three such tax evaluations have been conducted in Chile,<sup>68</sup> Berkeley (US)<sup>69</sup> and Philadelphia (US).<sup>70</sup> These have also demonstrated the desired policy effect of reducing sugar-sweetened beverage sales or consumption.

Steps now need to be taken in countries with high levels of sugar purchased from sugar-sweetened beverages but with no tax in place (e.g. Argentina, Australia, Canada, Germany, the Netherlands and New Zealand), highly populated middle-income countries (>100 million people) such as those where levels of sugar intake are low but rising quickly (e.g. Indonesia and Viet Nam).

Significant efforts have also been taken to reduce salt consumption in packaged, processed foods. This follows WHO setting a global salt target (to reduce global population salt intake by 30% by 2025, Figure 1.1) as part of the global NCD targets in 2013. Among the 163 countries reporting on actions to promote healthy diets to the 2nd Global Nutrition Policy Review, 77 countries provided detailed information on strategies implemented to reduce salt, including mandatory nutrient declarations, front-of-pack nutrition labelling systems that include salt, mandatory or voluntary reformulation and media campaigns. Most countries implemented either two or three of these strategies simultaneously. These government-led population-wide strategies are cost effective<sup>71</sup> and already demonstrating a positive impact.<sup>72</sup> While most are still in the early stages of implementation, a 2016 Cochrane review highlighted five countries (China, Finland, France, Republic of Ireland and England) that had already demonstrated a significant reduction in salt intake since initiation.<sup>73</sup> Four more countries (Argentina, Belgium, Italy and Portugal) have since reported reductions in salt intake. Together, if implemented effectively, these salt reduction programmes have the potential to avert more than 1.5 million preventable deaths currently attributed to high salt intake in these countries.<sup>74</sup>

Industrially produced trans fatty acids found in packaged foods are also being targeted with certain actions found to be effective. In 2018, WHO developed the REPLACE action package that serves as a tool for countries to act towards eliminating trans fatty acids.<sup>75</sup> It builds on the evidence that a number of countries have virtually eliminated trans fatty acids from the food supply through implementing systematic policy actions and monitoring programmes.<sup>76</sup> Since Denmark became the first country to eliminate industrially produced trans fatty acids from its food supply in 2004, Canada, the US and many countries across Europe have followed.

There has been far less progress in other areas, notably on restrictions on food marketing to children. This is despite evidence that children are highly exposed to food marketing of packaged foods high in sugars, salt and fats. For example, numerous studies in Latin America (e.g. in Argentina, Chile, Mexico and Peru) show that the food categories most frequently advertised to children are sugar-sweetened beverages, desserts, dairy products and savoury snacks. In Argentina, for example, it is estimated that children are exposed to 61 adverts of foods high in salt, sugars and fats per week.<sup>77</sup> Studies in countries such as Uruguay,<sup>78</sup> Chile<sup>79</sup> and Guatemala<sup>80</sup> have also analysed marketing strategies in food packages showing that health-oriented and child-directed strategies are more frequently present in food products with higher content of sugars and energy.

Yet Chile is the only country so far in the region to have implemented mandatory marketing restrictions and just nine other countries globally have put in place partial mandatory restrictions.<sup>81</sup> One positive step forward, however, has been the development of the WHO's regional nutrient profiling models for use and adaptation by governments when developing policies to restrict food marketing to children, now developed for five of the six WHO regions and under development in the remaining region (the African Region). These nutrient profile models are also being adapted by some countries to regulate the promotion and sales of foods and beverages high in fats, sugars, and salt in and around schools.





05

2016. Nepal.

A smallholder farmer has begun producing high-value vegetables instead of grains, with the help of the Rural Women's Economic Empowerment Joint Programme.

© UN Women/Narendra Shrestha

# The fight against malnutrition – commitments and financing

# KEY POINTS

- 1** Government spending on nutrition has increased in some developing countries, the Nutrition for Growth (N4G) financial commitment of US\$19.6 billion has been met and there are initiatives with the potential to deliver finance at scale. However, official development assistance (ODA) to address all forms of malnutrition remains unacceptably low. A step change in the level of investment is needed to respond to the challenge of global malnutrition in all its forms and to deliver on national nutrition plans.
- 2** Nutrition-specific spending is particularly low. There is considerably more donor investment in nutrition-sensitive approaches and programmes with declining funding for nutrition-specific investments. Donors need to prioritise investing in nutrition-specific and nutrition-sensitive programmes equally. A modest step forward has been made in donor spending commitments on obesity and diet-related non-communicable diseases (NCDs).
- 3** Domestic spending remains opaque and difficult to track and funding levels vary widely from country to country. Clear targets need to be set for domestic expenditure according to their specific burden of disease and governments need to be supported to increase spending against targets to drive progress.
- 4** New ways of tracking financial flows are being implemented. Uptake and use of the codes and marker developed to improve future tracking of nutrition financing by aid donors are essential and require concerted action by all donors to use them consistently in their reporting.
- 5** While estimates of the funding gap vary, nutrition finance needs to be delivered at scale to meet the challenges. Innovative mechanisms and business investment are needed to supplement government finance. The Power of Nutrition initiative is an encouraging example which aims to unlock US\$1 billion of new financing for undernutrition by 2022 and the World Health Organization (WHO) has launched a new investment framework for NCDs.
- 6** There is strong momentum to address malnutrition through commitments made globally – Sustainable Development Goals (SDGs), the UN Decade of Action on Nutrition 2016–2025 and the Milan Global Nutrition Summit in 2017. Despite this, progress in reporting against the N4G 2013 commitments is waning with only two years to go to reach them. Urgent action is needed now to get them back on track ahead of the Japan 2020 N4G Summit.

## Introduction

In this chapter we track public sector spending (both internationally and nationally) on nutrition and whether this meets the need to end malnutrition in all its forms by 2030. The chapter shows some progress in nutrition financing, particularly from domestic governments and multilateral institutions, as well some new donor commitments and technical improvements to the way nutrition financing is tracked through ODA. We assess advances in the amount spent, the adoption of two new tracking processes, how the N4G progress on commitments is faring, and new commitment opportunities. The nutrition challenge will not be achieved only by public funding. The Global Nutrition Report recognises the need to look at non-public sector investments and plans to increase its analysis in this area in the future.

Finding the money for nutrition action is clearly a massive challenge. The seminal World Bank Investment Framework<sup>1</sup> published in 2017 calculated that US\$7 billion is needed each year to deliver nutrition services that will help achieve global targets for stunting, anaemia and breastfeeding by 2025 and to enable the scale-up of treatment for wasting. Other efforts to understand the world's needs to address malnutrition estimate this is even higher, taking into account broader actions to address undernutrition to achieve a wider set of global goals such as SDG 2.<sup>2</sup>

Expanding the burden even further, where are the necessary funds to tackle obesity and diet-related NCDs? To address this question, in 2018 WHO published a new Investment Framework for NCDs<sup>3</sup> and led a global dialogue on financing for prevention and control of NCDs.<sup>4</sup> If we include the investments needed to address obesity and diet-related NCDs, as reported by the Lancet Taskforce on NCDs and economics in 2018,<sup>5</sup> the costs to end all forms of malnutrition will be much higher. The global economic impact of obesity has been estimated at US\$2.0 trillion or 2.8% of global GDP.<sup>6</sup> The global obesity pandemic also imposes costs on economic growth as a result of lost workdays, lower productivity at work, disability and death.<sup>7</sup>

## Domestic government spending on nutrition

### Tracking domestic spending

To date, 47 of the 60 Scaling up Nutrition (SUN) Movement countries have conducted an analysis of how much they are spending on nutrition in their national budgets.<sup>8</sup> This provides an overview of what they have budgeted for nutrition-specific and sensitive investments (see Box 5.1) across sectors relevant to nutrition. Detailed methodological guidance has been provided by SUN on how these two types of investments are distinguished.<sup>9</sup>

#### BOX 5.1

What are nutrition-specific and nutrition-sensitive investments?<sup>10</sup>

**Nutrition-specific investments** are considered high impact nutrition interventions that address the immediate determinants of malnutrition. The 2013 *The Lancet Series on Maternal and Child Nutrition* recommends 10 direct interventions such as micronutrient supplementation or fortification, acute malnutrition treatment and exclusive breastfeeding and complementary feeding of young children.

**Nutrition-sensitive investments** address the underlying causes of undernutrition. They include actions from a range of sectors including: health, agriculture and food systems, water, sanitation and hygiene promotion (WASH), education and social protection. Such examples of investments might include improving the purchasing power of women, improving access to food, diversifying agriculture, advancing biofortification, promoting healthy diets, supporting breastfeeding and improving access to WASH.



So far, 25 countries have analysed nutrition spending in their budgets twice or more with Benin, Burundi, Democratic Republic of the Congo (DRC), Guatemala, Mauritania, Pakistan, Tajikistan, Viet Nam and Yemen doing it at least three times since 2015. Data trends on spending for these 25 countries show an overall increase in allocations for nutrition over the countries' previous two budget years.<sup>11</sup> This increase was due to a 24% increase in nutrition-sensitive allocations which accounted for 94% of spending, compared with an 8% increase in nutrition-specific allocations<sup>12</sup> (Figure 5.1).

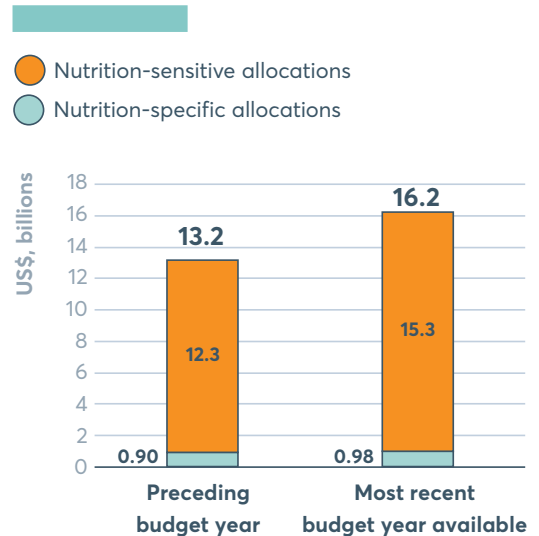
This consolidated picture hides significant differences across countries. In terms of total nutrition spending – total allocations to nutrition investments overall – 13 countries<sup>13</sup> are showing declines in investment while 12<sup>14</sup> are showing increases. Nutrition-sensitive allocations follow a similar trend with an equal number of countries decreasing or increasing their allocations and one country (Kyrgyzstan) showing no change. Only nine countries<sup>15</sup> are increasing their nutrition-specific allocations, including four countries doubling their allocations (Viet Nam, Mauritania, Madagascar and Nepal). Twelve countries show a declining trend in nutrition-specific allocations and four countries have not identified nutrition-specific allocations in their budget analysis (Gambia, Ghana, Liberia and South Sudan), likely because the budgets are not suitably disaggregated to enable tracking.

New data from 12 countries on nutrition-specific and sensitive investments (Figure 5.2) shows 96% of this spending is on 'nutrition-sensitive' actions. Some are investing in agriculture (DRC), social protection (Pakistan and Mauritania), water, sanitation and hygiene (WASH) (Benin); others are making significant investments in health (Tajikistan) and education (Sierra Leone).

Spotlights 5.1 and 5.2 shine a light on what is happening in Bangladesh, Tanzania and Ethiopia and how they are tracking domestic nutrition finances at the national level.

**FIGURE 5.1**

Domestic spending: Changes in total nutrition-specific and sensitive spending over 25 countries' previous two budget years

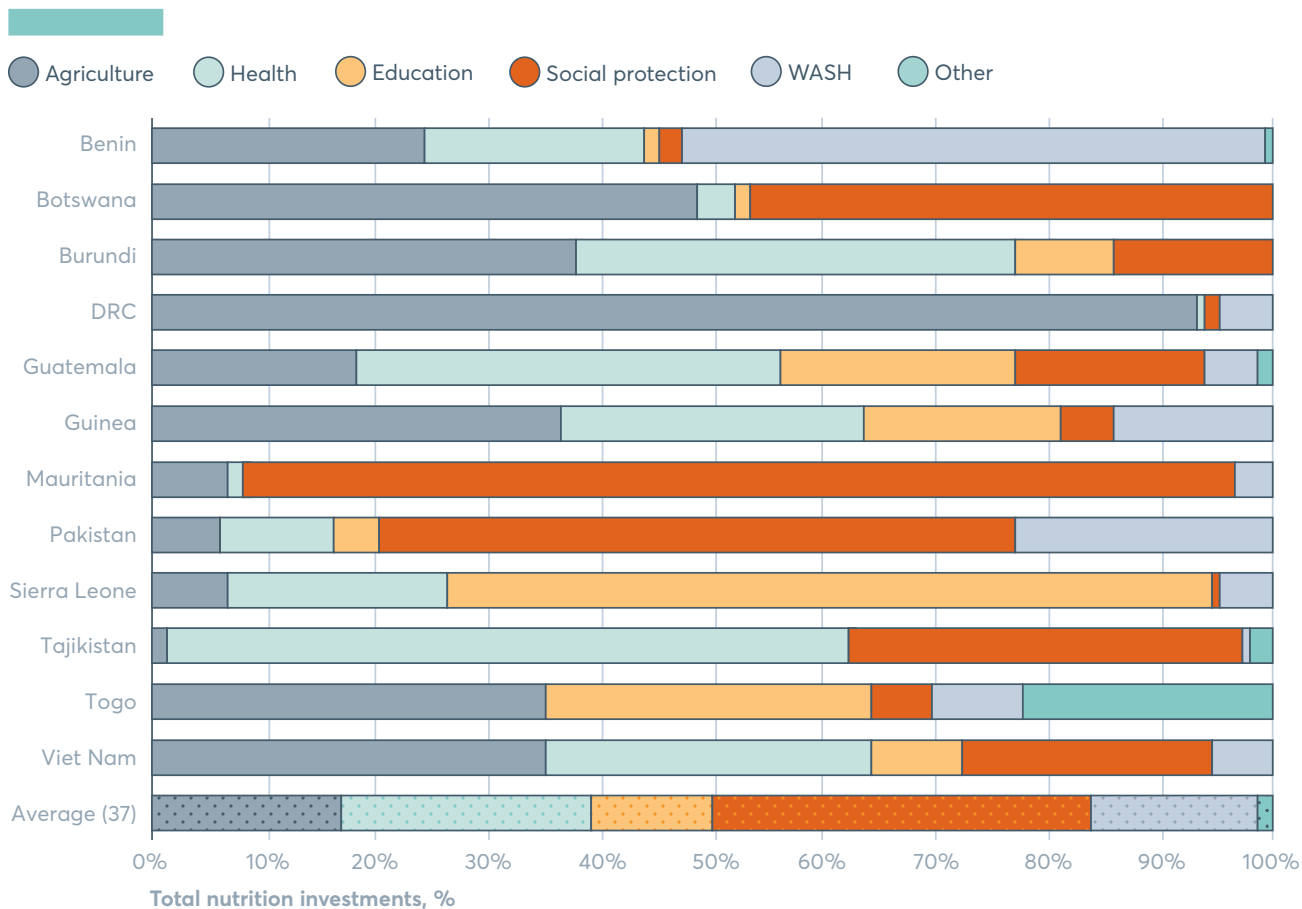


**Source:** Budget analysis exercise, 2018, SUN Movement Secretariat.

**Notes:** Based on national budgets of 25 countries (GDP deflators added to correct for inflation and express the changes in real terms).

**FIGURE 5.2**

Nutrition investments by sector as a percentage of total nutrition investments



Source: Budget analysis exercise, SUN Movement Secretariat, 2018.

Notes: Based on 12 countries with data as of 2018. Data points range from 2015–2018. DRC: Democratic Republic of the Congo; WASH: water, sanitation and hygiene.

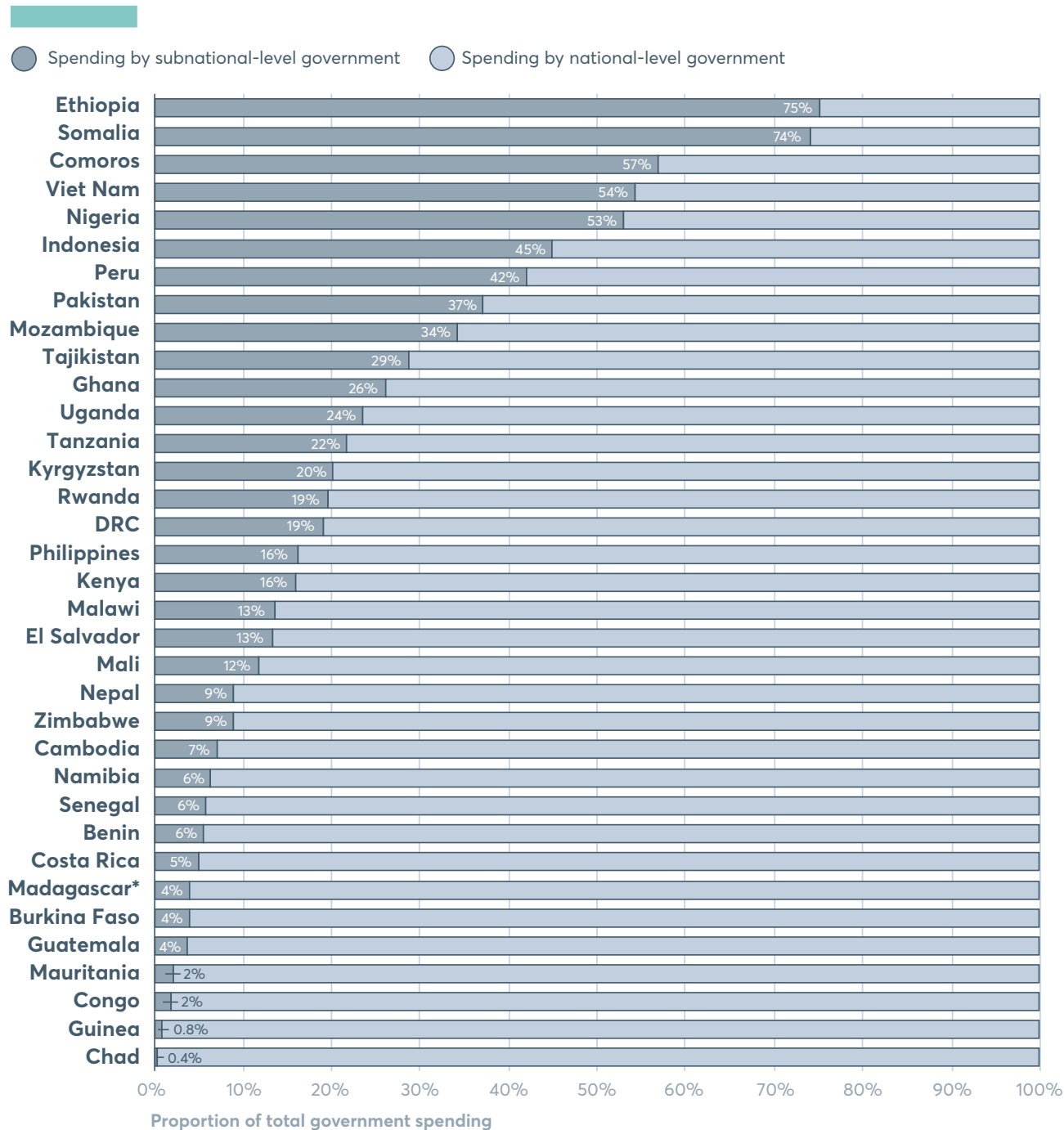
## Drilling down on subnational spending

It is increasingly recognised that tracking nutrition investments is important at the subnational as well as the national level. A number of SUN countries have decentralised government structures, and subnational government authorities can be responsible for a sizable proportion of total spending as well as delivering key services related to nutrition (such as primary health, early childhood education, and water and sanitation). This means they can potentially make significant investments in nutrition.

Figure 5.3 provides a snapshot of this in SUN countries, showing 18 countries where subnational government spending is over 15% of total government expenditure. As Figure 5.3 shows the scale of subnational funding against national funding is varied across counties, ranging from less than 10% for some and up to 75% for others like Ethiopia and Somalia. In countries like Kenya, where subnational government spending is 16% of total government expenditure, of which healthcare makes up a disproportionate share, spending on health is greater subnationally than nationally.<sup>16</sup> The importance of subnational financing of nutrition is likely to increase, given that decentralisation processes are continuing across SUN countries (such as Nepal, DRC and Ghana) and better data on domestic spending is essential to improve trackability and impact of this financing.

**FIGURE 5.3**

Overview of subnational financing in 35 SUN countries



Source: SUN Movement Secretariat/Maximising the Quality of Scaling Up Nutrition (MQSUN)+ (Development initiatives/PATH), 2018, based on OECD, International Monetary Fund, World Bank, Commonwealth Local Government Forum, government financial documentation.

Notes: Data points range from 2011–2017. \*Data for Madagascar is from 2004. DRC: Democratic Republic of the Congo.

## SPOTLIGHT 5.1

### Tracking government expenditure in Bangladesh and Tanzania

Stephanie Allan, Clara Picanyol and Mehroosh Tak

In **Bangladesh**, the government approved the second National Plan of Action for Nutrition for 2016–2025. However, the plan is not yet fully reflected in the budget, posing challenges to its implementation and ability to deliver on its ambition. Recognising the challenges, the government of Bangladesh aims to monitor spending on nutrition to align more closely with the plan's priorities and reach closer to nutrition goals. In 2018, in partnership with UNICEF and with technical support from Oxford Policy Management, the government carried out a public expenditure review of nutrition programmes. It analysed the level, composition and management of budget allocations and actual spending from 2014/15 to 2017/18. The preliminary findings show that in Bangladesh, four ministries are the key spenders on nutrition (Ministries of Food, Health and Family Welfare, Primary and Mass Education, and Women and Children Affairs) and that 20 projects account for 80% of the nutrition spending in the country. Most of the spending was nutrition sensitive (98%), with only 2% nutrition specific. The review also identified significant investments funded by donors that are not being tracked in a comprehensive and systematic manner.

The **government of Tanzania**, in partnership with UNICEF and with technical support from Oxford Policy Management, recently completed a nutrition-sector public expenditure review. The second exercise of its kind in Tanzania, the most recent effort builds on the experience of the 2014 nutrition review to give a more comprehensive assessment of nutrition spending by covering more of the country's 163 local governments, as well as the semi-autonomous region of Zanzibar. The public expenditure review directly analysed the budget data of a sample of 22 local governments, national-level ministries, departments, agencies and entities of the Revolutionary Government of Zanzibar, to determine the nutrition relevance budget lines as defined by the country's policy framework – the National Multisectoral Nutrition Action Plan. In practice, this involved manually assessing a dataset of over 90,000 budget lines by a team of researchers over the course of several months. The results were then used to derive an estimate for country-wide public spending on nutrition, based on benchmarks of the average share of local government spending which is nutrition related.

The importance of subnational governments in financing nutrition has given birth to several new initiatives in this area. For example, the government of Kenya has started assessing subnational financing at county level, with similar projects taking place in Uganda, Nepal, the Indian state of Rajasthan, district governments in Indonesia and Balochistan province in Pakistan. In all of these cases, important findings have been made not only about the scale of nutrition financing in these subnational governments, but also how effective and efficient the spending has been relative to stated plans and the level of coordination with the national-level governments. For example, in the case of the state government in Rajasthan, underfunding was found in key areas, such as infant and young child feeding and micronutrient supplementation, with better targeting of resources to specific groups suggested in the future.<sup>17</sup> In the Balochistan provincial government in Pakistan, a lack of coherence was found across departments. As a result, the report proposed new planning and budgeting processes to improve the quality and effectiveness of nutrition-relevant investments.<sup>18</sup>



## Tracking funding for nutrition across sectors in Ethiopia

Birara Melese Yalew, Dr Ferew Lemma, Jack Clift, Kavya Ghai and Mary D'Alimonte

The Ethiopian government's commitment to end child undernutrition by 2030 has taken a significant step forward with the recently developed National Food and Nutrition Policy. This accountable, legal framework emphasises the right of children to adequate nutrition and normal growth and strengthens actions outlined in the National Nutrition Programme. It aims to improve the nutrition of women, adolescent girls and all children up to the age of 10 years; improve nutrition services for communicable, non-communicable and lifestyle-related diseases; strengthen implementation of nutrition-sensitive interventions; and improve nutrition coordination and capacity building across sectors.

There have been some encouraging signs of progress; for example, between 2000 and 2016 the rate of stunting in children dropped by a third. However, there is more to do as the prevalence of stunting, wasting and anaemia remain high.

Resource tracking shows which actions are being financed and which are not. The tracking analysis shows a steady rise in nutrition funding by both government and development partners from US\$181 million in 2013/14 to US\$455 million in 2015/16. The increase has been driven by investments in large-scale, multisectoral programmes such as the Productive Safety Net Programme and the ONE WASH National Programme. By contrast, funding for interventions focusing solely on nutrition, such as capacity building for nutrition, behaviour change communication, breastfeeding promotion, management of acute malnutrition and micronutrient programmes is relatively low. No funding has been dedicated for obesity or NCD interventions.

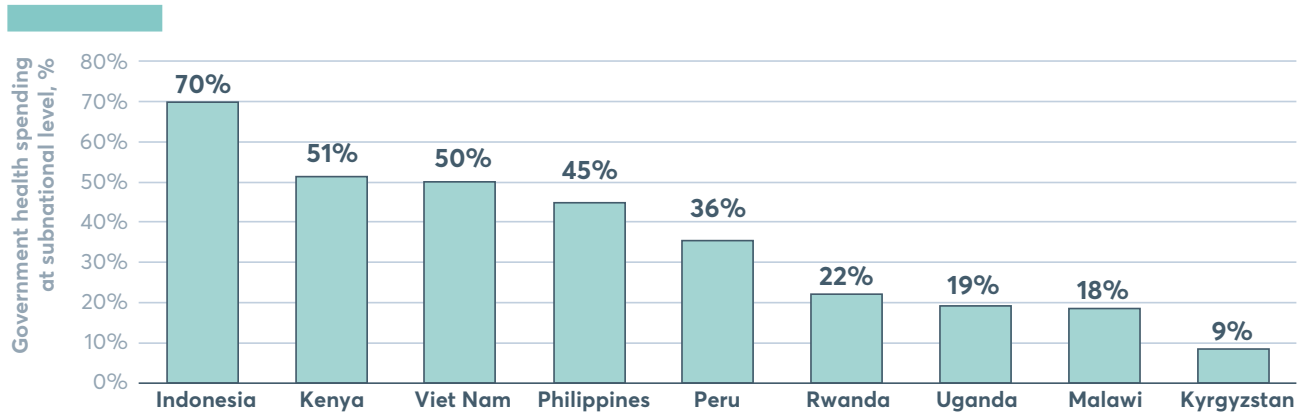
The Ministry of Health has initiated an annual multisectoral nutrition resource mapping exercise in routine systems to provide better data for the planning cycle. The approach has been developed to reflect lessons learned which could be useful for other countries looking to plan a resource mapping exercise. Key lessons so far include:

- being clear on how and when data will be used
- embedding nutrition resource mapping in existing health or other information systems to increase efficiency, reduce duplication and enhance sustainability
- building capacity in the public sector, other participants and implementors
- getting buy-in from government and development partners on what data to collect and how to collect it (this will also help to build ownership)
- identifying and tracking nutrition-specific components within multisectoral programmes
- consulting with all relevant sectors to ensure the data is useful to them.

The Ministry hopes that these guidelines will help other governments overcome the significant challenge of streamlining data collection, using timely information for annual planning and reporting back to development partners.

**FIGURE 5.4**

Percentage of total health spending by subnational governments in nine SUN countries, 2018



Source: SUN Movement Secretariat/MQSUN+ (Development initiatives/PATH), 2018, based on various government financial and health sector documentation, International Monetary Fund Government Finance Statistics, WHO health policy reviews.

## International financing for nutrition<sup>19</sup>

### Tracking donor financing for nutrition-specific actions

The 'basic nutrition' Development Assistance Committee (DAC) Creditor Reporting System (CRS) purpose code<sup>20</sup> is designed to capture reported spending on direct feeding programmes, maternal feeding, breastfeeding and weaning foods, child feeding, school feeding (up to 2016), micronutrient interventions such as providing vitamin A, iodine and iron, monitoring of nutritional status, nutrition and food hygiene education, and household food security.<sup>21</sup> It has in practice been shown to be an imperfect proxy for mainly nutrition-specific interventions. It is nevertheless an important tool for monitoring relevant spending (see Spotlight 5.3).

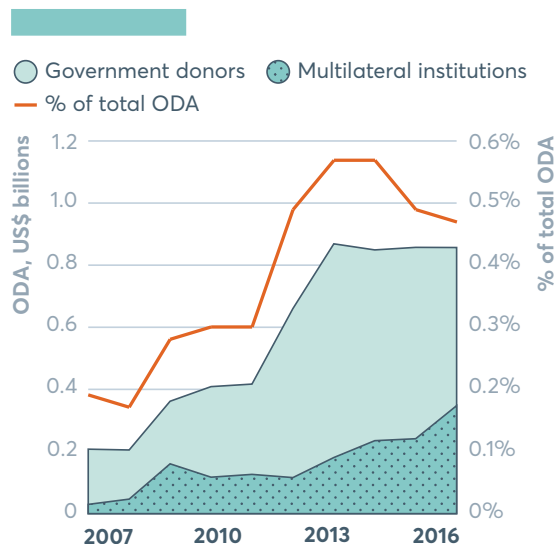
Aid for basic nutrition reported by donors and multilateral agencies amounted to US\$856 million in 2016 – almost 0.5% of total ODA. Other estimates of nutrition-specific spending are higher, at US\$1.12 billion.<sup>22</sup> Even at the higher figure, this amounts to less than 1% of global ODA.

Figure 5.5 shows basic nutrition disbursements from ODA donors for 2007 to 2016 (the latest year available). Following a four-fold rise from

2007 to 2013, spending has stalled. Moreover, as a percentage of total ODA, basic nutrition ODA has declined annually since the spending peak in 2013. Basic nutrition ODA now represents *less than half of 1%* of total ODA – a relatively small share of all development assistance compared with other sectors: in 2016, 6.8% of ODA was spent on education, 4.1% on agriculture and 1.0% on malaria control.<sup>23</sup>

**FIGURE 5.5**

Basic nutrition ODA disbursements, 2007–2016



Source: Development Initiatives based on OECD Development Assistance Committee (DAC) Creditor Reporting System (CRS). Data downloaded on 11 May 2018.

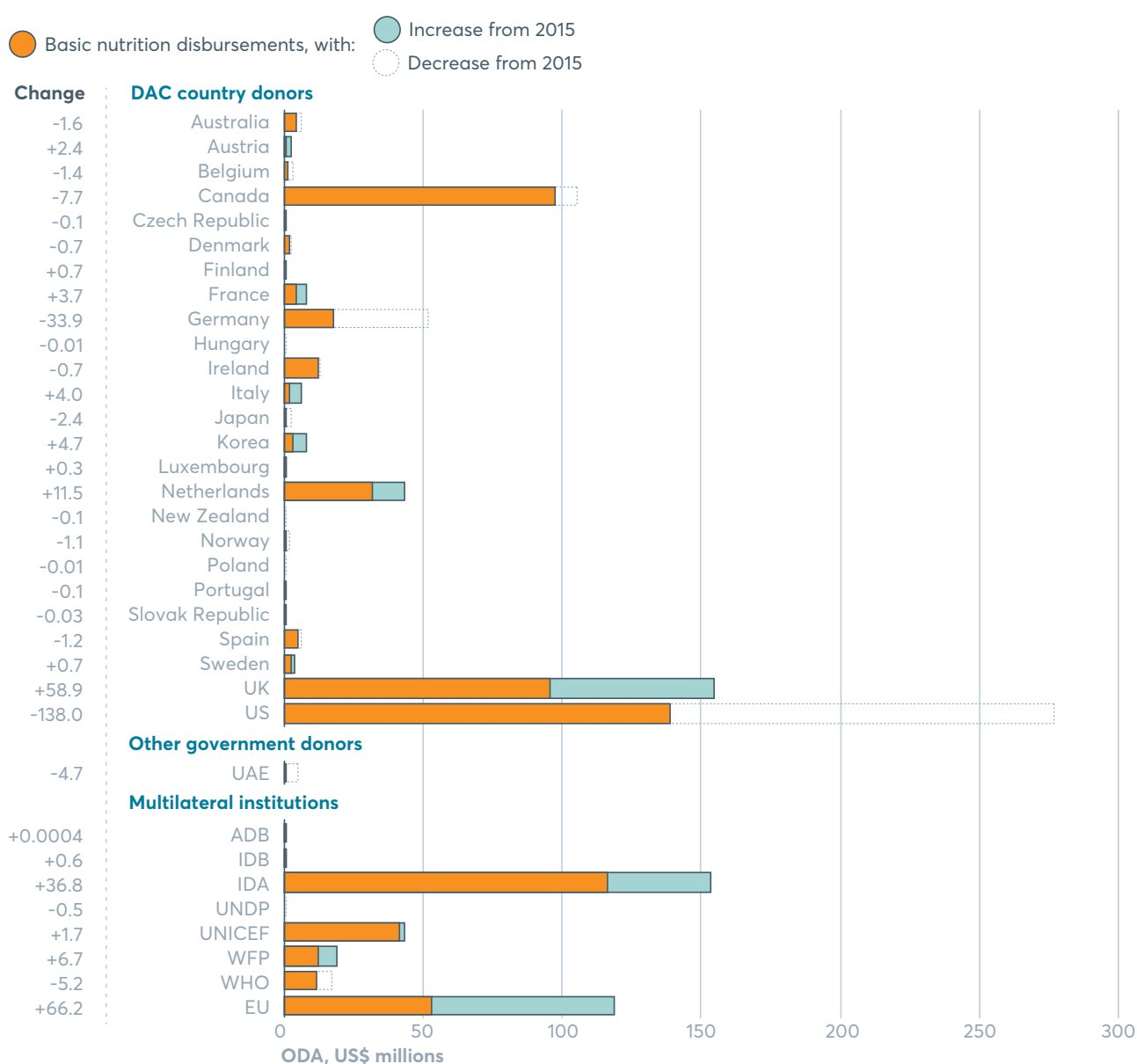
Notes: Amounts based on gross ODA disbursements, constant 2016 prices. Figure includes ODA grants and loans, but excludes other official flows and private grants reported to the OECD DAC CRS. Government donors include DAC member country donors and other government donors (Kuwait and the United Arab Emirates). Multilateral institutions include all multilateral organisations reporting ODA to the OECD DAC CRS.

Between 2015 and 2016, 17 donor countries reported fewer contributions while only nine spent more (Figure 5.6). As a result, bilateral aid to basic nutrition fell by US\$107 million to US\$509 million. But it should be noted that these apparent decreases may be a result of recent refinements to the basic nutrition purpose code whereby school feeding activities have been removed (see Spotlight 5.3). While the removal of school feeding from the basic nutrition purpose

code should have taken effect as of 2016, in practice, donors may have responded and adhered to the new definition inconsistently, and so it is difficult to attribute observed changes in spending to this code change specifically.

At the same time, overall spending by multilateral institutions increased by US\$106 million. The net effect is no real change in the total amount reported through the basic nutrition code.

**FIGURE 5.6**  
Changes in basic nutrition ODA disbursements by donor, 2015–2016



**Source:** Development Initiatives based on OECD DAC Creditor Reporting System.

**Notes:** Amounts based are gross ODA disbursements in constant 2016 prices. ADB: African Development Bank; IDA: International Development Association; IDB: Inter-American Development Bank; UAE: United Arab Emirates; UNDP: UN Development Programme; WFP: World Food Programme; WHO: World Health Organization. Data downloaded on 11 May 2018.

## SPOTLIGHT 5.3

### New methods to track donor spending

Nawal Chahid, Aurore Gary and Mary D'Alimonte

#### New nutrition purpose code

All donors report their ODA to the OECD DAC to a common set of standards and agreed definitions. ODA is classified into two levels: sectors – such as health or agriculture – and then a subset of 'purpose codes'. The 'basic nutrition' purpose code in the health sector captures some nutrition-specific expenditure.

The Global Nutrition Report and others have found the basic nutrition code to be an imperfect way to track nutrition-specific spending, and in 2017 a revised code was adopted with some improvements, such as the removal of school feeding to allow more accurate nutrition-specific tracking.

While the basic nutrition purpose code captures programmes whose main objective are to improve nutrition, it can miss nutrition investments integrated into broader programmes that are delivered across sectors (e.g. maternal and child health programmes that include supplementation; or agricultural programmes that include fortification). A significant amount of nutrition-specific spending is spread across other DAC codes simply due to the integrated nature of nutrition programming, which get missed by looking at the basic nutrition code alone. The code also does not capture nutrition-sensitive spending (which is tracked in Table 5.1) or spending on obesity or diet-related NCDs (Figure 5.8).

#### New nutrition policy marker

A major step forward for nutrition aid tracking was achieved through the adoption of a policy marker for nutrition in July 2018, thanks to a close collaboration between the SUN Donor Network, France and Action Against Hunger. Without this marker, there was no way for the CRS to monitor nutrition investments across sectors, which has been a major limitation to tracking multisectoral nutrition aid using publicly available data (and a reason why the SUN Donor Network developed its own method). Now, the nutrition policy marker – similar to the one adopted for gender equality – will allow for better accounting of progress towards the global nutrition targets including both nutrition-specific and nutrition-sensitive investments across sectors. All donors will be required to use the policy marker by 2020.

**How it works:** All donor projects will be evaluated for their relevance to nutrition and given a policy marker score according to how prominent nutrition is in the investment, on a three-point scale. This means investments across sectors and purpose codes that integrate nutrition activities, goals and outcomes can be identified.

The new policy marker will provide greater accountability and transparency through publicly available data for donors, researchers and civil society. For the first time, donors can systematically track how their nutrition funding – nutrition specific and sensitive – is integrated across all sectoral portfolios. It will streamline tracking of multisectoral nutrition investments by all donors and help them decide how to target interventions and strategies more efficiently to those countries that need them most. It will also enable donors to take a deeper look into the level of integration of nutrition in their wider programme portfolio.

Now that the policy marker is in place, the next step is to establish a set of guidelines to help donors implement it (similar to the gender marker process mentioned earlier). The SUN Donor Network and Action Against Hunger will continue to engage to ensure effective implementation.

The new and improved CRS code and policy marker are excellent examples of collaboration between donors, civil society and the OECD. They signal a long-term change in leadership, governance and mutual accountability to address the global challenge of malnutrition, which will benefit recipient countries, donors, researchers and civil society.

Figure 5.7 shows basic nutrition disbursements by donor, and includes private grants reported by the Bill & Melinda Gates Foundation. The UK, the US, the EU and Canada continued to top the list of DAC donors in 2016, accounting for 60% of global basic nutrition ODA. See Spotlight 5.5 on US government financing.

Some donors report significantly less spending in 2016 than 2015 on basic nutrition ODA. The US, for example, cut spending through the basic nutrition code by 50%. Germany has also cut spending via the basic nutrition code (by 65%) and Japan by 89% (Figure 5.6).

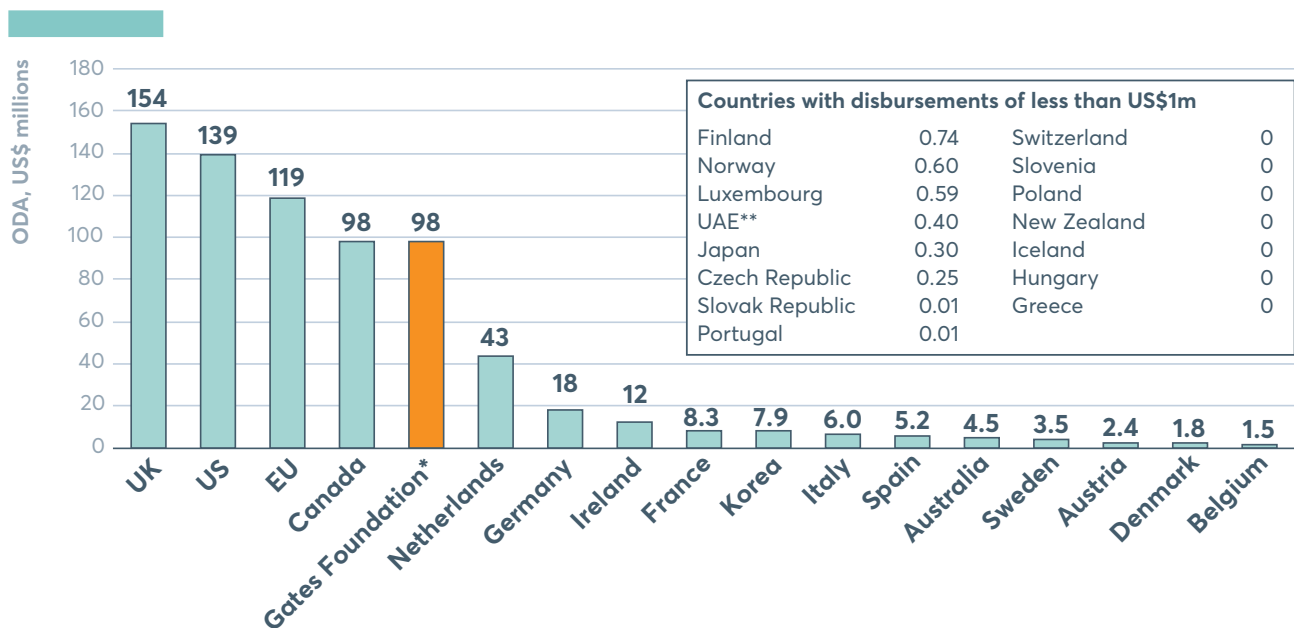
As previously noted, some of these decreases may be partly due to the recent changes to the basic nutrition purpose code (see Spotlight 5.3). Some may also be attributable to greater spending on nutrition-sensitive approaches (see Table 5.1, and Spotlight 5.5 for the US example).

New Zealand, Poland and Hungary joined Greece, Iceland, Slovenia and Switzerland on the list of countries that spent nothing at all through the basic nutrition code. On the other hand, the UK (62%), the Netherlands (36%) and Korea (142%) increased spending significantly

through the basic nutrition code and Austria and Italy more than doubled basic nutrition ODA. Six of the eight multilateral institutions that report ODA to basic nutrition increased their spending. The EU is now one of the biggest multilateral spenders, followed by UNICEF and the World Food Programme.

As noted in Spotlight 5.3, the basic nutrition purpose code is an imperfect proxy for nutrition-specific spending as it only captures a subset of nutrition-specific investments. Detailed analysis by Results for Development (R4D) underlines this, and that it is impossible to identify spending aligned with the 2025 targets with the code alone. Looking beyond the purpose code, it finds that most nutrition-specific spending is aligned with the stunting and wasting targets.<sup>24</sup> The analysis tracks donor spending on nutrition-specific interventions against the 2025 nutrition targets<sup>25</sup> to monitor spending against global resource needs to achieve the targets.<sup>26</sup> An estimated US\$1.12 billion was spent on nutrition-specific interventions in support of the global nutrition targets in 2015.<sup>27</sup> Most of those funds were spent on stunting reduction (US\$495 million) and wasting (US\$224 million) and were

**FIGURE 5.7**  
Basic nutrition ODA disbursements by donor, 2016



Source: Development Initiatives based on OECD DAC Creditor Reporting System (CRS).

Notes: Amounts based are gross ODA disbursements in constant 2016 prices. \*Spending by the Bill & Melinda Gates Foundation refers to private grants reported to the OECD DAC CRS. \*\*UAE: United Arab Emirates is the only donor outside the DAC reporting basic nutrition ODA in 2016. Data downloaded on 11 May 2018.

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allocated to sub-Saharan Africa and South Asia. The majority of funding was allocated to micronutrient supplementation, treatment of acute malnutrition, nutrition counselling and research.

It is clear that international financing for nutrition-specific investment is out of proportion to the level of need to meaningfully and significantly improve nutrition for longer-term benefits including individual well-being and economic and social progress. Spending must be considered against what is needed at the national level to better assess if the allocation of financing is proportionate to this need and who the funds are reaching. Unless needs and financing are brought together and investments better targeted, we will continue to leave people behind. In the future, the Global Nutrition Report plans to provide analysis that looks at trends in allocation by recipient country and need.<sup>28</sup>

In the context of these financing gaps, the Power of Nutrition presents an interesting example of how new ways of innovative financing can leverage multiple partners and scale up financing for nutrition (Spotlight 5.4).

## Tracking donor financing for nutrition-sensitive investments

As noted in Spotlight 5.3, the OECD DAC donor reporting system does not enable donors to report their nutrition-sensitive investments. In this context, the Global Nutrition Report uses self-reported data by donors as part of the Nutrition for Growth (N4G) process to get a better picture of aid to nutrition-sensitive activities.

Self-reporting has limitations and methodologies for identifying relevant spending differ between reporting donors. The SUN Donor Network methodology goes some way in corroborating a consensual approach to identifying donor spending on nutrition-sensitive interventions, but it is not adopted or applied consistently across all reporting donors, meaning the resulting spending figures cannot be compared. Adopting the new OECD DAC policy marker is an important opportunity

to standardise financial reporting against nutrition commitments and ensure the data is comparable and therefore meaningful. The policy marker, like the SUN methodology, is subject to human error and limited by the quality and detail of donors' project documentation. The notes accompanying Table 5.1 show some of these differences and inconsistencies.

While tracking these investments is important, unlike nutrition-specific interventions, there is less information about required financing and costs of nutrition. Though many countries have nutrition investment frameworks, more attention needs to be given to costing exercises to have realistic assessments of nutrition-specific financing needs. Without good costings, it is difficult to identify gaps, prioritise investments and monitor progress.

Each donor has its own approach and priorities that guide its allocations. Spotlights 5.5, 5.6 and 5.7 provide more details on the US, the European Commission and International Fund for Agricultural Development (IFAD)'s investments and commitments in nutrition-sensitive approaches to their work.

Table 5.1 shows the US has been by far the biggest donor for nutrition-sensitive approaches over the last few years, with the EU, Canada and the UK also significant contributors. In 2016, nutrition-sensitive spending totalled US\$6.08 million, up from US\$5.48 million in 2015.

## Innovative financing for nutrition: The Power of Nutrition

Mavis Owusu-Gyamfi and Tatum Summers

The scale of global undernutrition is matched by the huge gap in financing needed to tackle it. To address this gap, The Power of Nutrition was established in 2015 by the UK Department for International Development, the Children's Investment Fund Foundation, the UBS Optimus Foundation, UNICEF and the World Bank. This platform mobilises funding for nutrition-specific interventions for undernutrition by leveraging financing and partnerships between the private sector, governments, donors and implementing partners to scale up sustainable national nutrition programmes. This model sees every dollar invested in The Power of Nutrition doubled by the platform, and then doubled again by the programme implementing partner, thus quadrupling the original funding. It is already making a difference in six countries across sub-Saharan Africa and aims to unlock US\$1 billion of new financing for nutrition programmes by 2022.

### Scaling up nutrition funding in Côte d'Ivoire

The funding model was used to good effect in Côte d'Ivoire, where The Power of Nutrition facilitated a partnership to support the government's Multisectoral Nutrition and Child Development Project (MNCDP). The partnership involved Transforming Education in Cocoa Communities (TRECC) – a private sector consortium established to improve the living conditions of children and young people through better education, including parenting and early childhood training – the Bill & Melinda Gates Foundation and the World Bank.

As a key investor in Côte d'Ivoire, TRECC was asked if it would consider co-investing with The Power of Nutrition and the World Bank in the MNCDP. TRECC expressed an interest in investing US\$5 million, providing the other partners (World Bank, the government and The Power of Nutrition platform funders) expanded the programme coverage to some cocoa-producing regions and the content to include parenting education and child stimulation. Following extensive negotiations, the partners agreed to expand the programme coverage and pilot a parenting-and-child-stimulation approach which if successful would be scaled up.

At the same time, The Power of Nutrition was in discussion with the Gates Foundation about supporting national programmes in three African countries. A request for Côte d'Ivoire to be included in the final list of countries was approved by the Gates Foundation, which enabled The Power of Nutrition to increase its overall commitment to MNCDP by another US\$1 million.

The Power of Nutrition, along with its donors, invested US\$10.4 million in total, which was matched by US\$50 million from the International Development Association (a loan from the World Bank to the government of Côte d'Ivoire), bringing the total programme size to US\$60.4 million over five years – 10 times more than the original US\$6 million invested by TRECC and the Gates Foundation.

This programme brought together a group of diverse allies to collaborate and finance a single nutrition programme in Côte d'Ivoire through The Power of Nutrition platform. Furthermore, it secured funding from donors who had historically not funded nutrition. And Côte d'Ivoire now has its first national large-scale programme focused on improving nutrition and child development in the early years.



The Power of Nutrition aims to establish a portfolio of nutrition programmes across sub-Saharan Africa and Asia that will enable an additional 17 million children and 18 million women to access nutrition services, help avoid 600,000 cases of stunting and 1.5 million cases of maternal anaemia, and prevent 60,000 deaths of children under five years of age.<sup>29</sup> To date, The Power of Nutrition has raised US\$58 million from the likes of TRECC, the Gates Foundation and others. This has been doubled by platform funders such as the UK Department for International Development and the Children's Investment Fund Foundation, which have committed just over US\$150 million to date. The leverage model has contributed to a total of US\$360 million worth of programming in sub-Saharan Africa. The first two programmes are enabling over 8 million children and over 3 million women to access nutrition services to date.

### Scale, systemic reform and sustainability

The Power of Nutrition has a responsibility to ensure that its leveraged financing is as effective as possible, and conducts due diligence on all implementing partners. Results are monitored and evaluated to shape future programmes. It seeks to multiply impact on the ground to ensure that collective financial commitments are as effective as possible, by focusing on three S's:

- **Scale:** Invests in countries where the stunting prevalence is more than 30% and more than 250,000 children are stunted. To ensure that programmes deliver results at scale, the minimum budget is US\$10 million.
- **Systemic reform:** Supports governments to build their capacity and systems to support the implementation of national nutrition programmes. For example, in Liberia, part of the programme with UNICEF funds a person dedicated to leading the roll out of new nutrition information systems.
- **Sustainability:** Seeks long-term gains which carry on even after a programme has finished. The programme with the World Bank in Tanzania supports the government to deliver nutrition services through the national health system by using its own resources. Payments are only made when the government achieves certain targets.

**TABLE 5.1**Nutrition disbursements reported to the 2014–2018 *Global Nutrition Reports*, for 2010–2016

REPORTED AS US\$ THOUSANDS	NUTRITION SPECIFIC					
	2010	2012	2013	2014	2015	2016
Australia <sup>+++</sup>	6,672	16,516	NR	20,857	NA	15,639
Canada*	98,846	205,463	169,350	159,300	108,600	97,628
EU**	50,889	8	54,352	44,680	48,270	29,721
France <sup>+++</sup>	2,895	3,852	2,606	6,005	4,660	8,572
Germany	2,987	2,719	35,666	50,572	51,399	18,047
Ireland	7,691	7,565	10,776	19,154	13,079	12,391
Netherlands	2,661	4,007	20,216	25,025	31,604	46,331
Switzerland <sup>§</sup>	0	0	0	0	0	0
UK <sup>****</sup>	39,860	63,127	105,000	87,000	92,400	156,000
US <sup>+</sup>	82,613	229,353	288,649	263,241	382,891	296,974
Gates Foundation	50,060	80,610	83,534	61,700	96,500	96,616
CIFF	980	5,481	37,482	26,750	53,607	32,784
World Bank <sup>++</sup>	NA	NA	NA	NA	NA	NA
13 donors total	346,154	618,701	807,631	764,284	878,350	810,703

REPORTED AS US\$ THOUSANDS	NUTRITION SENSITIVE					
	2010	2012	2013	2014	2015	2016
Australia <sup>+++</sup>	49,903	114,553	NR	87,598	NA	128,706
Canada*	80,179	90,171	NR	998,674	1,271,986	1,309,732
EU**	392,563	309,209	315,419	570,890	423,704	496,672
France	23,003	27,141	33,599	NR	23,781	16,446
Germany	18,856	29,139	20,642	51,547	84,174	186,780
Ireland	34,806	45,412	48,326	56,154	54,217	54,248
Netherlands	2,484	20,160	21,616	18,274	28,422	56,510
Switzerland	21,099	28,800	29,160	26,501	43,656	42,190
UK <sup>****</sup>	302,215	412,737	734,700	780,500	928,300	693,000
US <sup>+</sup>	2,005,880	1,968,759	2,449,706	2,656,269	2,555,332	3,011,605
Gates Foundation	12,320	34,860	43,500	29,200	42,000	62,619
CIFF	0	0	854	154	20,725	21,595
World Bank <sup>++</sup>	NA	NA	NA	NA	NA	NA
13 donors total	2,943,308	3,080,941	3,697,522	5,275,761	5,476,297	6,080,103

REPORTED AS US\$ THOUSANDS	TOTAL					
	2010	2012	2013	2014	2015	2016
Australia <sup>+++</sup>	56,575	131,069	NR	108,455	NA	144,345
Canada*	179,025	295,634	NA	1,157,974	1,380,586	1,407,360
EU**	443,452	309,217	369,771	615,570	471,974	526,393
France	25,898	30,993	36,205	NA	28,441	25,018
Germany	21,843	31,858	56,308	102,119	135,573	204,827
Ireland	42,497	52,977	59,102	75,308	67,295	66,640
Netherlands	5,145	24,167	41,832	43,299	60,027	102,841
Switzerland	21,099	28,800	29,160	26,501	43,656	42,190
UK <sup>****</sup>	342,075	475,864	839,700	867,500	1,020,700	849,000
US <sup>+</sup>	2,088,493	2,198,112	2,738,356	2,919,510	2,938,223	3,308,578
Gates Foundation	62,380	115,470	127,034	90,900	138,500	159,235
CIFF	980	5,481	38,336	26,904	74,332	54,379
World Bank <sup>++</sup>	NA	NA	NA	NA	NA	NA
13 donors total	3,289,462	3,699,642	4,335,804	6,034,040	6,359,307	6,890,806

**Source:** Authors, based on data provided by the donors.

**Notes:** Data is in current prices. Most donors report in US\$, and where they do not, an annual average market exchange rate from OECD or the US Internal Revenue Service was used. CIFF: Children's Investment Fund Foundation; Gates Foundation: Bill & Melinda Gates Foundation; NR: no response to our request for data; NA: not applicable (meaningful totals cannot be calculated owing to missing data or data produced using a methodology other than the SUN Donor Network's). Calculations and reporting often differ by country and donor, as shown by symbols (\*+§) and explained in note 30.<sup>30</sup>

### Steps forward in US government financing of nutrition

Erin Milner, Anne Peniston, Kate Consavage, Katherine Owens and Amy Fowler

#### Introduction

The US government, through the US Agency for International Development (USAID), has made substantial commitments to improve nutrition through maternal and child health, emergency and food assistance, and agriculture and food security programming. The US Government Global Nutrition Coordination Plan (2016–2021) was developed to strengthen the impact of the diverse nutrition investments across the US government, maximising support to country-led programmes and catalysing progress toward World Health Assembly nutrition targets. Through the Global Food Security Strategy (2017–2021), the US government is elevating nutrition in food security and agriculture activities. The programming, impacts and lessons learned from the use of US government funds are described here to show how the US government is improving nutrition.

#### Funding and programming

Internal tracking of US government spending shows that while nutrition-specific investments have decreased, total commitments to nutrition have increased annually since 2013, up from US\$2.7 billion to US\$3.31 billion in 2016, with increasing amounts going towards nutrition-sensitive programming (Table 5.1). USAID supports the largest number of global nutrition programmes funded by the US government, which account for the greatest proportion of total nutrition spending.

USAID programming targets the direct and underlying causes of malnutrition, emphasising the critical 1,000 days window, and focuses on linking humanitarian assistance with development programming to build vulnerable communities' resilience to shocks. USAID's strategic goals for improving nutrition globally centre on the agency's Multi-Sectoral Nutrition Strategy (2014–2025) through interventions that include providing quality services, building capacity, strengthening multisector coordination and enhancing global leadership for nutrition. Programmes, including capacity building and national policy development, emphasise the importance of engaging a variety of sectors such as health, agriculture, livelihoods, WASH, education, family planning and early childhood development to improve nutrition outcomes. USAID multisectoral nutrition activities are funded in 28 countries globally, including 18 in Africa, 7 in Asia, and 3 in Latin America and the Caribbean. Examples of the type of investments made are well illustrated by Nepal and Malawi.

- In **Nepal**, USAID funds cross-cutting and contextualised community, facility and national nutrition efforts. USAID's integrated nutrition programme, Suahara II (Good Nutrition), works in 42 of Nepal's 77 districts to improve the nutritional status of pregnant and lactating women, and children. In 2017, this innovative programme reached 1.6 million children under five and their caregivers with support for essential nutrition and hygiene actions, including breastfeeding and infant and young child feeding education and other services to prevent and manage acute malnutrition. Suahara II nutrition activities are integrated with health, WASH, family planning and agriculture activities. Through these actions, exclusive breastfeeding in target districts increased from 46% in 2012 to 70% in 2016, and the national prevalence of children 6 to 23 months receiving a minimum acceptable diet increased by 11%.
- In **Malawi**, over 2.9 million children under five years were reached in 2017 with USAID-funded nutrition-specific interventions. USAID has supported the Ministry of Health to provide vitamin A supplementation and deworming; hospitals to achieve 'baby friendly' status as part of the Baby Friendly Hospital Initiative; agriculture extension services to strengthen production of nutritious foods; and nutrition programmes to target HIV-affected populations. USAID also developed and implemented a nutrition training curriculum for nurses and midwives as well as a dietetics programme to build Malawi's nutrition technical capacity, reaching over 100,000 people with nutrition-related professional training in 2017.

**Impact**

In USAID's 20 priority countries for maternal and child nutrition, the prevalence of aggregated national-level stunting and maternal anaemia have decreased and exclusive breastfeeding rates have increased since 2009. In 2016, over 27 million children under five years were reached by nutrition-specific interventions through US government-supported programmes. In 2016, USAID reached over 950,000 pregnant women with nutrition interventions and over 3 million women received exclusive breastfeeding education. USAID funding also builds capacity and country ownership of nutrition policies and programmes, reaching over 1 million people with nutrition-related professional training in 2016.

**Lessons learned**

Since the start of USAID's nutrition programming nearly 60 years ago, USAID has continually adapted activities to reflect project learning, changing country contexts and emerging evidence, but challenges remain. Coordinating nutrition programming across multiple sectors is difficult, yet USAID is continually monitoring and learning from country programmes and using this information to adapt activities for greater multisectoral nutrition collaboration. USAID is committed to supporting countries on their journeys to self-reliance, which requires countries to increase their commitment and capacity to address their own development needs. Strengthened country-level governance and accountability are needed to sustain a coordinated, multisectoral enabling environment for successful nutrition programming.

### The European Commission's investment in nutrition

Madeleine Onclin

At the 2013 N4G summit, the European Commission made a pledge to allocate €3.5 billion for nutrition between 2014 and 2020. This bold commitment was in line with its 2013 nutrition policy framework for addressing undernutrition. Nearly all the money – €3.1 billion euros – was for nutrition-sensitive programmes on the basis that it would have more widespread impact by addressing the underlying causes of the problem. To operationalise that commitment, DEVCO (the Commission's International Development and Cooperation Directorate) developed its Action Plan on Nutrition with the goal of supporting partner countries in reducing the number of stunted children by 7 million by 2025. The funding helped support a range of innovative programmes to reduce stunting such as:

- **A nutrition-sensitive project run by CARE** to strengthen gender equality and empower women in Ethiopia. This project enables people and communities to explore, challenge and change gender inequality. Early signs are encouraging: more girls and young women are starting to earn an income and save money; they are better informed about sexual and reproductive health; and gender-based violence has markedly reduced.
- **A Livelihoods and Food Security Trust Fund in Myanmar.** This multi-donor initiative has nutrition as one of its strategic objectives. Since 2014, mothers and children in three areas have received cash to buy nutritious food and access health services. At the same time, pregnant women and mothers have increased awareness of how they can improve family diets. Taken together, the benefits are clear – mothers receiving both cash and training had fewer low birth weight babies, exclusive breastfeeding rates have doubled, and stunting rates are down by five percentage points.
- **The Agri-Connect project in Tanzania** went live in early 2018 to create more wealth from farming by linking smallholder farmers to value chains and markets. At the same time, it aims for improved food and nutrition security by supporting selected communities to access and use food better. It is hoped that tea, coffee and flower-farming communities will earn more money as well as enjoy improved nutrition by growing a wider range of food.

Initially, accountability for the Commission's N4G funding commitment was seen as a challenge, because at that time there was no agreed way to track nutrition-sensitive funding. In response, the EU worked with the SUN Donor Network to define a common approach to track and report nutrition allocations. For even greater transparency, the Commission decided to publish annual progress reports detailing and analysing how funding has been allocated and disbursed.

These progress reports have in turn informed the Commission's various funding decisions. The findings were revealing and served as a reality check. For example, the first progress report showed the Commission's nutrition spending, as a proportion of its total funding from 2010 to 2014, was two to three times greater than the average spending on nutrition by donors as a proportion of their ODA in 2012.

By the time the first progress report was published, a strategy was already in place to ensure the Commission had high-quality technical support and nutrition advice to strengthen its policies and programmes, at country, regional and global levels. The results were confirmed via N4G tracking in the *2017 Global Nutrition Report*, indicating significant progress. The Commission's forthcoming third progress report will present the most recent analysis, showing that nearly 90% of the €2.5 billion allocated so far has been for nutrition-sensitive projects. Its investment is on course to meet the €3.5 billion pledge commitment by 2020.

## International Fund for Agricultural Development (IFAD)'s approach to investing in nutrition-sensitive agriculture

Juliane Friedrich

### Progress on the N4G commitments

"Improving the nutritional level of the poorest population in developing countries" is a principal objective of the agreement establishing IFAD. Improving nutrition through better and nutrition-sensitive food production systems is thus at the heart of IFAD's work.

As part of the N4G commitment, in 2013 IFAD committed to ensuring that 20% of all new IFAD projects and 30% of all new IFAD country strategic opportunities programmes (COSOPs) are nutrition sensitive. A nutrition-sensitive project is defined as one that integrates nutrition-relevant objectives, indicators and activities into the project design and its implementation. A nutrition-sensitive COSOP includes a nutrition assessment, describing the nutrition situation in the country and how the strategic objectives of the programme relate to improving nutrition.

After three years, the 2016–2018 IFAD strategy is increasing its commitment. Now, 33% of projects and 100% of COSOPs must be nutrition sensitive. In 2019–2021, 50% of projects and 100% of COSOPs must be nutrition sensitive. As of 2017, 47% of new projects and 100% of COSOPs were nutrition sensitive.

Nutrition is also now firmly embedded in IFAD's corporate strategies and commitments. Aside from its central role in IFAD's Strategic Framework, nutrition has also been integrated into IFAD's Results Management Framework and Commitment Matrix and has become increasingly featured in the *Report on IFAD's Development Effectiveness*. Increased corporate attention also led to selecting nutrition as one theme in the 2017 Portfolio Stocktake.

### The key to success

Supplementary funds from the governments of Canada and Germany have played an essential role in achieving the objectives of the Nutrition Action Plan (2016–2019) and transforming how nutrition is perceived and taken up in IFAD. The government of Germany also funded cutting-edge research to develop evidence-based guidance for the design of nutrition-sensitive value chain projects, which will allow for leveraging the potential of value chains (one of IFAD's key areas of investment) for nutrition. IFAD has mobilised unrestricted complementary contributions for nutrition from the governments of Russia and Luxembourg. These facilitated the capacity development needed to understand and uptake nutrition at the IFAD headquarters and in country offices.

### Key challenges

A major challenge for mainstreaming nutrition in IFAD was the perception that increased agricultural production and income automatically translate into better nutrition. Adding nutrition expertise into design missions, conducting sensitisation sessions across the regional and thematic divisions at headquarters level but also in the field, and integrating nutrition in the IFAD portfolio review fostered a better understanding of nutrition, food systems and healthy diets. Meanwhile, nutrition mainstreaming has gained a lot of support from staff including regional directors, country programme managers, in-country officers and technical experts from other fields. Still, it continues to be challenging due to limited understanding on how to integrate and implement nutrition-sensitive activities in IFAD investments and grants.

### Advancing progress in nutrition

To continue meaningful nutrition integration into IFAD's work, it must further develop capacity and competence in nutrition at all levels, particularly country level. IFAD's decentralisation strategy is instrumental. Having technical expertise at country level will allow IFAD to identify and develop in-country competencies in nutrition-sensitive agriculture.

Nutrition is now part of the key portfolios of IFAD's work, which includes environment, climate, gender and social inclusion, youth and indigenous people. This leads the way to a holistic and horizontal integration of cross-cutting themes with nutrition essential for rural transformation.

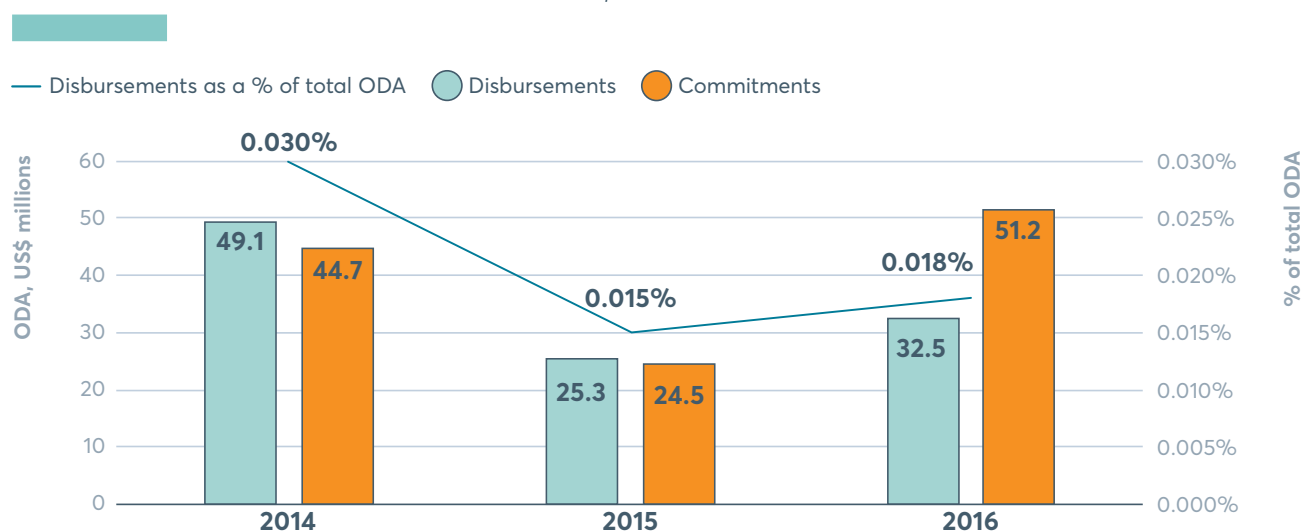
## Tracking donor financing for obesity and non-communicable diseases

Until 2018 it has not been possible for donors to report their ODA to obesity and diet-related NCDs. The Global Nutrition Report therefore developed its own methodology to track spending and has reported results for the last three years. Our analysis shows very low levels of spending. In 2016 – the most recent year available – just 0.018% of ODA was allocated to obesity and diet-related NCDs. Disbursements increased in 2016 – from US\$25.3 million to US\$32.5 million but were still lower than in 2014 (Figure 5.8). Commitments for future spending were at their highest level for three years – albeit at just US\$51.2 million.

Donors investing the most in diet-related NCDs include Australia, which has contributed US\$8.7 million – more than a quarter of global spending. The other large donors include the EU, the UK, Switzerland, Canada, Italy and New Zealand (Figure 5.9).

Looking at where the money was spent, just over half went to upper-middle-income countries, 20% to lower-middle-income countries and less than 3% to the low-income countries. This breakdown can be misleading, however, as nearly a quarter of the total was allocated regionally or with no single specified recipient. Tonga and Fiji – both countries with high levels of diabetes – were the largest recipients of ODA for tackling diet-related NCDs, followed by Lebanon and Nauru.

**FIGURE 5.8**  
Diet-related NCD ODA disbursements and commitments, 2014–2016

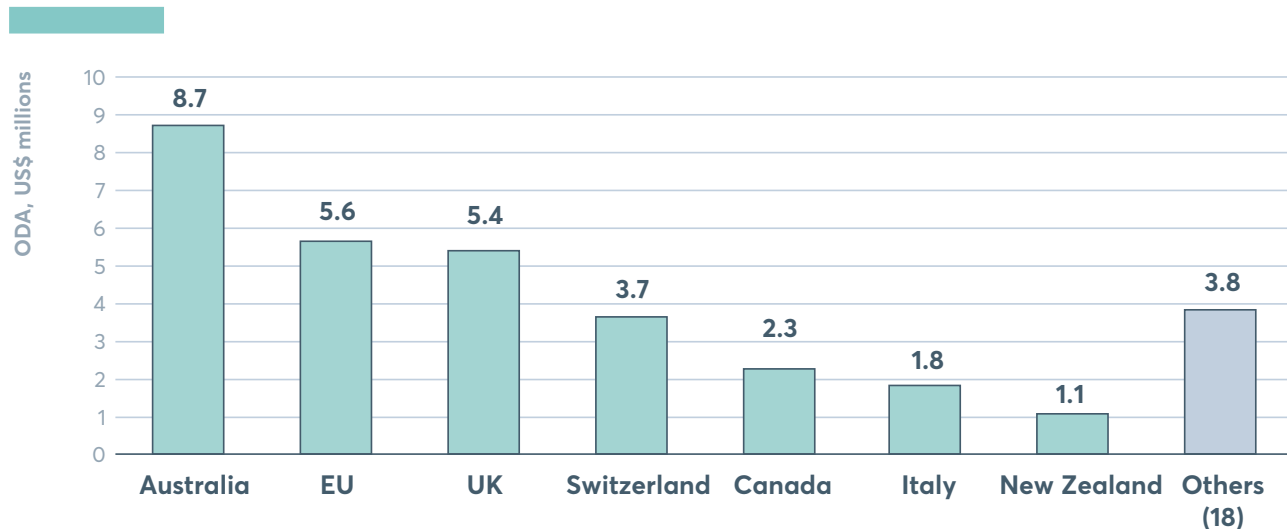


Source: Development Initiatives, based on OECD DAC Creditor Reporting System.

Notes: Amounts are based on gross ODA disbursements current prices. Data downloaded on 2 May 2018.



**FIGURE 5.9**  
Diet-related NCD ODA disbursements 2016, by donor



**Source:** Development Initiatives, based on OECD DAC Creditor Reporting System.

**Notes:** Amounts are based on gross disbursements in 2016. Others comprise: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Inter-American Development Bank Special Fund, Ireland, Japan, Korea, Luxembourg, Norway, Poland, Spain, Sweden, United Arab Emirates and the US. Data downloaded on 2 May 2018.

## Improvements in tracking international aid for nutrition

As Spotlight 5.3 shows, advancements have been made to improve future tracking of nutrition by aid donors with the adoption of a new purpose code and policy marker. These will only bear fruit if the code and policy marker are successfully adopted by all donors and consistently used to track their spending. The next step is to ensure guidelines are established to help donors implement the code and policy marker. This initiative has been taken up by the SUN Donor Network.

Progress has also been made to improve tracking of donor investments in healthy eating and obesity actions as part of a set of five new codes on NCDs.<sup>31</sup> Unlike HIV and AIDS, tuberculosis, malaria, reproductive health and undernutrition, there has been no purpose code for donors to report spending on NCDs, making it very challenging to track aid expenditure. Analysis was even more difficult because of the way health ODA was categorised. As a result, it has been difficult to verify donors' expenditure reports, including claims that NCDs were being funded under the category of 'strengthening health systems'. A major step forward was made in 2018 when NCD tracking codes were adopted, including one on programmes and interventions that promote healthy diets through reduced consumption of salt, sugar and fats and increased consumption of fruits and vegetables (Spotlight 5.8).

## SPOTLIGHT 5.8

### A new harmonised and transparent reporting system for monitoring of financial flows for non-communicable diseases

Katie Dain

The political commitment to tackling NCDs has yet to translate into adequate funding. We see it nationally, where nowhere-near-enough money is allocated from domestic budgets; bilaterally, where a miserly 2.6% of development aid for health goes to NCDs; and globally, with NCDs the poor relation to other health priorities. The picture is even gloomier for diet-related NCDs such as obesity. As discussed earlier, a minuscule 0.018% of global development aid was spent on diet-related NCDs in 2016, though poor diets are estimated to be the second leading cause of ill health.

The urgent need for more and better data on NCD financing became clear some years ago. Domestic data is almost non-existent, partly because NCDs tend not to appear in national health accounts, and partly because it is difficult to track spending across all governments departments. Important lessons could be learned from climate public expenditure and institutional reviews which provide valuable analysis of cross-departmental spending and investments.<sup>32</sup>

Tracking and reporting NCDs in ODA for health has been grossly inadequate. Bilateral and multilateral aid agencies are committed to accurate accounting of their ODA flows through the OECD DAC CRS. But, unlike HIV and AIDS, tuberculosis, malaria, reproductive health and undernutrition, there has been no purpose code for NCDs in the CRS, making it very challenging to track aid expenditure on them. Analysis was made even more difficult because of the way health ODA is categorised. As a result, it was nearly impossible to verify donors' expenditure reports, including claims that NCDs were being funded under the category of 'strengthening health systems'.

Faced with this mess, the NCD Alliance and others have long been calling for the current CRS to include a purpose code for NCDs. Governments committed to this at the UN High-Level Review on NCDs in 2014, inviting the OECD DAC "to consider developing a purpose code for NCDs in order to improve the tracking of official development assistance in support of national efforts for the prevention and control of NCDs." Two years later the OECD started work on a proposal, coinciding with a review of the CRS aimed at better aligning the purpose codes and policy markers with the SDGs.

In June 2017, five new codes on NCDs were agreed, along with adjustments to other codes to reflect NCDs. These are designed to align closely with the SDG targets – tobacco control (SDG 3.a), control of harmful use of alcohol and drugs (SDG 3.5), promotion of mental health and well-being (SDG 3.4), research for NCD prevention and control (SDG 3.b), and other prevention and treatment of NCDs (SDG 3.4). This last code includes "programmes and interventions that promote healthy diet through reduced consumption of salt, sugar and fats and increased consumption of fruits and vegetables" and gives examples such as food taxes, nutrition education and promoting healthy eating in schools, workplaces and communities.

The new codes come into effect in 2019, with reporting on 2018 financial flows. They are a big step forward in helping us track funding for improved eating habits, and they will significantly help us analyse financial flows, trends and accountability for NCDs.

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## Progress on commitments since 2013

### Financial commitments

A major achievement in international financing has been made in the collective commitment by donors at the N4G Summit in 2013: 10 signatories that report their spending to the Global Nutrition Report pledged a collective US\$19.6 billion by 2020. The same 10 donors (US, EU, UK, the Bill & Melinda Gates Foundation, Children's Investment Fund Foundation, World Bank, Netherlands, Ireland, Germany and Australia) have cumulatively disbursed US\$21.8 billion (2013–2016) ahead of 2020.

2017 saw additional forward steps in commitments to financing. The Global Nutrition Summit in Milan brought together three of the largest original donors combined with four new ones to pledge an additional US\$640 million to be disbursed along with other commitments (both financial and non-financial) from countries, businesses and civil society organisations.

### Nutrition for Growth commitments

Commitments can take many forms – not just financial. On the day of the closing ceremony of the 2012 Olympic Games in London, UK Prime Minister David Cameron and Brazil's Vice President Michel Temer called for a major push to end hunger and improve the nutrition of children and mothers in the critical first 1,000 days window between pregnancy and age two. This political impetus led to N4G, a movement to harness and build on the various efforts aimed at combating malnutrition and turn them into financial, but also policy and programmatic, commitments.<sup>33</sup>

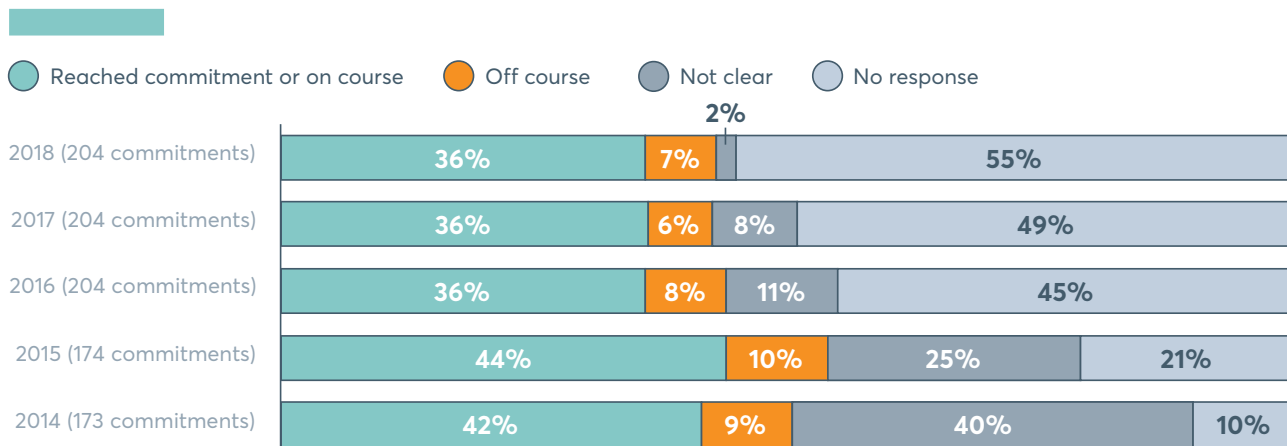
At the N4G Summit, countries made four types of commitments:

- 'Impact commitments' on improving nutritional status
- 'Financial commitments' on the sources and amounts of funding to nutrition
- 'Policy commitments' on policies to create a more enabling environment for nutrition action
- 'Programme commitments' on programmes to improve nutritional status.

This year's report documents progress between 2017 and 2018 on all types of categories of those original N4G commitments. Three independent reviewers assessed progress against the original 2013 commitments before a consensus was reached, rating them 'reached', 'on course', 'off course' or 'not clear'. We also highlight three examples of financial commitments, which are on track or achieved and provide examples of what they have funded and the difference they have made.

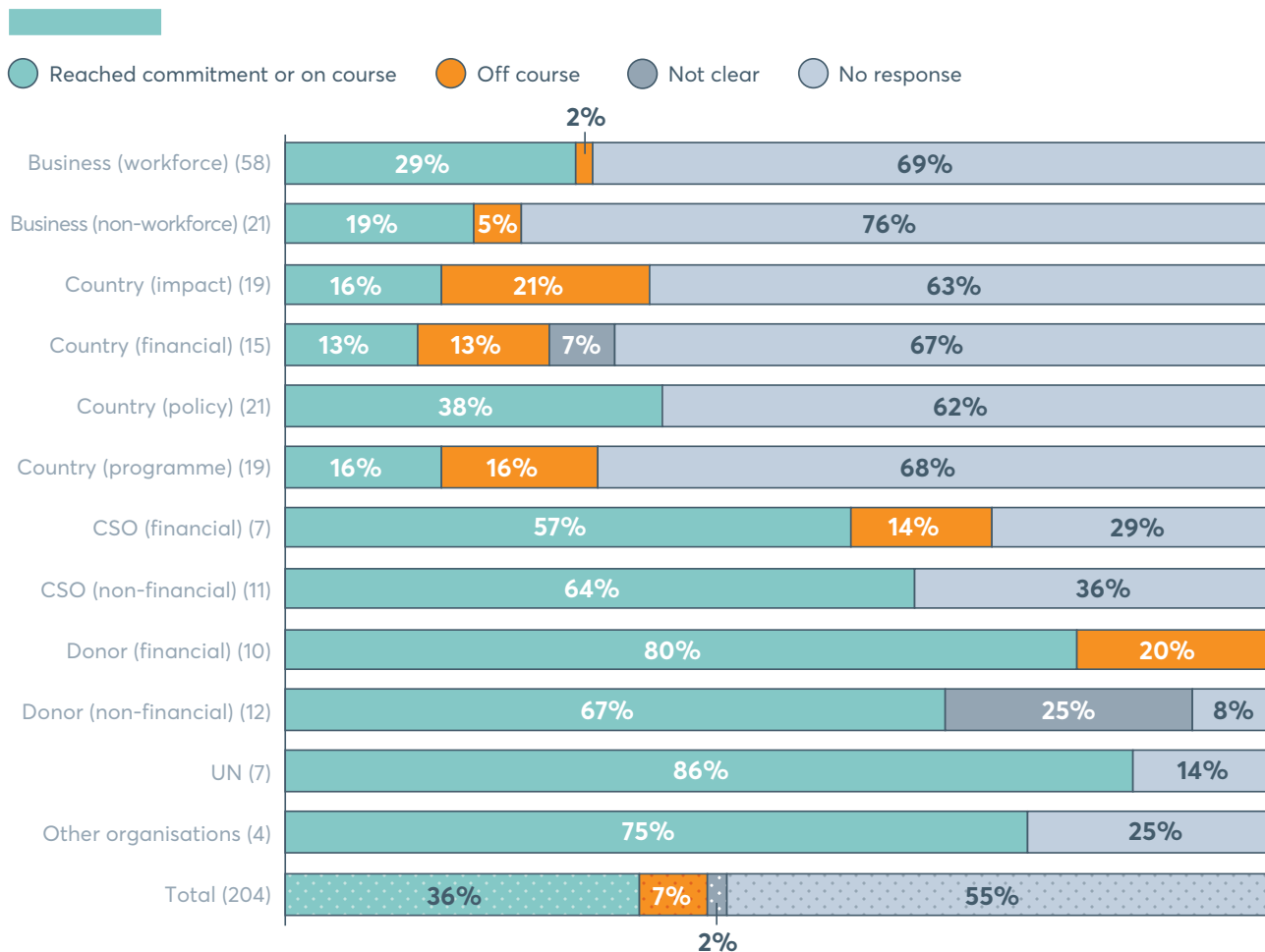
Figure 5.10 shows the progress in meeting the commitments made at the N4G summit in 2013. In 2018, only 36% of signatories were assessed as having either met their commitment or being on course to meet their commitments by 2020. Given the low response rates (45% of all signatories), it is unclear whether this is indicative of true progress on commitment delivery, or merely a result of limited responses. As a continued trend, business stakeholders had the lowest response rate in 2018. From the response rate, it is clear that the 'staying power' of reporting on progress on the N4G process has waned. In previous Global Nutrition Reports, we have analysed why this is, and we continue to be optimistic that there are some commitment endeavours that have staying power and others that do not based on how they are structured along with their long-term intent.

**FIGURE 5.10**  
Overall tracking of N4G commitments, 2014–2018



For source and notes, see Figure 5.11

**FIGURE 5.11**  
Tracking progress against N4G commitments by signatory group, 2018



Source: Authors.

Notes: In 2013, 205 commitments were made, but the 2014 *Global Nutrition Report* included only 173 because businesses were not ready to report on all their commitments. There were 174 commitments in 2015 and 173 in 2014 because Ethiopia did not separate its N4G commitment into programme and policy components in its 2014 reporting, but did so in 2015. The total since 2016 (204) includes all commitments made; this differs from the total made in 2013 because the Naandi Foundation was taken out of the reporting process. CSO: civil society organisation; N4G: Nutrition for Growth.

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Among stakeholders that responded, national governments seem to encounter the greatest challenges with meeting their commitments. Although all responding countries reported meeting their policy commitments, about half of the impact, financial and programmatic commitments with data were found to be off-track (Figure 5.11). A mere 13% of countries reported being on course or reaching their financial commitment targets. These results indicate the need for firstly, well-thought-out, realistic and measurable commitments in the form of a strong national nutrition plan. This must be followed with substantial efforts to translate national nutrition plans into action by increasing commitment and improving accountability systems, support and information sharing in the nutrition community around nutrition policies and programmes that aim to reduce the burden of malnutrition. More details on progress against these commitments by each N4G stakeholder can be found on the Global Nutrition Report website.

It is essential that reporting against these commitments is increased as we approach the deadline for achieving them in 2020. Clearly, the current methods to report against the commitments are not sustaining momentum. Before more commitments are made in 2020, there is an urgent need for better mechanisms to achieve and track accountability to be developed. These need to be pioneered by the nutrition community so they suit their needs and ensure accountability across all actors.

## New commitments and looking ahead to Tokyo 2020

The N4G 2013 commitments were originally made for an eight-year timeframe (2013–2020). Since then, several global agreements such as the Rome Declaration on Nutrition made at the Second International Conference on Nutrition in 2014, the SDGs in 2015 and the UN Decade of Action on Nutrition 2016–2025 have provided opportunities for new and different commitments. The High-Level Meeting on NCDs in September 2018 welcomed 23 heads of government and state and 55 ministers of health, who made 13 new commitments on NCDs.<sup>34</sup>

For example, the Rome Declaration adopted 10 commitments; the International Conference on Nutrition accompanying Framework for Action includes 60 policy recommendations, and the UN Decade of Action on Nutrition provides a concrete timeframe to realise these commitments and ramp up global action on quality nutrition.<sup>35</sup> The Nutrition Decade calls on governments to set and achieve SMART<sup>36</sup> objectives in six areas: sustainable, resilient food systems for healthy diets; aligned health systems providing universal coverage of essential nutrition actions; social protection and nutrition education; trade and investment for improved nutrition; safe and supportive environments for nutrition at all ages; and strengthened governance and accountability.

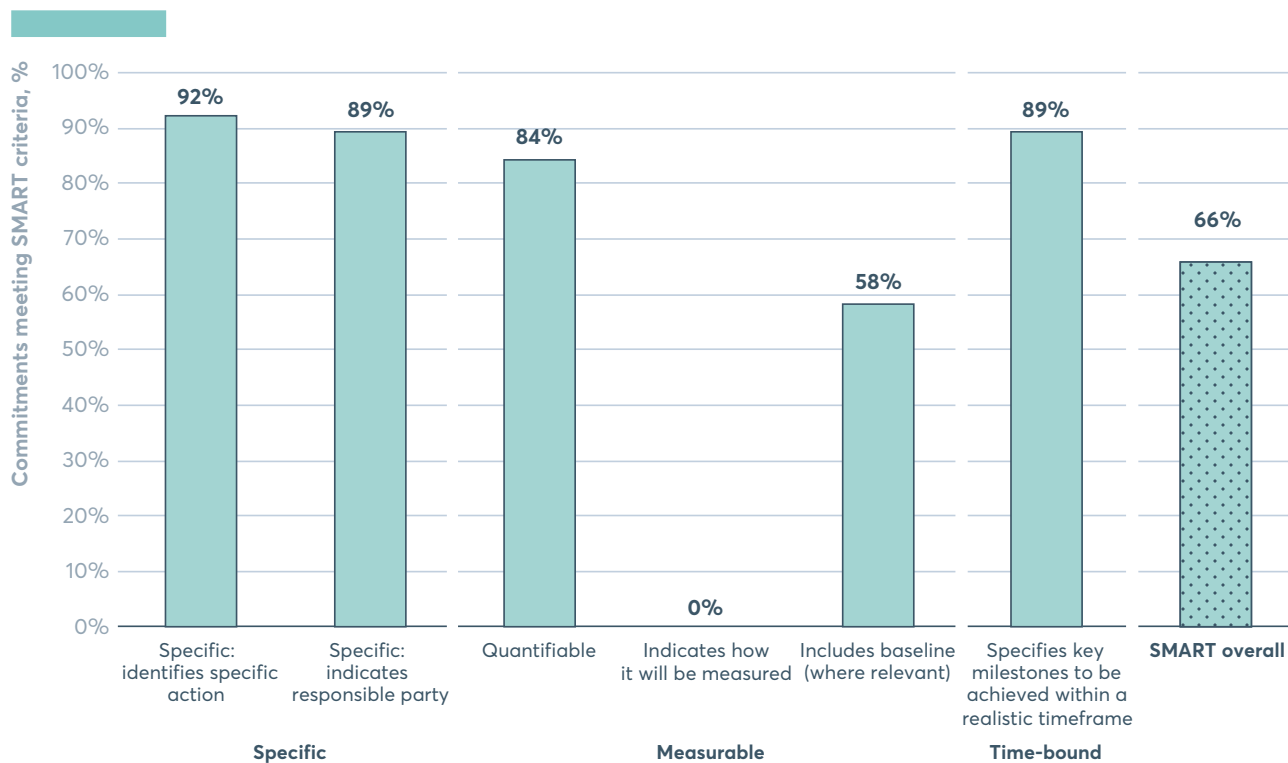
Several countries have made commitments under the Nutrition Decade umbrella.<sup>37</sup> Brazil and Ecuador were the first to commit more domestic funding, followed among others by Côte d'Ivoire, El Salvador, India, Italy, Madagascar, Niger, Nigeria and Zambia. Others, including Panama, Portugal and Thailand, are targeting eliminating trans fats. The 60 SUN countries are making their existing commitments SMART in the fight against malnutrition in all its forms including overweight, obesity and NCDs. Norway is leading a Global Action Network on Sustainable Food from the Oceans and Inland Waters for Food Security and Nutrition, while Chile helms the Action Network for the Americas on Healthy Food Environments and Fiji hosts the Action Network for Ending Childhood Obesity in the Pacific. Brazil is committed to five action networks ranging from salt reduction to sustainable school meals. France and Australia are joining efforts to lead a global action network on nutrition labelling.

The Global Nutrition Report has called for SMART commitments to enable accountability. Using a similar approach to the 2015 *Global Nutrition Report*, the new Milan commitments were assessed on their 'SMART-ness', with a focus on specific, measurable and timebound. Independent reviewers rated two of the three commitments to be SMART. Measurability was the most common missing element, with none of the Milan commitments indicating how progress will be measured (Figure 5.12).

The summit intends to galvanise momentum on improving nutrition and mainstream the relevant policies. It is an important milestone for all stakeholders and people who are malnourished. It has the potential to set a new vision beyond 2020 to tackle malnutrition in all its forms, reinvigorate and motivate action as well as provide hope for those people living with the impacts of malnutrition.

The N4G Summit in Tokyo in 2020 offers the next exciting opportunity for countries, donors and other organisations to pledge new and SMART commitments, as well as accelerate progress on delivering existing commitments. Japan announced it would host the N4G Summit in 2020 in Tokyo to accelerate the nutrition improvement of the people around the world as the basis of their good health and welfare.

**FIGURE 5.12**  
Percentage of 2017 Milan commitments that met SMART criteria and were rated as SMART overall (N=38)



Source: N4G Annex of Commitments.<sup>38</sup>





06

2011. USA.

Visitors to the annual Military Retiree Health Fair at Thomas Moore Clinic have their blood sugar levels checked.

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**Conclusion:  
Critical steps to  
get nutrition  
on track**



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This year's *Global Nutrition Report* shows advances in policy and actions, commitments and financing, and data collection and analysis, while also highlighting the immense challenge of tackling malnutrition in all its forms. The past five years have seen some gradual but welcome progress on nutrition. Through advances in data, we know more than ever about the burden of malnutrition but also which interventions are starting to be effective and where. Yet progress in translating that knowledge into coherent global progress is not as fast as it could be. For example, only 37 countries are on course to meet the global nutrition targets for wasting, 38 for childhood overweight and 24 for childhood stunting. While progress is being made in reducing childhood stunting, the decline is slow across the world, decreasing from 32.6% in 2000 to 22.2% in 2017.

Better data allows us to track where nutrition is improving and where progress is stagnating. More detailed and disaggregated data is transforming our understanding. We now know far more about how malnutrition affects different genders, ages and places. More data has revealed how important is it to invest in adolescent nutrition, particularly for girls and young women, and to consider all life stages when addressing malnutrition. Data on the coexistence of stunting and wasting in young children, and the different forms of malnutrition that exist in situations of protracted crisis, demonstrates the need to strengthen the humanitarian–development nexus.

New data shines a light on dietary intake and the impact diets have on disability and death. It shows how healthy diet policies, such as sugar-sweetened beverage taxes, are starting to work – and that an intensive, comprehensive approach can produce positive change in what infants and adults eat.

Early indications suggest that some governments in low and middle-income countries are increasing domestic spending on nutrition, and the importance of integrating humanitarian and development approaches to address malnutrition during crises is starting to be recognised. Innovative new approaches are being taken to involve young people in research and programmes designed to improve adolescent nutrition.

Donors have exceeded their collective commitment made at the 2013 Nutrition for Growth (N4G) summit of at least US\$19.6 billion by 2020. Yet overall financing – particularly in the form of nutrition-related official development assistance (ODA) – remains inadequate. This is despite new financial and non-financial commitments made at the Milan Global Nutrition Summit in 2017.

While these advances are a positive sign, driving down malnutrition in all its forms is proving stubbornly difficult. While almost half of countries assessed are on course to meet at least one of the global targets on maternal and child nutrition, obesity and non-communicable diseases (NCDs), no country is on course to meet all and only five are on course to meet four. Nearly a quarter of children under five years of age, 150.8 million, are stunted, 50.5 million children under five are wasted and 20 million newborn babies are estimated to be of low birth weight. At the same time, 38.3 million children under the age of five are overweight. At least 124 of 141 countries struggle with overlapping burdens, while millions of children under the age of five suffer with coexisting forms of malnutrition. More than 2 billion adults are overweight or obese. Micronutrient deficiencies affect a significant number of people although data and information on micronutrient status remains weak. Malnutrition and diet-related NCDs are still the leading causes of disability and death globally. It is clear then that while we have seen progress in some areas, it is happening far too slowly and too inconsistently. Levels of malnutrition are still unacceptably high.

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However, ending global malnutrition is within our reach. In fact, we have never been better placed to do it; we have more knowledge and more data than ever before, and stakeholders around the globe have shown the desire to see real progress. But we must act now if we are to prevent a reversal in the progress that has already been made, and this will require some critical steps to tackle the challenges we face.

The findings of the *2018 Global Nutrition Report* indicate that five critical steps are needed if we are to take advantage of our knowledge and deliver concrete action on malnutrition before it is too late. These critical steps are not new ideas – but they are worth repeating year on year as the data continues to show just how important they are if we are to truly make things better.

## Five critical steps needed to speed up progress

1. **Break down silos between malnutrition in all its forms.** Different forms coexist and need integrated approaches. All stakeholders must take a more holistic view of malnutrition.

The data shows that all stakeholders, governments, donors and nutrition and non-nutrition communities need to shift mindsets and embrace the need to address the full range of nutritional problems in local and national contexts if we are to meet the 2030 target of ending malnutrition in all its forms. Every government needs to prioritise and allocate resources based on a robust assessment of the different forms of malnutrition (including stunting, wasting, obesity and micronutrient deficiencies) and how these overlap and coexist. This must also involve systematic data collection by researchers and academia on how many people experience more than one form of malnutrition. Governments and the nutrition community should assess if existing actions targeted at one form of malnutrition could address other relevant forms too. Furthermore, they should identify 'double duty' actions that could reduce the risk of growing overweight and obesity while also

tackling forms of undernutrition. Actions are needed that address the common causes of wasting and stunting among young children. The gap in understanding how micronutrient deficiencies overlap with all other forms of malnutrition must be filled. Siloed working cannot remain the norm – working across nutrition and non-nutrition communities is essential to addressing the inefficient use of scarce resources and unacceptable numbers of people at risk of multiple burdens of malnutrition.

2. **Prioritise and invest in the data needed and capacity to use it.** Designing actions that result in impact is impossible without adequate knowledge of who is affected by malnutrition and why.

Without good data, we're just guessing. We need to scale up the collection and use of more data and through this learn about what is driving change. This will help us identify where action is most needed and what is contributing to progress. In particular, disaggregated data – by geography, socioeconomic status and gender – and increased use of geospatial and disaggregated subnational data, mean we can better understand where the burden of malnutrition lies, how it has changed, why it exists and what this means for reaching nutrition targets. Governments and research, multilateral and academic institutions must increase capacity to carry out data collection and analysis, and improve coverage and frequency of the collection of disaggregated data. They also need to make it easy to use and interpret by policymakers, businesses and NGOs who are making decisions about what to do next. The gap in micronutrient data urgently needs to be filled, and more and better data is needed now to stimulate investment and action to address malnutrition in adolescence. Building on potentially innovative work with adolescents, there is scope to increase the collection and use of qualitative data from people who experience malnutrition to help design more effective action. We need to consolidate progress on reporting on nutrition financing to ensure spending is going to the right places and having the best impact.

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Increasing the quantity and quality of data on financing requires ODA donors to use the new Creditor Reporting System (CRS) code and policy marker for nutrition spending to enable better tracking of funding, and national governments to open up data on domestic budget spending. The gap in data on funding of obesity and NCDs requires immediate action too.

**3. Scale up financing for nutrition – diversify and innovate to build on past progress.**

Ultimately we cannot make progress without adequate funds, and those who control resource flows need to prioritise nutrition.

Funding needs to be focused on ensuring nutrition plans are delivered in practice. This requires scaling up and expanding existing national and international investments to address all forms of malnutrition. Clear targets need to be set for domestic expenditure according to the burden of disease, and governments supported to increase spending against targets to drive progress. Although some aid donors have made nutrition a key focus, ODA funding is nowhere near enough to end malnutrition in all its forms – so investments for nutrition-specific and sensitive programmes need to strengthen. ODA donors also need to ensure humanitarian and development investments are providing continuity of nutrition support in the countries in crisis with some of the highest burdens of malnutrition. Nutrition finance needs to be delivered at scale to meet the challenges. Innovative mechanisms are urgently needed to supplement government finance.

**4. Galvanise action on healthy diets – engage across countries to address this universal problem.** The poor quality of diets among infants, young children, adolescents and adults is unacceptable.

With malnutrition having such a universal and devastating impact, there is a role for all sectors in improving the quality of the world's diets. Governments must step up to implement a comprehensive package of effective policies and programmes to enable and encourage everyone to adopt healthy diets. They must incentivise change

by the private sector while guaranteeing transparency when conflicts of interests arise. The private sector must redouble its efforts to increase the availability of a wide array of foods that contribute to healthy diets and reduce foods high in fats, sugars and salt. Both governments and business must create food systems and environments that deliver affordable, accessible and desirable healthy diets for all. There are opportunities for the lead taken by communities, cities and city networks to be scaled up. International action to ensure shared learning and mutual support is vital to tackle this universal problem.

**5. Make and deliver better commitments to end malnutrition in all its forms – an ambitious, transformative approach will be required to meet global nutrition targets.** Concerted efforts to tackle malnutrition will only continue if signatories consistently deliver against SMART (specific, measurable, achievable, relevant and time-bound) commitments.

The road to the N4G 2020 Summit in Tokyo, Japan, offers a chance to respond to the challenges and opportunities presented by the data in this year's *Global Nutrition Report*. New commitments to improve the state of malnutrition have been made through the UN Decade of Action on Nutrition of 2016–2025, the Milan Global Nutrition Summit in 2017, and the 2018 UN High-Level Meeting on NCDs. The N4G 2020 offers the next opportune moment for renewed commitments to expedite action to end malnutrition. However, lessons must be learned from the N4G commitment process. With only two years to go to reach N4G commitments, reporting rates have declined alarmingly across all sectors – down from 90% in 2014 to just 45% in 2018. This trend threatens accountability. Furthermore, too many N4G commitments still lack targets for measuring progress – we need stakeholders to be empowered and accountable through specific, measurable, agreed on, realistic and time-bound targets. The commitments need to be relevant to where the burdens lie and based on the evidence we have about what forms of malnutrition need to be addressed, where, when and for whom.

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# APPENDIX 1: ASSESSING COUNTRY PROGRESS AGAINST GLOBAL TARGETS – A NOTE ON METHODOLOGY

The 2018 *Global Nutrition Report* tracks country progress against nine of the global nutrition targets highlighted in Chapter 1 using the latest available data.

## Maternal, infant and young child nutrition targets

Annual national prevalence and trends in maternal and child malnutrition are reported in the annual joint child malnutrition estimates produced by the United Nations Children's Fund (UNICEF), World Health Organization (WHO) and World Bank.<sup>1</sup> These prevalence estimates are used alongside information about rates of change to assess whether a country is 'on course' or 'off course' to meet each maternal, infant and young child nutrition target when the global target is applied at the national level, assuming the same relative reduction in all countries.<sup>2</sup> The rules to determine which countries are on or off course are established with extensive technical input from WHO and UNICEF.

The 2017 and 2018 *Global Nutrition Reports* employ the monitoring rules and classification of progress towards achieving the six nutrition targets proposed by the WHO/UNICEF Technical Expert Advisory Group on Nutrition Monitoring (TEAM).<sup>3</sup> The methodology and rules to track maternal, infant and young child nutrition targets were revised in 2017 by WHO and UNICEF to improve the quality of nutrition target monitoring.

The assessment exercise aims to differentiate between countries following different trajectories as they progress, so it is important that assessment methodologies reflect and help achieve this objective.

At the country level, average relative percent change in prevalence of an indicator is calculated using a metric called average annual rate of reduction (AARR). There are two types of AARR: a required AARR ensures that a country achieves the global target, and a current AARR reflects recent trends in prevalence. The required AARR, current AARR and current prevalence are combined to create rules for various on/off track categories for each indicator. The rules devised in 2017 are stated in Table A1.

It is important to note that since the goal for exclusive breastfeeding is to *increase* rates rather than *decrease* as for all other indicators. The rate of change must be positive. However, to harmonise assessment criteria, the AARR is still used to track exclusively breastfed but demonstrates a decrease in the proportion of children who are not exclusively breastfed, thus representing an increase in the proportion who are exclusively breastfed (since not exclusively breastfed=100-exclusively breastfed).

**TABLE A1**

Methodology to track country progress of nutrition targets

INDICATOR	ON TRACK	OFF TRACK – SOME PROGRESS	OFF TRACK – NO PROGRESS OR WORSENING
Stunting	AARR $\geq$ required AARR* or level $<5\%$	AARR $<$ required AARR* but $\geq 0.5$	AARR $<$ required AARR* and $<0.5$
Anaemia	AARR $\geq 5.2^{**}$ or level $<5\%$	AARR $<5.2$ but $\geq 0.5$	AARR $<0.5$
Low birth weight	AARR $\geq 2.74^*$ or level $<5\%$	AARR $<2.74$ but $\geq 0.5$	AARR $<0.5$
Not exclusively breastfed	AARR $\geq 2.74^{**}$ or level $<30\%$	AARR $<2.74$ but $\geq 0.8$	AARR $<0.8$
Wasting	Level $<5\%$	Level $\geq 5\%$ but AARR $\geq 2.0$	Level $\geq 5\%$ and AARR $<2.0$
	ON TRACK	OFF TRACK – SOME PROGRESS	
Overweight	AARR $\geq -1.5$	AARR $< -1.5$	

**Source:** WHO and UNICEF for the WHO-UNICEF Technical Expert Advisory Group on Nutrition Monitoring. *Methodology for monitoring progress towards the global nutrition targets for 2025: Technical report*. Geneva: WHO, UNICEF: New York, 2017.

**Notes:** \*Required AARR based on the stunting prevalence change corresponding to a 40% reduction in number of stunted children between 2012 and 2025, considering the estimated population growth estimated (based on UN Population Prospects). \*\*Required AARR based on a 50% reduction in prevalence of anaemia in women of reproductive age between 2012 and 2025. \*Required AARR based on a 30% reduction in prevalence of low birth weight between 2012 and 2025. \*\*Required AARR based on a 30% reduction in not exclusively breastfed rate between 2012 and 2025.

## Data requirements and key considerations

- Stunting, wasting, overweight and exclusive breastfeeding: countries require at least two nationally representative survey data points since 2008 to assess recent progress, and one of these must have been since 2012 to reflect post-baseline status.
- If countries do not have any post-baseline status (2012) data, an assessment is reserved until new survey data becomes available.
- To provide reliable trend estimates and aid effective progress monitoring, nationally representative survey data must have been collected every three years.
- For anaemia, modelled time-series estimates are available from 1990 to 2016, 189 countries are currently classified. However, not all countries have post-baseline (2012) survey estimates, reflecting poor availability of survey data. The results of the classification and data availability should be interpreted with caution.
- National estimates for low birth weight are being produced by an inter-agency/institution group of experts. New estimates are forthcoming.

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## Nutrition-related NCD targets

The WHO Global Monitoring Framework for the Prevention and Control of Non-Communicable Diseases (NCDs) was adopted by the World Health Assembly in 2013 to effectively implement the NCD Global Action Plan and monitor progress in NCD prevention and control at the global level. The framework includes nine voluntary targets tracked by 25 indicators of NCD outcomes and risk factors. The overarching goal is to reduce premature mortality due to NCDs by 25% by 2025.

The 2016 *Global Nutrition Report* tracked target 7, 'halt the rise in diabetes and obesity', the NCD target most directly linked to the importance of food and nutrition. The 2017 *Global Nutrition Report* went on to track this target using new estimates produced by the NCD Risk Factor Collaboration for WHO, with an altered assessment method to match the new estimation and projection methods.

Two additional targets on reducing salt intake at the population level and containing the prevalence of high blood pressure (hypertension) have been included in the Global Nutrition Report. However, these targets require further prevalence estimates or refined assessment methods before progress in achieving them can be assessed. Limitations and temporary data substitutes are discussed in the following section.

## Population salt intake

Target 4, to achieve a '30% relative reduction in mean population intake of salt (sodium chloride)', is monitored by age-standardised mean population intake of salt in grams per day in people aged 18 and over. There is no available global database on trends and projections in mean salt consumption. However, data published in large epidemiological modelling studies on estimates of salt intake<sup>4</sup> sheds light on how much more or less countries consume in relation to the WHO-recommended intake of 2g/day.<sup>5</sup> Global average salt intake has gone from 4g in 2010 to 5.6g/day in 2017. This has now been disaggregated by sex, and men and women consume on average 5.8g and 5.4g per day respectively.

Intake of salt plays a major role in hypertension and related illness such as stroke and cardiovascular disease,<sup>6</sup> although hypertension is also strongly determined by non-dietary factors such as genetics, ageing, smoking, stress and physical inactivity. An intake of greater than 2g/day of salt (5g or one teaspoon of table salt) contributes to raised blood pressure. Reducing salt intake across populations is also a 'best buy' for targeting NCDs – a cost-effective, high-impact intervention that can be feasibly implemented even in resource-constrained settings.<sup>7</sup>

## Raised blood pressure

Target 6 to achieve a '25% relative reduction or contain the prevalence of raised blood pressure' is monitored by age-standardised prevalence of raised blood pressure (systolic and/or diastolic blood pressure  $\geq 140/90$  mmHg) in adults aged 18 years and over. Data for prevalence of raised blood pressure in 2015 came from modelled estimates produced by the NCD Risk Factor Collaboration Group.<sup>8</sup>

## Diabetes and obesity in adults

Target 7 of the NCD Action Plan, halt the rise in diabetes and obesity, lists three prevalence indicators: adult overweight and obesity, adolescent obesity and adult diabetes.

The 2018 *Global Nutrition Report* reports on age-standardised prevalence of overweight and obesity (BMI  $\geq 25$ ), obesity (BMI  $\geq 30$ ) and diabetes (fasting glucose  $\geq 7.0$  mmol/L or medication for raised blood glucose or with a history of diagnosis of diabetes) in men and women. It tracks country progress on obesity (BMI  $\geq 30$ ) and diabetes using data produced by the NCD Risk Factor Collaboration.<sup>9</sup> These modelled estimates are used in the absence of globally comparable survey-based data for all countries on prevalence of NCD risk factors.

Obesity and diabetes monitoring in adults is based on the probability each target will be reached by 2025. If a country has a probability of at least 0.50, they are defined as 'on course' and if the probability is less than 0.50 they are defined as 'off course'.

# APPENDIX 2: COUNTRIES ON TRACK FOR GLOBAL NUTRITION TARGETS

The 2018 *Global Nutrition Report* tracks country progress against the following targets: child overweight, child wasting, child stunting, exclusive breastfeeding, diabetes among women, diabetes among men, anaemia in women of reproductive age, obesity among women and obesity among men.

Our assessment includes the best available data for 194 countries from various sources (see Appendix 1 for details of the methods and sources used to assess progress towards the different targets).

Table A2 details which countries are on track for none, one, two, three and four of the nine targets.

**TABLE A2**  
Country progress against global targets

ON TRACK FOR 0 TARGETS	ON TRACK FOR 1 TARGET	ON TRACK FOR 2 TARGETS	ON TRACK FOR 3 TARGETS	ON TRACK FOR 4 TARGETS
100	44	35	10	5
Afghanistan	Andorra	Australia	Chile	Armenia
Albania	Angola	Bangladesh	Côte d'Ivoire	Belize
Algeria	Austria	Belgium	El Salvador	Kenya
Antigua and Barbuda	Azerbaijan	Benin	Ghana	Sao Tome and Principe
Argentina	Brunei Darussalam	Bolivia	Kazakhstan	Swaziland
Bahamas	Cambodia	Burkina Faso	Kuwait	
Bahrain	Canada	Burundi	Lesotho	
Barbados	Chad	Cameroon	Mexico	
Belarus	Congo	China	Palestine	
Bhutan	Democratic People's Republic of Korea	Democratic Republic of the Congo	Paraguay	
Bosnia and Herzegovina	Dominican Republic	Denmark		
Botswana	Ecuador	Egypt		
Brazil	France	Finland		
Bulgaria	Gambia	Guatemala		
Cabo Verde	Germany	Guinea-Bissau		
Central African Republic	Guinea	Guyana		
Colombia	Indonesia	Iceland		
Comoros	Israel	Kyrgyzstan		
Costa Rica	Italy	Malawi		
Croatia	Jamaica	Mongolia		
Cuba	Japan	Myanmar		
Cyprus	Liberia	Nauru		
Czech Republic	Luxembourg	Peru		
Djibouti	Malaysia	Rwanda		
Dominica	Mali	Serbia		
Equatorial Guinea	Malta	Sierra Leone		
Eritrea	Mauritania	Singapore		
Estonia	Montenegro	South Africa		



TABLE A2 CONTINUED

ON TRACK FOR 0 TARGETS	ON TRACK FOR 1 TARGET	ON TRACK FOR 2 TARGETS	ON TRACK FOR 3 TARGETS	ON TRACK FOR 4 TARGETS
100	44	35	10	5
Ethiopia	Nepal	Sweden		
Fiji	Netherlands	Tanzania		
Gabon	Nigeria	Thailand		
Georgia	Norway	Turkey		
Greece	Portugal	Uganda		
Grenada	Republic of Korea	Vanuatu		
Haiti	Samoa	Zimbabwe		
Honduras	Senegal			
Hungary	Solomon Islands			
India	Spain			
Iran (Islamic Republic of)	Sri Lanka			
Iraq	Sudan			
Ireland	Switzerland			
Jordan	Timor-Leste			
Kiribati	Turkmenistan			
Lao People's Democratic Republic	Zambia			
Latvia				
Lebanon				
Libya				
Liechtenstein				
Lithuania				
Madagascar				
Maldives				
Marshall Islands				
Mauritius				
Micronesia (Federated States of)				
Monaco				
Morocco				
Mozambique				
Namibia				
New Zealand				
Nicaragua				
Niger				
Oman				
Pakistan				
Palau				
Panama				
Papua New Guinea				
Philippines				
Poland				
Qatar				
Republic of Moldova				
Romania				
Russian Federation				
Saint Kitts and Nevis				
Saint Lucia				

TABLE A2 CONTINUED

ON TRACK FOR 0 TARGETS	ON TRACK FOR 1 TARGET	ON TRACK FOR 2 TARGETS	ON TRACK FOR 3 TARGETS	ON TRACK FOR 4 TARGETS
100	44	35	10	5
Saint Vincent and the Grenadines				
San Marino				
Saudi Arabia				
Seychelles				
Slovakia				
Slovenia				
Somalia				
South Sudan				
Suriname				
Syria				
Tajikistan				
The former Yugoslav Republic of Macedonia				
Togo				
Tonga				
Trinidad and Tobago				
Tunisia				
Tuvalu				
UK				
Ukraine				
United Arab Emirates				
Uruguay				
US				
Uzbekistan				
Venezuela (Bolivarian Republic of)				
Viet Nam				
Yemen				

**Source:** UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, UNICEF global databases: Infant and Young Child Feeding, NCD Risk Factor Collaboration, WHO Global Health Observatory.

**Notes:** Assessment based on 194 countries. The methodologies for tracking differ between targets. Data on the adult indicators are based on modelled estimates. See Appendix 1 for details of the methods and sources used to assess progress towards global nutrition targets.

# APPENDIX 3: COUNTRIES WITH SIGNIFICANT MULTIPLE FORMS OF MALNUTRITION

A country was considered 'burdened' by a malnutrition indicator depending on whether the national prevalence was greater than a certain cut-off. Stunting was measured in children aged under 5 and its burden limit was 20% or more. Anaemia among women of reproductive age (15–49 years) had the same 20% or more cut-off,

and for overweight women (18+) this was 35% or more. Countries with sufficient data (data available across all three indicators - 141 in total) were analysed over the three malnutrition indicators. Table A3 details which countries suffer from one, two or three burdens.

**TABLE A3**  
Countries with one, two or three forms of malnutrition

OVERWEIGHT ONLY	ANAEMIA ONLY	STUNTING ONLY	OVERWEIGHT AND ANAEMIA	OVERWEIGHT AND STUNTING	ANAEMIA AND STUNTING	TRIPLE BURDEN
11	5	1	54	3	26	41
Argentina	China	Philippines	Algeria	Ecuador	Afghanistan	Albania
Australia	Japan		Armenia	Guatemala	Bangladesh	Angola
Brunei Darussalam	Republic of Korea		Azerbaijan	Honduras	Bhutan	Benin
Chile	Singapore		Barbados		Burkina Faso	Botswana
Costa Rica	Sri Lanka		Belarus		Burundi	Cameroon
Germany			Belize		Cambodia	Comoros
Mexico			Bolivia		Central African Republic	Congo
Mongolia			Bosnia and Herzegovina		Chad	Côte d'Ivoire
Nicaragua			Brazil		Democratic People's Republic of Korea	Djibouti
Peru			Bulgaria		Democratic Republic of the Congo	Egypt
US			Colombia		Eritrea	Equatorial Guinea
			Cuba		Ethiopia	Gambia
			Czechia		India	Guinea
			Dominican Republic		Indonesia	Guinea-Bissau
			El Salvador		Lao People's Democratic Republic	Haiti
			Fiji		Madagascar	Iraq
			Gabon		Malawi	Kenya
			Georgia		Mozambique	Lesotho
			Ghana		Myanmar	Liberia

TABLE A3 CONTINUED

OVERWEIGHT ONLY	ANAEMIA ONLY	STUNTING ONLY	OVERWEIGHT AND ANAEMIA	OVERWEIGHT AND STUNTING	ANAEMIA AND STUNTING	TRIPLE BURDEN
11	5	1	54	3	26	41
			Guyana		Nepal	Libya
			Iran (Islamic Republic of)		Niger	Malaysia
			Jamaica		Pakistan	Maldives
			Jordan		Rwanda	Mali
			Kazakhstan		Timor-Leste	Mauritania
			Kuwait		Uganda	Namibia
			Kyrgyzstan		Viet Nam	Nigeria
			Lebanon			Papua New Guinea
			Montenegro			Sierra Leone
			Morocco			Solomon Islands
			Oman			Somalia
			Panama			South Africa
			Paraguay			Sudan
			Republic of Moldova			Swaziland
			Romania			Syria
			Saint Lucia			Tajikistan
			Samoa			Togo
			Sao Tome and Principe			Tanzania
			Saudi Arabia			Vanuatu
			Senegal			Yemen
			Serbia			Zambia
			Seychelles			Zimbabwe
			Palestine			
			Suriname			
			Thailand			
			The former Yugoslav Republic of Macedonia			
			Tonga			
			Trinidad and Tobago			
			Tunisia			
			Turkey			
			Turkmenistan			
			Ukraine			
			Uruguay			
			Uzbekistan			
			Venezuela			

Source: UNICEF/WHO/World Bank Group: Joint child malnutrition estimates, NCD Risk Factor Collaboration, WHO Global Health Observatory.

Notes: Stunting in children aged under 5 years  $\geq 20\%$ ; anaemia in women of reproductive age  $\geq 20\%$ ; overweight (body mass index  $\geq 25$ ) in adult women aged  $\geq 18$  years  $\geq 35\%$ . Based on data for 141 countries.

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# NOTES

## Chapter 1

- 1 Black R.E., Victora C.G. and Walker S.P. et al, 2013. Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382:9890, 2013, pp. 427–51.
- 2 DALY is the summary measure used to give an indication of overall burden of disease. One DALY represents the loss of the equivalent of one year of full health. Using DALYs, the burden of diseases that cause premature death but little disability (such as drowning or measles) can be compared with that of diseases that do not cause death but do cause disability (such as cataract causing blindness).  
Source: [www.who.int/gho/mortality\\_burden\\_disease/daly\\_rates/text/en](http://www.who.int/gho/mortality_burden_disease/daly_rates/text/en)
- 3 GBD 2015 Causes of Death Collaborators. Health Effects of Overweight and Obesity in 195 Countries over 25 Years. *The New England Journal of Medicine*, 377:1, 2017, pp. 13-27.
- 4 Global Panel, 2016. The Cost of Malnutrition: Why Policy Action is Urgent. Available at: <https://glopan.org/sites/default/files/pictures/CostOfMalnutrition.pdf>
- 5 Global Panel on Agriculture and Food Systems for Nutrition. Cost of malnutrition, <https://glopan.org/cost-of-malnutrition> (accessed 1 October 2018).
- 6 GBD 2016 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 390(10100), 2017, pp. 1345–422.
- 7 UNICEF for undernutrition: UNICEF, 2012. Nutrition glossary. Available at: [www.unicef.org/tokyo/jp/Nutrition\\_Glossary.pdf](http://www.unicef.org/tokyo/jp/Nutrition_Glossary.pdf); WHO for overweight: WHO, 2018. Obesity and overweight. Available at: [www.who.int/news-room/fact-sheets/detail/obesity-and-overweight](http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight); WHO for thinness and child overweight: WHO, 2010. Nutrition Landscape Information System (NLIS): Country profile indicators Interpretation Guide. Available at: [www.who.int/nutrition/nlis\\_interpretation\\_guide.pdf](http://www.who.int/nutrition/nlis_interpretation_guide.pdf); WHO for anaemia: WHO. Anaemia. Available at: [www.who.int/topics/anaemia/en](http://www.who.int/topics/anaemia/en)
- 8 The text of the SDGs specifies that reaching target 2.2 will involve achieving by 2025 the internationally agreed targets on stunting and wasting in children under 5 years of age, while also addressing the nutritional needs of adolescent girls, pregnant and lactating women, and older people.
- 9 It should be noted that while the overall emphasis is broader, target 2.2 includes indicators only on childhood stunting, wasting and overweight. Adult overweight and obesity is not tracked in the SDGs, leaving this indicator, which is skyrocketing all over the world, a voluntary target to work towards.
- 10 Annan K. Data can help to end malnutrition across Africa. *Nature*, 555:7, 2018. Available at: [www.nature.com/articles/d41586-018-02386-3](http://www.nature.com/articles/d41586-018-02386-3)

## Chapter 2

- 1 Global Nutrition Report, [www.globalnutritionreport.org](http://www.globalnutritionreport.org)
- 2 Children aged 0–59 months who are less than -2 standard deviations (SD) from median height-for-age of the WHO Child Growth Standards – a marker for chronic malnutrition.
- 3 Children aged 0–59 months who are less than -2 SD from median weight-for-height of the WHO Child Growth Standards – a marker for acute malnutrition.

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- 4 Live births in each population and over a given period that weigh less than 2,500 grams.
  - 5 Children aged 0–59 months who are more than two SD from median weight-for-height of the WHO Child Growth Standards – a marker for chronic malnutrition.
  - 6 While in percentage there is a fall, it is possible that, with increase in population, the number may rise in absolute terms or stay the same.
  - 7 Briend A., Khara T. and Dolan C. Wasting and stunting – similarities and differences: policy and programmatic implications. *Food and nutrition bulletin*, 36(sup. 1), 2015, pp. S15–S23.
  - 8 Emergency Nutrition Network (ENN), 2018. Time to overcome the separation. Available at: [www.enonline.net/attachments/2870/WaSt-policy-brief-June-2018.pdf](http://www.enonline.net/attachments/2870/WaSt-policy-brief-June-2018.pdf)
  - 9 Olofin I., McDonald C.M., Ezzati M. et al. Associations of suboptimal growth with all-cause and cause-specific mortality in children under five years: a pooled analysis of ten prospective studies. *PLoS One*, 8:5, 2013, e64636.
  - 10 McDonald C.M., Olofin I., Flaxman S. et al. Nutrition Impact Model Study. The effect of multiple anthropometric deficits on child mortality: meta-analysis of individual data in 10 prospective studies from developing countries. *Am J Clin Nutr*, 98:4, 2013, 896–901. doi:10.3945/ajcn.112.047639; WHO, 2016. WHA Global Nutrition Targets 2025: Wasting Policy Brief. Available at: [www.who.int/nutrition/topics/globaltargets\\_wasting\\_policybrief.pdf](http://www.who.int/nutrition/topics/globaltargets_wasting_policybrief.pdf)
  - 11 The changing nature of wasting statistics means we are unable to present time trends for wasting.
  - 12 Anaemia in pregnant women is defined as a haemoglobin level of <100g/L. For women who are not pregnant, anaemia is defined as a level of 120g/L.
  - 13 Anaemia is used as a proxy indicator for iron deficiency. There are limitations to this because iron deficiency is only one of many causes of anaemia. Kassebaum N.J., Jasrasaria R., Naghavi M. et al. A systematic analysis of global anaemia burden from 1990 to 2010. *Blood*, 123:5, 2014, pp. 615–624.
  - 14 WHO. Global Health Observatory Data Repository, <http://apps.who.int/gho/data/?theme=main> (accessed 11 October 2018).
  - 15 NCD Risk Factor Collaboration, <http://ncdrisc.org> (accessed 11 October 2018).
  - 16 NCD Risk Factor Collaboration (see note 15).
  - 17 Adults aged ≥18 years with diabetes are defined as having fasting glucose ≥7.0 mmol/L, on medication for raised blood glucose, or with a history of diagnosis of diabetes. NCD Risk Factor Collaboration (see note 15).
  - 18 NCD Risk Factor Collaboration (see note 15).
  - 19 WHO, 2018. Noncommunicable diseases country profiles 2018. Available at: [www.who.int/nmh/publications/ncd-profiles-2018/en](http://www.who.int/nmh/publications/ncd-profiles-2018/en)
  - 20 Development Initiatives, 2017. Global Nutrition Report 2017: Nourishing the SDGs. Available at: [www.globalnutritionreport.org](http://www.globalnutritionreport.org)
  - 21 Salt data for 2010 baseline is from Mozaffarian D., Fahimi S., Singh G.M. et al. Global Sodium Consumption and Death from Cardiovascular Causes. *New England Journal of Medicine*, 371:7, 2014, pp. 624–634.
  - 22 Women Deliver, 2018. Improve Maternal and Newborn Health and Nutrition (factsheet). Available at: [http://womensdeliver.org/wp-content/uploads/2016/09/Deliver\\_For\\_Good\\_Brief\\_13\\_04.18-MNH.pdf](http://womensdeliver.org/wp-content/uploads/2016/09/Deliver_For_Good_Brief_13_04.18-MNH.pdf)
  - 23 Underweight in adolescents and adults is defined as BMI <18.5 in women aged 20–49, or BMI of less than -2 SD in girls aged 15–19.
  - 24 'Daily average income per person' refers to GNI per capita threshold data, as published by the World Bank and used for country income classifications, divided by the number of days in a year. Available at: <https://blogs.worldbank.org/opendata/new-country-classifications-income-level-2018-2019>

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- 25 Based on unweighted mean rates in 79 countries.
- 26 Based on unweighted mean rates in 80 countries.
- 27 Based on unweighted mean rates in 79 countries.
- 28 Based on unweighted mean rates in 80 countries.
- 29 Based on unweighted mean rates in 83 countries.
- 30 Under-5 stunting, under-5 wasting, under-5 overweight, anaemia, exclusive breastfeeding, adult diabetes (men and women), adult obesity (men and women)
- 31 Undernourishment refers to the proportion of the population whose dietary energy consumption is less than a pre-determined threshold. People with undernourishment are referred to as undernourished.
- 32 Kharas H., McArthur J.W. and Rasmussen K., 2018. How many people will the world leave behind? Assessing current trajectories on the Sustainable Development Goals. Brookings Global Economy and Development Working Paper No. 123. Available at: [www.brookings.edu/research/how-many-people-will-the-world-leave-behind](http://www.brookings.edu/research/how-many-people-will-the-world-leave-behind)
- 33 Kharas H., McArthur J.W. and Rasmussen K., 2018 (see note 32).
- 34 IFPRI, 2016. Global Nutrition Report 2016: From Promise to Impact: Ending Malnutrition by 2030. International Food Policy Research Institute. Available at: [globalnutritionreport.org/the-report-2016](http://globalnutritionreport.org/the-report-2016)
- 35 WHO, 2018. Global Nutrition Policy Review 2016-2017: Country progress in creating enabling policy environments for promoting healthy diets and nutrition. Available at: [www.who.int/nutrition/topics/global-nutrition-policy-review-2016.pdf](http://www.who.int/nutrition/topics/global-nutrition-policy-review-2016.pdf)
- 36 Stunting, anaemia, low birth weight, child overweight, exclusive breastfeeding, wasting, overweight adults and adolescents. It also has targets for blood pressure and diabetes. It does not have a target for salt.
- 37 World Bank, 2017. Catalyzing progress toward the global nutrition targets: three potential financing packages. Available at: [https://openknowledge.worldbank.org/bitstream/handle/10986/26069/3\\_intervention\\_pack\\_WEB.pdf?sequence=11](https://openknowledge.worldbank.org/bitstream/handle/10986/26069/3_intervention_pack_WEB.pdf?sequence=11)
- 38 The thresholds of whether a country is burdened or not are based on the following prevalence: stunting in children aged under 5 years  $\geq 20\%$ ; anaemia in women of reproductive age  $\geq 20\%$ ; overweight (BMI  $\geq 25$ ) in adult women aged  $\geq 18$  years  $\geq 35\%$ .
- 39 Fernald L.C. and Neufeld L.M. Overweight with concurrent stunting in very young children from rural Mexico: prevalence and associated factors. *Eur J Clin Nutr*, 61, 2007, pp. 623–32; Garrett J.L. and Ruel M.T. Stunted child-overweight mother pairs: prevalence and association with economic development and urbanization. *Food Nutr Bull*, 26, 2005, pp. 209–21; Doak C., Adair L., Bentley M. et al. The underweight/overweight household: an exploration of household sociodemographic and dietary factors in China. *Public Health Nutr*, 5, 2002, pp. 215–21; Jehn M. and Brewis A. Paradoxical malnutrition in mother-child pairs: untangling the phenomenon of over- and under-nutrition in underdeveloped economies. *Econ Hum Biol*, 7, 2009, pp. 28–35; Dieffenbach S. and Stein A.D. Stunted Child/Overweight Mother Pairs Represent a Statistical Artifact, Not a Distinct Entity. *J Nutr*, 142, 2012, pp. 771–3; Tzioumis E. and Adair L.S. Childhood dual burden of under- and overnutrition in low- and middle-income countries: a critical review. *Food and Nutrition Bulletin*, 35:2, 2014, pp. 230–43.
- 40 Trowbridge F.L., Marks J.S., Lopez de Romana G. et al. Body composition of Peruvian children with short stature and high weight-for-height. II. Implications for the interpretation for weight-for-height as an indicator of nutritional status. *Am J Clin Nutr*, 46, 1987, pp. 411–8; Martorell R., Mendoza F.S., Castillo R.O. et al. Short and plump physique of Mexican-American children. *Am J Phys Anthropol*, 73, 1987, pp. 475–87; Yajnik C.S., Fall C.H.D. and Coyaji K.J. et al. Neonatal anthropometry: the thin-fat Indian baby. The Pune Maternal Nutrition Study. *Int J Obes Relat Metab Disord*, 27, 2003, pp. 173–180.
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## Chapter 4

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## Chapter 5

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- 25 The analysis tracks investment in a package of nutrition-specific interventions defined by the global Investment Framework for Nutrition including nutrition counselling, micronutrient supplementation, breastfeeding promotion, fortification of staples, diet-related NCD prevention, treatment of acute malnutrition and above-service delivery investments in support of these programmes (including coordination, governance and advocacy for nutrition, capacity building for nutrition, and research and data).
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- 29 According to modelling estimates of the potential impact of a US\$1 billion nutrition portfolio by Mathematica Policy Research and Avenir Health.

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- 30 \* Canada used this methodology: 1) for nutrition-specific disbursements, it used Creditor Reporting System (CRS) purpose code 12240-basic nutrition disbursements as reported to the OECD DAC; and 2) for nutrition-sensitive, it used a pre-identified subset of CRS codes linked to nutrition-sensitive outcomes to identify potential nutrition-sensitive projects, manually assessed each referred project according to the SUN criteria, and applied the associated proportional allocation to nutrition-sensitive CRS codes of validated projects. For the aggregate figure, it applied an annual average market exchange rate for 2016 to report in US\$.
- \*\* At the N4G Summit, the EU committed €3.5 billion for nutrition interventions for 2014–2020. The EU used this methodology: 1) for nutrition-specific disbursements, it identified all disbursements reported to the DAC linked to nutrition-specific commitments made so far and applied the SUN methodology of 100% of the disbursement amount; and 2) for nutrition-sensitive, it identified all disbursements reported to the DAC linked to nutrition-sensitive commitments made so far and applied the SUN methodology of the proportional allocation of 100% or 25% of the disbursement amount depending on whether the related commitment had been categorised as nutrition-sensitive dominant or nutrition-sensitive partial. A commitment corresponds to a legally binding financial agreement between the EU and a partner. The disbursement figures reported by the EU are the total amounts of commitments contracted so far. Further disbursements of funds are made according to a schedule of disbursements outlined in individual contracts, progress in implementation and rate of use of the funds by the partner.
- \*\*\* France reported US\$4.7 million as nutrition-specific disbursements in 2015. The only difference between what France reported through the OECD DAC system and to the Global Nutrition Report is the SUN contribution, which was counted as a nutrition-specific disbursement for our reporting.
- \*\*\*\* UK figures represent nutrition disbursements from the Department for International Development only. 2016 figure includes US\$45 million of matched funding.
- + The US government's nutrition-sensitive component is calculated differently from that of other countries. For nutrition specific, the US government uses the OECD DAC CRS purpose code 12240, which includes activities implemented through the McGovern-Dole International Food for Education and Child Nutrition Program. It also includes the portion of 'emergency food aid' (CRS code 72040) and 'development food aid' (CRS code 52010) under the Title II Food for Peace Program identified as nutrition (programme element 3.1.9) in the US government's Foreign Assistance Framework. This programme element aims to reduce chronic malnutrition among children under 5 years of age. To achieve this goal, development partners use a preventive approach during the first 1,000 days – from pregnancy until the child is two. Programmes use a synergistic package of nutrition-specific and sensitive interventions that help decrease chronic and acute malnutrition by improving preventive and curative health services, including growth monitoring and promotion, WASH, immunisation, deworming, reproductive health and family planning, malaria prevention and treatment.
- ++ The World Bank does not submit disbursements to the Global Nutrition Report and reports only on commitments through the N4G process. Historic US data has been revised in line with updated donor reporting and to maintain consistent methodology across all years.
- +++ While Australia made nutrition investments in 2015, these have not been calculated or reported for publication in the Global Nutrition Report, to which Australia reports biennially.
- ++++ German figures represent nutrition disbursements from the Federal Ministry for Economic Cooperation and Development and the Federal Ministry of Food and Agriculture.
- § Switzerland does not use the Basic Nutrition Code and thus reports 0 for nutrition-specific spending.
- 31 Authored by Katie Dain of the NCD Alliance.
- 32 UN Development Programme and Overseas Development Institute, 2012. Climate Public Expenditure and Institutional Review (CPEIR): a methodological note. Available at: [www.odi.org/publications/6191-climate-public-expenditure-and-institutional-review-cpeir-methodological-note](http://www.odi.org/publications/6191-climate-public-expenditure-and-institutional-review-cpeir-methodological-note)
- 33 Nutrition for Growth. Nutrition for Growth Commitments: Executive Summary. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/207271/nutrition-for-growth-commitments.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/207271/nutrition-for-growth-commitments.pdf)
- 34 UN General Assembly, 2018. Political declaration of the third high-level meeting of the General Assembly on the prevention and control of non-communicable diseases. Available at: [www.un.org/ga/search/view\\_doc.asp?symbol=A%2F73%2FL.2&Submit=Search&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A%2F73%2FL.2&Submit=Search&Lang=E)
- 35 Contributed by Trudy Wijnhoven and Lina Mahy from FAO and WHO respectively.
- 36 SMART means specific, measurable, achievable, relevant and timebound. Guidance on SMART commitments is available at: <http://globalnutritionreport.org/2016/05/25/smart-commitment-guidance> (accessed 10 October 2018).



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- 37 WHO. Global database on the Implementation of Nutrition Action (GINA). Commitments by country, <https://extranet.who.int/nutrition/gina/en/commitments/summary> (accessed 10 October 2018).
- 38 N4G Annex of Commitments, 2017. Available at: <https://nutritionforgrowth.org/wp-content/uploads/2017/11/Annex-of-Commitments.pdf>

## Appendix 1

- 1 UNICEF/WHO/World Bank Group: Joint child malnutrition estimates.
- 2 For a detailed and thorough discussion of the methodology for monitoring progress towards the global maternal, infant and young child nutrition targets for 2025, see WHO and UNICEF, for the WHO/UNICEF Technical Expert Advisory Group on Nutrition Monitoring. Methodology for monitoring progress towards the global nutrition targets for 2025: Technical report. Geneva: WHO, UNICEF: New York, 2017.
- 3 WHO and UNICEF, 2017 (see note 1).
- 4 Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, forthcoming in 2019.
- 5 WHO, 2012. Guideline: Sodium intake for adults and children. Available at: [www.who.int/nutrition/publications/guidelines/sodium\\_intake\\_printversion.pdf](http://www.who.int/nutrition/publications/guidelines/sodium_intake_printversion.pdf)
- 6 WHO, 2014. Global Status Report on noncommunicable diseases 2014. Available at: [http://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854\\_eng.pdf?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854_eng.pdf?sequence=1)
- 7 WHO, 2014 (see note 6).
- 8 NCD Risk Factor Collaboration. Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4.4 million participants. *The Lancet*, 387:10027, 2016, pp. 1513–30. Available at: [www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)31919-5/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31919-5/fulltext)
- 9 NCD Risk Factor Collaboration, <http://ncdrisc.org/index.html> (accessed 26 October 2018).

# ABBREVIATIONS

<b>BMI</b>	Body mass index	<b>OCHA</b>	UN Office for the Coordination of Humanitarian Affairs
<b>CRS</b>	Creditor Reporting System (DAC)	<b>ODA</b>	Official development assistance
<b>DAC</b>	Development Assistance Committee	<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>DALY</b>	Disability-adjusted life year	<b>R4D</b>	Results for Development
<b>DHS</b>	Demographic and Health Surveys	<b>SDG</b>	Sustainable Development Goal
<b>DRC</b>	Democratic Republic of the Congo	<b>SMART</b>	Specific, measurable, achievable, relevant and timely
<b>EU</b>	European Union	<b>SUN</b>	Scaling Up Nutrition
<b>FAO</b>	Food and Agriculture Organization of the UN	<b>TMREL</b>	Theoretical minimum-risk exposure level
<b>GBD</b>	Global Burden of Disease	<b>UK</b>	United Kingdom
<b>GDP</b>	Gross domestic product	<b>UNICEF</b>	United Nations Children's Fund
<b>GIFT</b>	Global Individual Food Consumption Data Tool (WHO)	<b>UNRWA</b>	UN Relief and Works Agency for Palestine Refugees in the Near East
<b>GINA</b>	Global database on the Implementation of Nutrition Action	<b>US</b>	United States
<b>IDA</b>	International Development Association	<b>USAID</b>	US Agency for International Development
<b>IFAD</b>	International Fund for Agricultural Development	<b>WASH</b>	Water, sanitation and hygiene
<b>IFPRI</b>	International Food Policy Research Institute	<b>WHO</b>	World Health Organization
<b>IYCF</b>	Infant and young child feeding	<b>WFP</b>	World Food Programme
<b>MICS</b>	Multiple Indicator Cluster Survey		
<b>N4G</b>	Nutrition for Growth		
<b>NCD</b>	Non-communicable disease		
<b>NCD-RisC</b>	NCD Risk Factor Collaboration		
<b>NGO</b>	Non-governmental organisation		

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# GLOSSARY

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<b>Anaemia</b>	Anaemia is a medical condition in which a person's red blood cell (or more precisely, haemoglobin) count is less than normal. Anaemia is a global issue faced by people in both low and high-income countries, and is a particular concern for adolescent girls and women of reproductive age.
<b>Development assistance and official development assistance (ODA)</b>	'Development assistance' (commonly known as aid) refers here to the resources transferred from development agencies (including private philanthropic organisations) to low and middle-income countries, and is therefore wider than the 'official development assistance/ODA' reported to the OECD DAC.
<b>Diet-related Non-communicable disease (NCD) targets</b>	Diet-related NCD targets are three of nine NCD targets adopted at the World Health Assembly in 2013, to be attained by 2025. For example, Target 4: Achieve a 30% relative reduction in mean population intake of salt.
<b>Dietary diversity</b>	Dietary diversity is a way of measuring food consumption and household access to a variety of foods. It is also used as a proxy measure for the nutrient adequacy of individual people's diets.
<b>Double duty actions</b>	'Double duty' is a coined term used to describe actions that can tackle more than one form of malnutrition at once. For example, effective promotion of breastfeeding can avert stunting, but also reduce the chances of NCDs later in life.
<b>Double burdens</b>	Double burdens are terms applied to countries or groups of people to describe the situation of facing more than one serious nutritional problem at once. They are also described as overlapping and coexisting burdens of the different forms of malnutrition, and include, for example, anaemia and overweight.
<b>Food security and insecurity</b>	Food security means people having secure access to enough safe and nutritious food for normal growth and development and to lead an active and healthy life. Food insecurity means the opposite. Food insecurity may be at the level of the household or across a geographical area.
<b>Global nutrition targets</b>	Global nutrition targets here refer to the World Health Assembly targets on maternal infant and young child nutrition, and diet-related NCDs.
<b>Geospatial data</b>	Geospatial data is data associated with a particular geographical location such as weather forecasts, satnavs and geotagged social media posts. Location is one way of disaggregating data alongside others such as wealth and gender. Using disaggregated geospatial data can help us understand where malnourished people are.

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<b>Integrated</b>	Integrated is a term coined by the SDGs meaning 'by everyone'. In the SDG context, it means that all the goals should be achieved in an indivisible way by everyone – by people making connections across all sectors and all parts of society.
<b>Malnutrition</b>	Malnutrition means having too little or too much to eat. In more technical terms, it's a condition caused by having not enough, or having too many, macronutrients and micronutrients. Here we discuss types of malnutrition such as micronutrient malnutrition, child undernutrition and adult nutritional problems associated with excess eating. Malnutrition is universal: at least one in three people globally experience malnutrition in some form.
<b>Maternal infant and young child nutrition targets</b>	The maternal infant and young child nutrition targets are six global targets adopted at the World Health Assembly in 2012, for example, Target 1: Achieve a 40% reduction in the number of children under 5 who are stunted.
<b>Micronutrient</b>	Micronutrients are commonly known as vitamins and minerals. They include minerals such as include iron, calcium, sodium and iodine and vitamins such as vitamin A, B, C and D. Deficiency in micronutrients is caused by a lack of intake, absorption or use of one or more vitamins or minerals and leads to suboptimal nutritional status. Taking in too many of some micronutrients may also lead to adverse effects.
<b>Non-communicable diseases (NCDs) and diet-related NCDs</b>	NCDs (also known as chronic diseases) are diseases that last a long time and progress slowly. There are four main types of NCDs: cardiovascular disease, diabetes, cancer and chronic lung disease. We refer to NCDs related to diet and nutrition as 'diet-related NCDs'. These include cardiovascular disease, diabetes and cancer.
<b>Nutrition sensitive</b>	Nutrition-sensitive interventions are funded interventions into sectors other than nutrition that address the underlying causes of nutrition, thereby indirectly addressing nutrition. Sectors include agriculture, health, social protection, early child development, education and water and sanitation. The causes they address include poverty, food insecurity, scarcity of access to adequate care resources, and health, water and sanitation services.
<b>Nutrition specific</b>	Nutrition-specific interventions are those which have a direct impact on the immediate causes of undernutrition (inadequate food intake, poor feeding practices and high burden of disease) such as breastfeeding, complimentary feeding, micronutrient supplementation and home fortification, disease management, treatment of acute malnutrition and nutrition in emergencies.
<b>Obesity and overweight</b>	A person is overweight or obese if they have excessive fat that may affect their health. Being obese means having more excessive fat than being overweight. The World Health Organization defines overweight in adults as a body mass index (BMI) greater than or equal to 25, and obesity as a BMI greater than or equal to 30. Overweight in children is defined as weight-for-length or height z-score more than 2 standard deviations above the median of the WHO Child Growth Standards.

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<b>Policy marker</b>	Policy markers are qualitative statistical tools used by aid donors to record activities that target particular policy objectives such as gender, and since July 2018, nutrition.
<b>Purpose code</b>	Purpose codes are used by donors reporting to the OECD DAC to capture where spending is going to a higher degree of accuracy than simply sector. The 'basic nutrition' purpose code captures some nutrition-specific spending in the health sector. In 2017 an improved nutrition purpose code was adopted.
<b>Risk factor</b>	A risk factor is an attribute or characteristic of a person or something they are exposed to that increases their chance of developing a disease or injury.
<b>Stunting/stunted</b>	Children who do not have enough nourishment to grow properly are 'stunted'. Stunting is defined as length or height-for-age z-score more than 2 standard deviations below the median of the WHO Child Growth Standards. It is becoming increasingly clear that children who are stunted are more likely to become wasted.
<b>Undernourished</b>	Being undernourished means not being able to get enough food to meet the daily minimum dietary energy requirements, over a year.
<b>Undernutrition</b>	Undernutrition is a lack of proper nutrition, caused by not having enough food, not eating enough food containing substances necessary for growth and health, and other direct and indirect causes.
<b>Underweight</b>	Also known as moderate to severe thinness, a person is underweight when their weight (or BMI) is unhealthily low.
<b>Wasting/wasted</b>	Children who are too thin because of undernutrition are 'wasted'. Wasting is defined as weight-for-length or height z-score more than 2 standard deviations below the median of the WHO Child Growth Standards. It is becoming increasingly clear that children who are wasted are more likely to become stunted.

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# SUPPLEMENTARY ONLINE MATERIALS

The following supporting materials are available on the Global Nutrition Report website at:

[globalnutritionreport.org](http://globalnutritionreport.org)

## Nutrition Profiles – Data available for over 90 indicators

- Global nutrition profile
- Regional and sub-regional nutrition profiles (for 6 regions and 21 sub-regions)
- Nutrition country profiles (for 194 countries)

## Progress on all commitments made – Nutrition for Growth Tracking Tables

- Country progress
- Business progress
- Civil society organisation progress
- Donor nonfinancial progress
- Other organisations progress
- UN progress

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